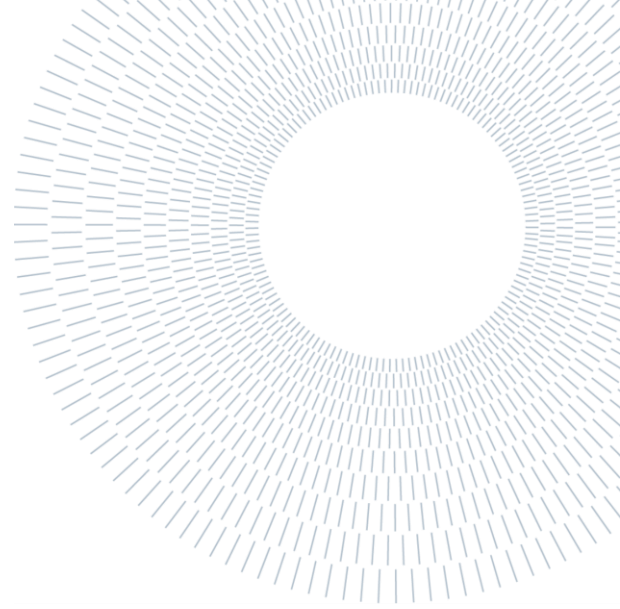




**POLITECNICO
MILANO 1863**

**SCUOLA DI INGEGNERIA INDUSTRIALE
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EXECUTIVE SUMMARY OF THE THESIS

Understanding heterogeneity in business-NPO collaborations: An empirical analysis of Italian firms

TESI MAGISTRALE IN MANAGEMENT ENGINEERING – INGEGNERIA GESTIONALE

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1. Introduction: motivations and objectives

The objective of this dissertation is to investigate collaborations between business enterprises and non-profit organizations (NPOs), or business-NPO collaborations. In particular, the aim is to make sense of a very heterogeneous phenomenon, which is having a surge in association with the increasing prominence of the sustainable development discourse. Business-NPO collaborations are characterized by blurred theoretical definitions and a variety of empirical manifestations regarding their objectives, structure and organization. In greater detail, the dissertation aims at developing a taxonomy of business-NPO collaborations leveraging on the distribution of these collaborative arrangements in the sector of Italian listed firms.

The topic has multiple implications in terms of relevance. It has a considerable role in firms' Corporate Social Responsibility (CSR) strategies and in their tension towards transformation of current businesses. As it provides managers with an instrument that sheds light on a variegated

landscape, the study of the topic may open possibilities to maximise beneficial outcomes for all the involved sides. In parallel, academics can benefit from results obtained through statistical analysis, while this topic has been so far mainly investigated through case studies or purely conceptual works. Finally, a deeper understanding of business-NPO collaboration can have substantial impacts in advancing sustainable development, a topic of huge interest for policymakers.

2. Topic relevance and dissertation boundaries

One of the most pervasive societal trends is an increasing orientation to sustainability in media, general public, business world and policy (Lindgreen & Swaen, 2010). Such concept became vital as grand societal challenges or “wicked problems” (Waddock et al., 2015), such as climate change, migrations, or biodiversity preservation, are becoming more and more urgent (van der Byl et al., 2020; Lin & Darnall, 2015). The necessity to harmonize economic growth with social and environmental sustainability is reflected in the definition of sustainable and inclusive

development, as a development path combining economic growth, social well-being and environment protection (United Nations, 2015). Business firms, as a key economic actor, are expected to have a central role in this development. The set of the “actions and decisions taken by companies’ management oriented to take care both of the firm’s own interests (to multiply profit) and protect and improve the well-being of people” (Davis & Blomstrom, 1968) constitutes Corporate Social Responsibility (CSR). Within this domain, business-NPO collaborations are therefore one of the managerial levers to pursue the transition towards sustainable development. Furthermore, business-NPO collaboration is increasingly central to business strategy and moves beyond philanthropic engagements towards more intensive forms with impacts on business strategy and operations, transforming the businesses themselves (Austin, 2000; Husted, 2003; Dahan et al., 2010; Kolk & Lenfant, 2012; Lin & Darnall, 2015).

To proceed with the empirical work, it was first necessary to clarify the conceptual and empirical boundaries of the work and of the relevant actors involved in the collaborations.

In particular, NPOs belong to the Third Sector, which is often vaguely defined and whose boundaries tend to be blurred.

NPOs are conceptualized at the intersection between the Third Sector and civil society, as formal organisations characterised by a non-distribution constraint and the private and voluntary pursuing of the public interest. Furthermore, only trust-type and collective-type NPOs (Weisbrod, 2009, p.10) are considered for this work oriented to sustainability, excluding club-type NPOs which serve mainly the interests of their own members (e.g., sport or recreation circles, business associations).

Business-NPO collaborations in scope for the present work are therefore the interactions arising from for-profit firms and NPOs as defined above.

3. Literature review

The literature review was divided in two distinct but related parts. Firstly, the extant taxonomies of business-NPO collaboration were reviewed, to understand the main types present in literature, as well as main pitfalls and gaps in current conceptualizations. Then, the review was extended

to contributions related more in general to business-NPO collaboration. These reviews allowed to highlight the main results obtained and approaches followed in literature, as well as to conceptualize relevant dimensions of collaboration.

The review of taxonomies highlights the pivotal role of Austin’s contribution (2000). The Collaboration Continuum (CC) is a framework aiming to categorize business-NPO collaborations according to three stages: philanthropic, transactional and integrative. Increasing levels of dimensions such as the frequency of the interaction, the magnitude of resources involved and associated managerial complexity mark the difference among such typologies.

Taxonomies proposals by other scholars (Kolk & Lenfant, 2012; Selsky & Parker, 2005) instead have a more static look at those types, in particular on the philanthropic and the transactional types. They proposed more detailed classifications, based, for example, on the geographical scope of the activities (“micro”, “meso” and “macro” collaborations) or on the temporal one (“transactional” vs “developmental”). Others (Seitanidi & Ryan, 2007; Wymer & Samu, 2003) instead focus on the forms assumed by collaborations (e.g. economic donations, sponsorships). Finally, other scholars developed their proposals by leveraging on different characteristic parameters, such as the intensity (Rondinelli & London, 2003) or the motives (Lin & Darnall, 2015) of collaboration.

The main insights emerging from such review phase were the following concepts:

- The reviewed studies share a tension towards a higher level of detail in the proposition of business-NPO collaborations’ types
- Different taxonomies arise from different constructs considered as relevant by scholars.

The second phase of the literature review was dedicated to the analysis and comparison of such different constructs.

The most recurrent ones in literature resulted to be the scope of activities and the managerial complexity (Austin, 2000). The first aspect is then declined in different ways, such as the reference sustainability objective (Selsky & Parker, 2005; Rondinelli & London, 2003; Lin & Darnall, 2015),

the geographical scope (Selsky & Parker, 2005; Jamali & Keshishian, 2009), the time duration (Dahan et al., 2010; den Hond et al., 2015) and the relatedness to business activities (Husted, 2003). This last is also connected to the strategic value of the collaboration, which is further captured by other dimensions of governing complexity such as the directionality of resource flows (Austin, 2000; Lin & Darnall, 2015) and operational engagements (Selsky & Parker, 2005; Rondinelli & London, 2003). The type and directionality of resources exchanges and the proximity of collaborations' activities to business characteristic ones are the factors contributing to attribute collaborations a value that goes beyond the compliance with societal pressure.

Managerial complexity is monitored including considerations on the structure of the collaboration. In particular, collaborations may have a different number and type of partners, ranging from dyads with just one firm and one NPO, to more complex structure with multiple firms (and/or NPOs), arriving to multi-stakeholder collaborations involving also public agencies or other parts of the third sector or civil society (Clarke & MacDonald, 2019).

In Table 1 the set of variables associated to important constructs is presented, as strongly linked to literature review' results.

Two of the most important constructs in this sense are the resource flows related to the collaboration, and the activation of operational processes. They were exploited to develop the resource-process matrix (RPM), which is represented in Figure 1.

Construct	Conceptual variables
Scope of the activities	Sustainability objective
	Time duration
	Geographical boundaries
	Relatedness to business activities
Managerial complexity	Governance structure
Operational engagement	Process activation
Resource transfer	Resource flows

Table 1. Variables and their linkage with relevant constructs emerged in the literature review.

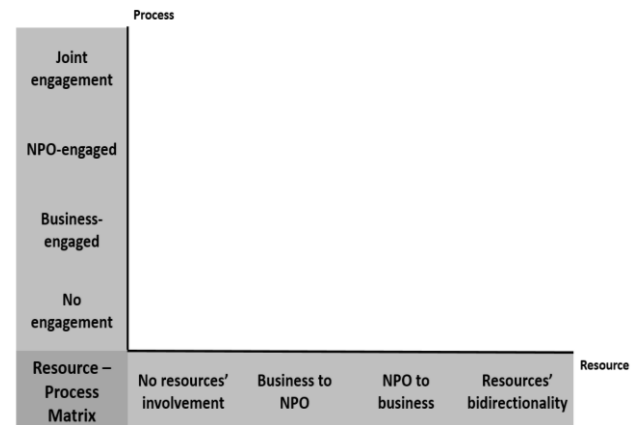


Figure 1. Conceptual RPM matrix

4. Research gaps and research questions

The main identified research gaps are three:

1. Few papers develop taxonomies, and extant contributions are either too general, lacking detail on relevant constructs, or too specific
2. Few taxonomies deepen the meaning and instances of most intensive collaboration types which move beyond philanthropy
3. There is a lack of quantitative, empirical-based evidence supporting such works.

The first two gaps are conceptual. In general, the review highlights a trade-off between completeness of the analysis and the detail included in it. Some contributions (Austin, 2000; Selsky & Parker, 2005; Lin & Darnall, 2015) are very general and conceptualize the heterogeneity of collaboration in few macro-types. Kolk & Lenfant, (2012) focus instead on a subset of collaborations to address them in detail. Nevertheless, the most conceptually relevant types of collaborations, i.e. the intensive ones, are analysed to lesser detail than philanthropic or transactional counterparts. The third gap concerns the lack of general results, because most studies included in the review are conceptual studies or literature reviews and the very large majority of empirical papers are case studies. As a result, business-NPO collaboration taxonomies are mostly proposed based on the observation of few cases or deductively based on theoretical dimensions. Thus, a clear lack of empirically-tested taxonomies based on large samples is identified.

Those two subsets of gaps are strongly related. Indeed, an empirical approach based on larger samples rather than on case would not only overcome a methodological gap, but also allow to achieve a satisfactory fit in the trade-off between the width and the depth of the analysis.

Based on the presented research gaps and declared objectives, the following research questions (RQs) were formulated. The first research question address the relevant dimensions through which the collaborations can be distinguished.

RQ1. Which are the most relevant constructs in characterising business-NPO collaborations?

The answer to such question, provided by means of the literature review and of statistical techniques, allows to propose an empirical data-driven taxonomy for business-NPO collaborations oriented to sustainable development. The associated research question is:

RQ2. Which are the empirically observable typologies of business-NPO collaboration oriented to sustainable development?

The thesis also makes a contribution by building, and describing the construction, of a database of collaborations with NPOs made by a sample of Italian listed firms. Other than the methodological contribution and the support to the answering of RQ1, the analysis of such database allows to answer to an additional RQ.

RQ3. What is the distribution of business-NPO collaborations in the empirical context of Italian listed firms?

5. Methodology

5.1. Database construction

To gather information for the database, a sample of firms was defined. In particular, the choice fell upon firms listed on FTSE MIB and STAR indexes at Milan Stock Exchange. Indeed, listed firms have to comply with a certain degree of information disclosure and have to manage relationships with a vast array of investors and stakeholders. Furthermore, firms operating in heavily regulated sectors (utilities, financial firms) were excluded in order to capture only those efforts which are result

of a voluntary choice of firms towards sustainability. This resulted in the initial sample of 81 firms.

The main information source were non-financial disclosures (DNF) and sustainability reports released by firms in the 2017-2019 period. Whenever such disclosures were not available, online media websites were used as an alternative source. In the end, 437 collaborations, involving 347 different NPOs, were included in the database.

The database is made up of three section. In the first section (Firms), demographic (headquarter location, sector, number of employees) and financial data (main size and profitability indicators) are collected for sample firms through the Orbis database. Furthermore, some variables capture the sustainability-orientation of the firm (how many and which SDGs are singled out in the sustainability report). The second section (NPOs) reports demographic information for NPOs, i.e. their size (number of volunteers and / or employees), headquarter, sector (coded according to the International Classification of Non Profit Organizations), their affiliation to an international NGO. This information is drawn through websites and reports of NPOs. Finally, the third section (Collaborations) describes collaborations according to the conceptual variables defined through the literature review.

In Table 2 the composition of the database is summarised.

Database section	Database variables	Sources
Firms	Demographic data	Orbis
	Financial data	Orbis
	Sustainability orientation	DNFs / press
NPOs	Demographic data	Disclosures / websites
	Affiliation	Disclosures / websites
Collaborations	Structure	DNFs / press
	Sustainability objective	DNFs / press
	Geographical scope	DNFs / press
	Temporal scope	DNFs / press
	Centrality	
	Activation of operational processes	DNFs / press
	Resource transfer	DNFs / press

Table 2. Database structure.

5.2. Data analysis methodology

To answer RQ3, a series of descriptive statistics were computed on the sample collaborations. Data were analysed by computing simple descriptive statistics, such as average, minimum, maximum and shares of subsamples, leveraging on different dimensions monitored to identify possible trends and correlations. When possible, those are verified by means of statistical hypothesis tests, such as t-tests.

To answer to RQ2, a clustering analysis based on the K-modes algorithm (Huang, 1998; Franco & Haase, 2015) was performed on the Collaborations database. Variables were screened by an iterative process, in which different solutions were evaluated, taking into account both the statistical quality (measured through the silhouette coefficient) and the practical meaningfulness of generated clusters. For what concern the latter aspect, to give consistence to each group, a reference collaboration (centroid) is identified, as only made of those dimensions assuming extreme values, i.e., very close to 0 or 1 on average.

The variables resulted to be associated to the best clustering results are shown in Table 3.

Clustering variable	Type of variable	Summary definition
<i>Multi_Stake</i>	Binary	Structure different from the dyad
<i>Env</i>	Binary	Collaboration targeting environmental issues
<i>Soc</i>	Binary	Collaboration targeting social issues
<i>Central</i>	Binary	Overlap between collaboration and firm's activities
<i>Multi_Year</i>	Binary	More than one year of duration
<i>Italy</i>	Binary	Collaboration activities within Italian boundaries
<i>Res_NPO</i>	Binary	Resource transfer from NPO to firm
<i>Process_BUS</i>	Binary	Operational process activation by firm
<i>Process_NPO</i>	Binary	Operational process activation by NPO

Table 3. Selected clustering variables.

As for the main research question, descending clustering resulted in 8 clusters of empirically observed business-NPO collaborations. They were

the objects of the centroids' analysis. Employed as control technique, it allows to identify the dimensions that distinguish the most each cluster. The presence of differences with other clusters and their research significance can be so verified.

Two main results have been obtained:

1. One cluster was dropped, as its differentiation from other two was thought to be not so conceptually significant. Its observations were divided among those two groups
2. The attribution of values to variables linked to some observations was manually revised. In fact, by comparing the centroid collaboration with the textual descriptions reported in the database, it was possible to uniform similar cases, improving the quality of the clustering itself.

6. Results

6.1. Description of clusters

The resulting business-NPO collaborations' clusters are 7. Those results are interpreted according to the RPM framework, and discussed at the light of the reviewed literature.

In fact, looking at the only 5 combinations empirically verified to be in place in terms of the variables associated to resource transfers and operational processes activations, (*Res_BUS*; *Res_NPO*; *Process_BUS*; *Process_NPO*), identified clusters results to be distributed along the principal diagonal of such matrix. In other words, a correlation between the dimensions is identified, confirming the complexity of the collaborations themselves. Such progression in terms of operational processes activation and mutuality of resource transfers is described.

The distribution of collaborations within the matrix resulted to have strong commonalities with the Collaboration Continuum theorised by Austin. Such matrix areas were so labelled as "Philanthropic", "Transactional" and "Integrative".

The distribution of the 7 clusters within such matrix areas is as following:

- Philanthropic area resulted composed of three clusters
- Transactional area resulted composed of two clusters
- Integrative area resulted composed of two clusters.

They are represented in Fig. 2.

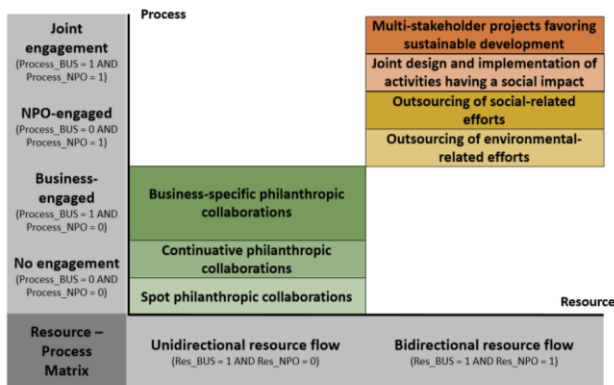


Figure 2. Business-NPO collaborations' clusters within RPM framework.

Two clusters are populated by traditional philanthropic business-NPO collaboration. They consist of tangible and financial resources transferred unilaterally from firms to NPOs and without activation of operational processes. Indeed, these clusters are distinguished one from each other mainly according to their duration. The first cluster includes spot philanthropic donations, while the second one includes long-term donations.

The third philanthropic cluster differs first in terms of RPM positioning. Activation of operational processes by the business side is present. Donated resources are in-kind and these collaborations tend to be related to business activities (centrality). They are donations of firms' core products to NPOs.

The activation of operational processes and the presence of long-term orientation weakens the common claim that philanthropic collaborations are characterized by low intensity. Moreover, task specificity, i.e., the precise link of collaboration activities to a single project or resource, is often singled out in literature (Rondinelli & London, 2003; Clarke & MacDonald, 2019; Dahan et al., 2010) as the factor moving a collaboration out of the philanthropic realm or not. Here, it is shown

how it can be a relevant element also in philanthropic collaborations.

As for transactional clusters, they are characterised by an advancement along the principal diagonal of the RPM matrix. Namely, it is caused by bidirectionality of resource flow and the operational processes activation by the NPO side. The typical collaboration functioning is the following: the business transfers resources to the NPO, getting something in return connected to the NPO characteristic activity. The activation of operational processes from that side is so required. Such collaborations are distinguished in two clusters by their sustainability objective, either social or environmental. Also the forms in which those collaborations practically takes place changes. While environmental-oriented cluster is dominated by the provision of certifications by involved NPOs, social-oriented ones are more variegated and tend to be much less related to business activities.

The last two clusters constitute the RPM area at the end of the matrix diagonal, i.e., integrative stage. Embedded collaborations are characterised by bidirectionality in the resource flow and process activation from both sides; in this sense, they are the most complex interactions observable between firms and NPOs. With respect to transactional collaborations, they present a much larger incidence of intangible resources, which are typically more valuable and rare (Clarke & MacDonald, 2019).

Also these collaborations are distinguished according to their sustainability objective. Furthermore, the environmental cluster results to feature predominantly multi-stakeholder collaborations, to a greater degree than in social collaborations.

Clusters and their characteristics are summed up in Table 4.

Matrix area	Size	Description
Philanthropic	141	Spot philanthropic collaborations
	99	Continuative philanthropic collaborations
	38	Business-specific philanthropic collaborations
Transactional	21	Outsourcing of environmental-related efforts
	65	Outsourcing of social-related efforts
Integrative	48	Joint design and implementation of activities having a social impact
	25	Multi-stakeholder projects favouring sustainable development

Table 4. Proposed taxonomy of business-NPO collaborations.

6.2. Descriptive statistics

Fifty-six sample firms out of 81 resulted to collaborate. Such share (69.1%) is very close to the only other comparable study found in literature, the one by den Hond et al. (2015), referred to sample of firms based in Netherlands (70.1%). Collaborating firms distinguish themselves as statistically larger in terms of employees, presenting better economic measures in terms of total production value and assets, and a higher attention to transparency towards investors and to SDGs. Considerable room for improvement stays in the coverage of different types of collaborations. Only 1 firms undertakes all the 7 clusters of collaborations; just 23 (41.07%) have at least one undertaken collaboration for each matrix area (philanthropic, transactional, integrative). Analysing the 437 collaborations over the reference period, it is possible to highlight a high dynamism and growth in the phenomenon, captured by two main indicators:

- The rate of collaborations ceasing between two consecutive years
- Despite this, a considerable yearly growth of business-NPO collaborations.

Results are summarised in Table 5.

Measure	2017-2018	2018-2019
Interrupted collaborations	79.64%	88.3%
Overall growth rate	+31.79%	+6.23%
<i>Philanthropic growth rate</i>	+25.2%	-5.03%
<i>Transactional growth rate</i>	+37.84%	+23.53%
<i>Integrative growth rate</i>	+51.61%	+25.53%

Table 5. Time evolution of business-NPO collaborations scenario in Italy.

As witnessed by the reference Table, such growth is led by more complex collaborations. However, philanthropic collaborations maintain the largest share in the overall sample, accounting for the 63.2% of the total; transactional and integrative follows with 20.5% and 16.3%.

Statistical analyses are also performed around the clustering dimensions. Multi-stakeholder collaborations are a minority (16%), strongly concentrated (51.39%) into two integrative clusters. Environmental-oriented ones have a minor share too (16%); however, they are growing in numbers at a higher pace than social-oriented ones (59% vs 42.6%). In terms of geographical scope, collaborations whose activities are based in Italy have a leading role both in terms of numerosity (61% of the total) and of contribution to overall growth. In fact, while Italy-based observations grew monotonically over years – registering an overall increment of 33% -, the other ones remained pretty much stable.

Also the NPOs' sample is characterised. Main results in this sense regard:

- The *sector of activity*. Most recurrent sectors resulted to be health (ICNPO 3) and social services (ICNPO 4)
- The *size* of the involved NPOs. The large majority of the organisations resulted to be above the Italian average (ISTAT, 2019) in terms of volunteers (87.7%) and employees (81.7%).

7. Conclusions

7.1 Managerial, academic and policy implications

The results have several implications. The proposed taxonomy of business-NPO collaborations is a practical instrument to guide committed managers in the establishment of business-NPO collaborations and in general to revisit the relationship of businesses with Third Sector organizations not anymore only as recipients of philanthropy but also as partners for strategic collaborations.

The academic world is challenged by the gaps identified by the present work and in particular by the lack of generalizable evidence. A possible methodological direction to bridge such gaps is indicated in the employment of statistical and quantitative techniques on large datasets, to accumulate and compare more general findings.

Finally, policymakers should recognize that the public sector is struggling to solve many problems of public interest (Defourny & Nyssens, 2010), and that cross-sector collaboration is a potentially effective arrangement to help tackling such issues. The desirable role of policy-makers in this sense is not only to set the best conditions possible to make such business-NPO collaborations thrive, but also to participate in them, fostering the formation of multi-stakeholder collaborations.

7.2. Limitations and suggestions for future research

The present work has the ambition to help in the progression towards a better understanding of business strategies towards sustainable development. However, it suffers from some limitations. Indeed, results are limited to a single country and to listed firms. Further studies may extend the research by considering different countries or non-listed or smaller firms. Further limitations regard the methodology employed. Indeed, the focus on sustainability reports lead to map collaborations that firms want to communicate, potentially biasing the analysis. Furthermore, other methodologies, such as surveys or case studies, may be considered to enrich the work providing insights on non-observable characteristics of the studied collaborations.

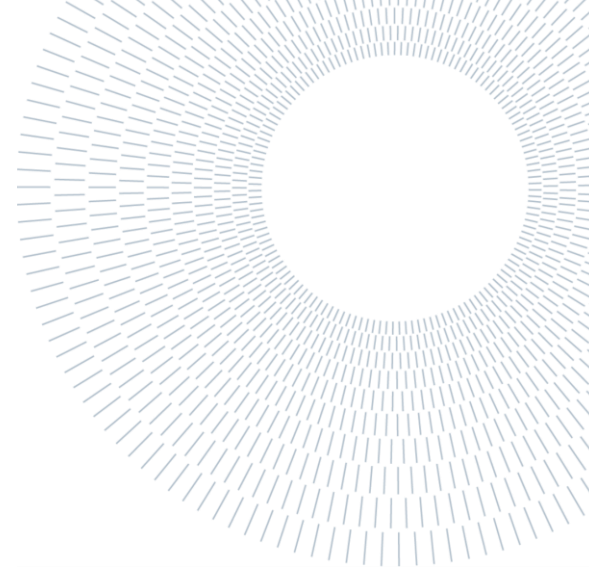
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Understanding heterogeneity in business-NPO collaborations: An empirical analysis of Italian firms

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Academic Year:	2021-22

Abstract (in English)

The transformation of business operations and strategies towards more sustainable paradigm is a recognised priority for managers and policymakers at all levels, and an interesting topic for academic researchers. Collaboration between firms and non profit organisations (NPOs) represents one of the means to achieve such transformation.

Nevertheless, it is a phenomenon characterized by blurred theoretical definitions and a variety of empirical manifestations. The literature review highlighted how scholars have not yet reached an optimal balance between completeness and depth in their classifications of business-NPO collaborations. At the same time, empirically-based and quantitative studies on this subject are too few to derive general findings. The main objective of this work is therefore to develop a taxonomy of business-NPO collaborations based on literature insights and data collected from a large empirical sample.

The empirical sample of collaborations is defined starting from 81 Italian business enterprises listed in the Italian Stock Exchange, and comprises 437 collaborations made with 347 NPOs. Collaborations are identified employing sustainability reports of firms, triangulated with media news, as sources. Collaborations in the database are classified according to a series of constructs which resulted to be the most relevant in the literature. After computing and discussing a series of descriptive statistics for firm-, NPO- and collaboration-level variables, a clustering analysis is run to derive possible classifications of empirically observed collaborations and to develop the final taxonomy.

Results show that business-NPO collaborations are a growing phenomenon, both in terms of absolute numbers and complexity. The empirical analysis has distinguished 7 clusters of collaborations. They differ significantly in terms of sustainability objectives, time and geographical scope, relevance for business activities, involved actors, resource exchanges and activation of operational processes. The resulting clusters fit into the 3 high-level classes of agreements suggested by literature (philanthropic, transactional, integrative collaborations). Statistics on the distribution of firms across clusters are also computed. Finally, the managerial, policy and academic implications of the thesis are presented. In particular, the thesis offers a practical instrument that may guide managers in the establishment of business-NPO collaborations contributing to sustainable transformation of the business itself. On the other hand, governmental organizations may exploit a more in-depth knowledge of the phenomenon to properly assess the potential of collaborations, and to enhance their value through own direct participation, or dedicated policy actions.

Abstract (in italiano)

La trasformazione dei processi operativi e delle strategie delle aziende verso un paradigma più sostenibile rappresenta ormai una priorità riconosciuta per manager e in generale per i decisori, oltre che un argomento saliente per quanto riguarda la ricerca in ambito accademico. Le collaborazioni tra aziende e organizzazioni non profit (NPOs) costituisce uno degli strumenti attraverso cui ottenere tale trasformazione.

Ad ogni modo, il fenomeno analizzato è caratterizzato da definizioni teoriche sfumate e da una considerevole varietà di manifestazioni empiriche. La revisione della letteratura ha evidenziato come gli sforzi di diversi ricercatori non abbiano ancora raggiunto un equilibrio ottimale tra completezza e dettaglio nell'analisi di tale variabilità, così come la mancanza di studi quantitativi ed empirici, attraverso i quali ottenere risultati maggiormente estendibili. L'obiettivo principale di questa dissertazione è dunque quello di proporre una tassonomia di collaborazioni tra aziende e NPOs che sia basata sull'analisi di dati, da raccogliersi a partire da un considerevole campione empirico.

Il suddetto campione è composto da 81 aziende italiane quotate alla Borsa Italiana; 437 collaborazioni, strette con 347 NPO diverse, risultano osservate a partire dai report di sostenibilità delle aziende stesse, triangolate con fonti di stampa. Le collaborazioni sono state poi inserite nel database secondo quelle dimensioni di analisi che la revisione della letteratura ha dimostrato essere le più rilevanti. Questo database è stato prima di tutto oggetto di una serie di analisi di statistica descrittiva. In seguito, un opportuno algoritmo di clustering è stato applicato al fine di derivare possibili classificazioni delle collaborazioni osservate empiricamente, e quindi sviluppare una tassonomia.

I risultati mostrano come le collaborazioni tra aziende e NPOs rappresentino un fenomeno in crescita, sia in termini di osservazioni che di complessità delle stesse. Sette cluster sono stati identificati come significativi, caratterizzati da diversi obiettivi di sviluppo sostenibile, basi temporali e geografiche, rilevanza per il business principale dell'azienda, attori coinvolti, risorse scambiate e attivazione di processi operativi. Questi gruppi possono essere aggregati in tre tipologie di più alto livello, riprese dalla letteratura (filantropica, transazionale e integrativa). Statistiche descrittive riguardo la situazione dentro ogni singolo cluster sono altresì proposte. Infine, le implicazioni manageriali, accademiche e legislative sono state presentate. In particolare, questa dissertazione potenzialmente offre un importante strumento per i manager al fine di costruire un portfolio di collaborazioni col mondo non profit, aiutando quindi le aziende nella loro transizione verso un paradigma sostenibile. D'altro canto, per i legislatori lo stesso strumento vuole essere un'occasione di una conoscenza più approfondita del fenomeno, contribuendo alla sua analisi e alla sua ulteriore diffusione, anche attraverso la partecipazione diretta dello Stato e mirate azioni legislative.

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Chapter 1

Introduction

1. Introduction

An increasing attention to sustainable development is one of the most pervasive trends of present years (Chabowski et al., 2011; Chu & Majumdar, 2012; Fonseca et al., 2020; Bogacki, & Letmathe, 2021), and issues such as climate change and unequal distribution of wealth are on the top of world's agenda (van der Byl et al., 2020; Diffenbaugh & Burke, 2019; Schewe et al., 2014; Lin & Darnall, 2015).

Firms, as the main economic actor, are required to undertake considerable efforts in adapting and transforming their traditional, purely economic visions into broader schemes, that aim to generate prosperity that can be shared among societal actors for a larger extent than what happened in past (Clarke & MacDonald, 2019; Luo & Kaul, 2019).

The set of such efforts, i.e., the "actions and decisions taken by companies' management oriented to take care both of the firm's own interests - to multiply profit - and protect and improve the well-being of people" (Davis & Blomstrom, 1968) has been long conceptualised as part of Corporate Social Responsibility (CSR). Despite of the notion is surely not an absolute novelty - for the first time the idea of social responsibility was formulated by Carnegie in Gospel of Wealth published in 1899 -, in recent years the attention towards this topic witnessed a considerable increase and amount of debate (Chabowski et al., 2011). Significant in this sense is the rapid diffusion of voluntary non-financial disclosures, also known as Sustainability Reports, one of the main CSR tools (Linnenberg & Thorup-Jensen, 2014; Olanipekun et al., 2021) among listed and not listed firms. The goal is to inform relevant stakeholders about such efforts towards a more sustainable growth (Olanipekun et al., 2021). It is almost unthinkable today for a big global corporation not to engage in CSR activities (Franklin, 2008, p. 13; Toppinen et al., 2012). Such attention is not casual: firms are increasingly understanding how CSR efforts and an overall transition towards sustainability have strong implications on firms' economic results, and so on its value itself.

Several studies (Servaes & Tamayo, 2013; Kaul & Luo, 2018) provided evidence that there is a positive relationship between CSR and firm value, when customers have high awareness of firm activities. This happens as business enterprises operate in an environment where the effects of corporate activities are felt and experienced, i.e., the society and the planet on which they thrive. The risk posed on firms not perceived by such surrounding ecosystem as committed to social and environmental aspects pushed management boards to evaluate, also at strategic level, different alternatives in order to deal with stakeholders' pressure (Albuquerque et al., 2019) and/or to proactively transformate their business activities (Creamer & Amaria, 2012; Enquist et al., 2021, pp. 237-240).

One of the main activities in CSR consists in collaborating with non profit organisations (NPOs) (Feilhauer & Hahn, 2021). Joining forces with such actors that are by definition moved by logics different from the profit one represents a fast-growing (Reinsberg & Westerwinter, 2021) phenomenon in the depicted landscape. Such interactions contribute to define and model firms' CSR efforts (den Hond et al., 2007). It is so becoming an important managerial lever to decide in which forms and to which extent collaborate with NPOs.

The trend is confirmed by the fact that interactions between corporations and NPOs have increasingly received academic attention in the fields of business and society, business economics, international business and strategic management (Austin, 2000; Dahan et al., 2010; de Bakker & den Hond, 2008; Doh & Teegeen, 2002; Hendry, 2006; Kaul & Luo, 2018; Schepers, 2006; Jamali & Keshishian, 2009).

The main objective of the present dissertation is to provide managers and in general decision-makers within for-profit firms an instrument to read such collaborations which happen in heterogeneous and variegated forms, by developing a taxonomy of possible collaborations. Organising a consistent framework can enable managers to be aware of the possibilities already existing on the collaborations' landscape, thus enabling them to have more strategic and tactical levers to organise their CSR efforts. It can fuel a more conscious and effective growth of such interactions.

Scholars have dedicated consistent efforts to categorisation of business-NPO collaborations. A pivotal work in this sense is surely the one by Austin (2000): it provides a comprehensive view of the phenomenon from the business side, not only differentiating and classifying possible typologies of interactions, but also linking one to each other in a coherent, stage-based framework. The drawback of this work is that it is at a high-level: proposed classifications are very vast and presented in aggregate forms, with no internal differentiation proposed. Other scholars (Chatain & Plaksenkova, 2019; Gray & Stites, 2013; Kolk et al., 2008; Marano & Tashman, 2012; Kolk & Lenfant, 2012) perceived this limitation too, and deepened his study on this granularization direction but focusing only on some of the macro-areas proposed by Austin. However, they fail to achieve an optimal trade-off between completeness of the discussion and the level of detail of it. Other researchers (Wymer & Samu, 2003; Seitanidi & Ryan, 2007; Wassmer et al., 2014) tried to overcome the presented trade-off by shifting the point of view. The object of the analyses is not anymore the reduction of different collaborations to a narrow set of possible conceptualisations but concerns the forms that such interactions practically assume.

Another limitation encountered in the literature review is the nature of studies themselves. The large majority is conceptual or based their conclusions on deductions from single cases and successive elaboration and/or anecdotal descriptions of information gathered by studied processes (den Hond et al., 2015). This was the only choice possible in past years, when the business-NPO collaborations' phenomenon was still at an embryonal stage. Instead, the general growth of the phenomenon, and increase in data availability, allows, in the author's opinion, to explore methodologies of research. The possible way to solve the trade-off among completeness and detail is to be adherent to reality. Characterise all the in-scope interactions by a series of variables, able to cover different dimensions and at a different level of detail will enable a more detailed characterisation of the whole landscape.

The desirable result is so a taxonomy of business-NPO collaborations that is complete, detailed and data-driven. The focus is maintained on interactions targeting CSR areas, resulting in the following research question: which are the empirically observable typologies of business-NPO collaborations, oriented to sustainable development?

To answer to the presented research question, the discussion exposed in the present dissertation proceeds as follows. As first, univocal definitions regarding the involved actors, i.e., business firms and in particular NPOs are set. The latter arise as the result of a conceptual opera of progressive detailing of societal spheres: from the traditional triadic architecture to the focus on entities populating the Third Sector, firstly isolating NPOs and then just a subset of them, that is, the one populated by trust-type and collective-type NPOs (Weisbrod, 2009, p.10). Once the involved entities are characterised, a narrative literature review on collaborations arising between them is performed. The objective is twofold: to gather information and knowledge about the state of the art of the research results on the topic and to identify which are the most relevant and frequent dimensions along which analyse the phenomenon itself. This last step is crucial to organise the data collection framework. In fact, as introduced, the founding idea of this work is to base business-NPO collaborations' classes on empirical evidence. Focal observations are gathered by the systematic review of non-financial disclosures (DNF) – mainly sustainability reports - and press news regarding a sample of Italian listed firms. Extracted information is then inserted in a database to be built from scratch, according to the dimensions identified to be more significant.

Such database represents the foundation upon which building the *pars construens* of the present dissertation. In fact, the embedded information density is statistically analysed, in order to provide insights about the evolution and the characteristics of the business-NPO collaborations' landscape in Italy. This will be the first original contribution of the present work, given the fact that no similar studies were found, in particular referring to the Italian situation.

Furthermore, data will be then processed with statistical techniques to derive the desired, data-based classification of business-NPO collaborations. In particular, employed algorithm is the result of a heuristic and iterative process of progressive comparisons among different clustering models; such screening will concern also the variables – and so, the dimensions – to be considered. Thus, the dissertation outcome will be relevant not only for the resulting classes of collaborations, but also for the dimensions that the model will determine to be relevant for the characterisation of heterogeneity and homogeneity conditions among interactions themselves.

The understanding of the different possibilities of interaction with nonprofit sector and of the main characteristic dimensions will hopefully lead management boards to direct increasing efforts to collaboration with NPOs, with the associate contribution to the mitigation and the solution of the urgent societal and environmental challenges that the world has to face.

Chapter 2

Definitions and dissertation boundaries

2. Definitions and dissertation boundaries

2.1. Cross-sector partnerships and their role in sustainable development

Contemporary society is facing so-called «grand challenges». Issues such as global warming and climate changes, biodiversity protection, food security and safety, and economic inequalities have profound effects on human life and the environment, both as singular issues and as interrelated (van der Byl et al., 2020; Diffenbaugh & Burke, 2019; Schewe et al., 2014; Lin & Darnall, 2015). It is therefore urgent to tackle such challenges. Awareness of the urgency of a shift is increasing (Elkington, 1997), and themes of sustainable and inclusive development have become pervasive in institutional and business environments and in citizens expectations around their action (Bogacki, & Letmathe, 2021). However, their complexity and multidimensionality require novel approaches to face them as well as new institutional and organizational arrangements (Waddock et al., 2015; Raisio et al., 2018; Barnett et al., 2018).

The World Commission on Environment and Development, in 1987, conceptualized the idea of sustainability, as the “ability to meet the needs of the present without compromising the ability of future generations to meet their needs”. Sustainable development is a development path combining the triple purposes of economic growth, social well-being and environment protection (United Nations, 2015).

Academic literature and public discourse have long debated on who should be the entities responsible to direct actions towards sustainable and inclusive development. In this sense, society can be conceptualized as the ensemble of three separate yet interconnected spheres; each of those is composed by actors with specific goals, sometimes complementary and sometimes opposite (Kenny, 2016; Albiston, 2018).

First of all, the public sector, whose aim is to represent the public interest (Zhao, 2018). This orientation can be declined in different practical macro-activities related to the provision of public goods, such as law enforcement, environment protection, health and safety services provision (Kearney & Berman, 2018). Secondly, the private sector: individuals striving for their personal objectives, so to meet their individual needs (Zhao, 2018). The private sector is typically represented in its organized form by business enterprises, or for-profit firms, which are mainly conceptualized to act in the pursuit of self-interested objectives, i.e., shareholders’ profit. Conflicts may arise by the pursuit of different interests, i.e., the private and public one. For example, profit-maximizations of business enterprises may lead to negative externalities imposed on external stakeholders (e.g., pollution), or an efficient allocation of limited public resources towards problems affecting large portions of the population may leave some citizens underserved (e.g., lack of public funding to research patients with rare illnesses).

In the conflict between the pursuit of public and private sector, the Third Sector is that part of society that is engaged in the private pursuit of the public interest. The Third Sector is typically defined negatively as “everything that is neither market nor State” (Scott & Greer, 2017; Defourny, 2014), which gives a first glance of the heterogeneity of forms that such initiatives can take. Some of the characteristic elements of such sphere, in addition to the differentiation from other societal components, are the voluntary nature of the efforts and the constituency, i.e., acting on behalf of an identifiable community (Salamon & Sokolowski, 2016; Scott & Greer, 2017). It is exactly this reference community that is the motor force of such entities. The vastness of such recipients’ scope can differ; in particular, it can be narrower than the one to which the state acts for. This represents a crucial distinction versus the public sector.

The three societal spheres live a condition of continuous interaction. One possible point of view consists in considering the public and Third sectors as relevant secondary stakeholders for private business actors. Whilst the State exerts, as expression of formal institutions, regulatory pressure on business, i.e., influencing decisions and conducts through codified rules (laws), Third Sector organisations, as expression of informal institutions, exert normative pressure, based on unwritten social norms, beliefs, opinions, in the pursuit of general interest. Both those actors and forces are crucial stakeholders in directing business enterprises towards a more sustainable paradigm (North, 1990). Business is expected to implement actions towards sustainability and, given the huge attention exerted, it is a topic of growing interest in the field of strategic management (Luo & Kaul, 2019; Dorobantu et al., 2017). Firms’ strategies are expected to integrate and balance profit logics with a comparable attention to environmental and social themes (Freeman, 2016). In other words, the desired shift is from a single, profit bottom line to a “triple bottom line” (TBL) approach: the value for a company is at the intersection of the three areas (Elkington, 1997; Carter & Rogers, 2008; Gennari 2019); in Fig. 1 a graphical representation of the three pillars and related intersection, i.e., the sustainable development, is presented.



Figure 1. Three sustainability pillars and related intersection.

The three pillars not only represent the determinant for a bright future, but also the dimensions along which the firms' performances are evaluated by stakeholders (Elkington, 1997).

In this tension towards the transformation of for-profit business enterprises, the partnerships with public and Third Sector organizations, the so-called cross-sector partnerships (CSPs), play a very important role. CSPs are defined as "the voluntary collaborative efforts of actors from organizations, in two or more economic sectors, in a forum in which they cooperatively attempt to solve a problem or issue of mutual concern that is in some way identified with a public policy agenda item" (Selsky & Parker, 2005). Probably the principal item on such agenda is the sustainable development. Within this, the importance of partnerships – and so also of CSPs - is recognised also by the United Nations (UN) well-known 17 Sustainable Development Goals (SDGs) framework. Those are "a set of goals, targets and indicators that UN member states will use to frame their agendas and policies" (United Nations, 2015), i.e., to monitor and measure progress in the direction of sustainable development.

SDG 17 is dedicated to partnerships: "Strengthen the means of implementation and revitalize the global partnership for sustainable development". Such call to action is not only oriented to promote the active involvement of all the spheres of the society, given the complex character of sustainability problems of the topic and the shared responsibilities in attaining such multidimensional objectives (van Huijstee et al., 2007). Partnerships are also recognised to be a crucial instrument to achieve such development. In fact, they were born as a response to resource constraints and limited ability of governments to tackle wicked challenges (van Huijstee et al., 2007). However, several studies and the experience highlighted how benefits of cross-sector collaborations interest all involved actors. Business' logics and orientation to innovation can foster the generation (Pattberg, 2004; Luo & Kaul,

2019), implementation of a solution (Reinicke & Deng 2000; Streck 2002), and its efficiency (Streck, 2002). Third Sector parties can contribute to direct such capabilities in favour of unheard groups (Reinicke & Deng 2000), but also, on a more strategic view, ensuring the access to business to such bases, e.g., a developing market (Reinicke & Deng, 2000) and sharing their knowledge about object problems (Pattberg, 2004). They can also contribute to shed light on current policies' limitations, in order to overcome them (Reinicke & Deng 2000; Streck 2002; Pattberg 2004; Visseren-Hamakers & Glasbergen, 2007).

In synthesis, CSPs are in general crucial as favour the reciprocal admixture of respective logics on the behalf of better results. For instance, the involvement of a Third Sector organisation in a partnership with a firm will ideally result in a positive push against the quality shading problem, which is often attributed to for-profit entities, given their trustworthy role and their independence from profit logics arising from their non-distribution constraint and mission-orientation (Luo & Kaul, 2019). Related positive impacts may not only to improve firm financial performances (Barnett & Salamon, 2012; Flammer, 2015), but also to interest the overall society, i.e., the social welfare (Luo & Kaul, 2019).

2.2. Business-NPO collaborations

CSPs can arise from any combination of sectors among public, private and Third Sector. In Fig. 2 such societal composition and possible arenas of interactions are represented.

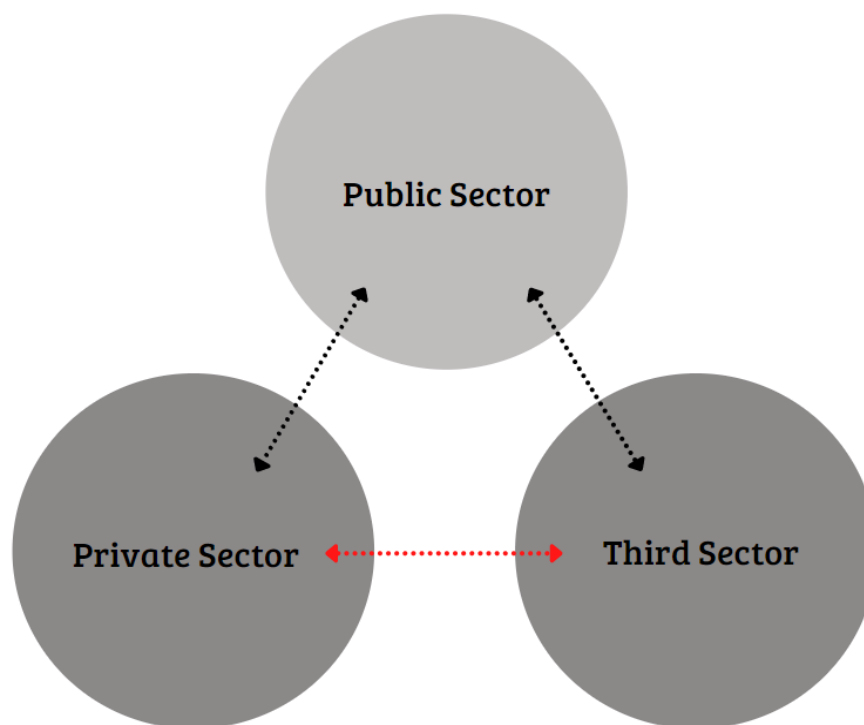


Figure 2. Tripartite societal conceptualisation and relative interactions.

Among those four possibilities (business-nonprofit, business-government, government-nonprofit, and trisector) (Selsky & Parker, 2005), the focus of this thesis is specifically on CSPs involving the Business sector and the Third Sector. In particular, in representation of the latter societal sphere, just non-profit organizations (NPOs) will be considered, as organized expression of the civil society. Later on in this work, it will be also defined which types of NPOs will be considered.

From this moment onwards, the author will refer to Third Sector-Private partnerships as just business-NPO collaborations, as the one respecting the abovementioned criteria.

PPPs (Public-Private Partnerships) - to whom great attention is dedicated in literature (Hodge, 2004; Rangan et al., 2006; Lehman & Tregoning, 2014; Kivlienece & Quelin, 2012) - and government-nonprofit ones are so excluded by the scope of this work, albeit being very relevant and diffuse, unless as sub-elements of trisector partnerships also including direct collaboration between business and NPOs.

Moreover, only those business-NPO collaborations presenting a clear orientation to provide a contribution towards sustainable development will be considered. In order to do so, a careful work of research boundaries' setting will be needed, made of successive steps, as:

1. Around the "Third Sector" concept there is a lot of vagueness about defining relevant characteristics and actors. There is a consistent overlapping with similar concepts, namely civil society, Third Sector organizations, non-profit organizations, non-governmental organizations. First of all, univocal definitions are to be set as reference, ensuring the needed uniformity along this dissertation;
2. As already introduced, business-NPO collaboration landscape results well larger than our reference orientation sample, as it may technically include collaborations with a wider realm of "non-profit" actors, e.g. public universities or research centres, business associations, private interest groups. The clarification and categorisation of possible involved actors will contribute to set more precise research frontiers;
3. A set of criteria to determine the abovementioned orientation towards sustainability-related matters is to be defined and adapted to the reference sources of information.

The latter screening will determine which are the relevant business-NPO collaborations. Those observations will constitute an empirical sample of the Italian business-NPO collaboration landscape; an appropriate database will be built on them. It will be firstly statistically analysed in order to provide a snapshot of the current state-of-art of focal collaborations in Italy. Then, the same observations and related information will be employed to derive data-driven conclusions contributing to the fervent discussion around the topic, and in particular about the classification and the study of the different typologies of business-NPO collaborations present.

2.3. Definitions of Third Sector and civil society organizations

The dissertation is centred on business-NPO collaborations, i.e., collaborations arising among firms and organisations belonging to the Third Sector. Whilst companies are a well-known and identifiable subset of the private sector, as depicted before, the latter requires a careful conceptualisation and definition work. NPOs can be studied as a sub-sample of different but strongly related concepts, namely the Third Sector and the civil society. Given the blurred boundaries among such notions, and a certain degree of confusion and perplexity in the definition of those present in the literature (Salamon & Sokolowski, 2016), it is appropriate to first set clear references for the present work. This common knowledge base will allow not only to avoid ambiguities, but also will work as foundation for the successive focus on nonprofit realm. With a similar process, going from general to particular, within NPOs broad universe only some typologies, showing characteristics suitable for being related to sustainable development activities, will be considered.

Adopting clear and strict definitions, to the fullest extent possible, will consent to have shared criteria for moving into the various evolving forms that observed sector representatives can assume and distinguishing among them. In fact, the construction of an empirical research like the present dissertation cannot prescind from a set of conditions to determine which are “in-scope” or not (Salamon & Sokolowski, 2016).

The point of view taken in the present discussion about business-NPO collaboration is the one of the business enterprises. It is analysed how business actors evaluate and enter in such collaborations with actors of different nature.

In general, while striving for the business characteristic goal, companies need to deal with several types of stakeholders. They can be classified according to different axes. The first one concerns the type of stakeholders’ interaction with the business enterprise: in particular, if the relationship is carried out through economic (primary stakeholders) or non-economic mechanisms (secondary stakeholders). The second axis is about the scope of stakeholders’ operations. Actors can be within company boundaries (internal stakeholders) or out of those (external stakeholders). As the general notion itself of “cross-sector partnership” suggests, the attention of this work is to secondary external stakeholders. In fact, adopting firms’ – as private sector’s representatives - point of view, the other spheres of the society, the public and the Third sectors, can be classified like this as influencing business enterprises and their activities over time through non-economic mechanisms, by exerting pressure of different natures from outside the companies’ boundaries.

The general definition of CSP proposed by Selsky & Parker (2005) reported before referred to the partnership of one or more exponents of the business sector with actors of at least one of the other two sectors. Retrieving the previous stakeholders’ classifications, schematised in Fig. 3, it results evident how, from firms’ point of view, undertaking a CSP means to deal with external, secondary stakeholders.

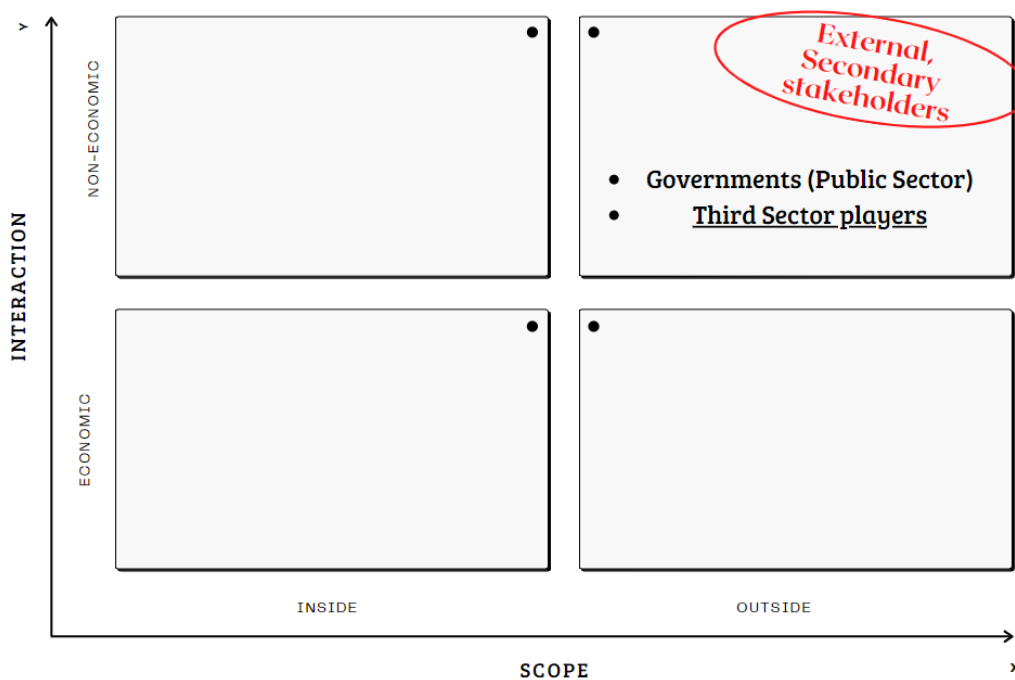


Figure 3. Stakeholders' classification.

As the scope of this work, only partnerships that encompass at least one representative of the Third Sector are taken into account. Therefore, it is a subset of the abovementioned external secondary stakeholders' sample.

Once characterised from the business point of view, i.e., the relative position and interaction modes with respect to business enterprises, it is necessary to set clear boundaries around the Third Sector's concept itself. Among the several definitions can be found in the literature (Defourny, 2014; Salamon & Sokolowski, 2016; Alexander, 2010; Corry, 2010), the most appropriate to present the peculiarities of the Third Sector are reported here.

The first one generally defines the Third Sector as "socio-economic initiatives which belong neither to the traditional private for-profit sector nor to the public sector" (Defourny, 2014). The negative nature of such definition signals that the Third Sector was mainly born to take care of those areas that were left uncovered by public and private sector failures (Defourny, 2014, Teegen, 2003). This can be due, for example, to State Budget deficits or to the weakening of the social bonds between business activities and the community in which they operate in (Defourny, 2014).

This negative definition however is not enough to practically define which set of individuals and institutions belong to this sector (Salamon & Sokolowski, 2016). General keywords as "private", "free choice" and "common goal" are not enough to set clear boundaries. Seminal was so the work by Salamon & Sokolowski (2016), who applied a bottom-up conceptual methodology to build consensus on a shared definition. They firstly came up with an operative definition of the Third Sector, as "consisting of private associations and foundations; non-commercial cooperatives, mutuals, and social enterprises; and individual

activities undertaken without pay or compulsion primarily to benefit society or persons outside of one's household or next of kin".

Focusing on forms allowed them to give consistency and defined boundaries to such vague concepts. In parallel, they built a preliminary conceptual description on the Third Sector, starting from two main considerations:

- The emergence of nonprofit organisations (NPOs), social economy and individual activities' realms as dominant examples within the dominant conceptualisations of Third Sector;
- A considerable overlapping with the concept of civil society.

The last point assumes a crucial importance. It is reported how such polarity, even if subtle, among the last two concepts is recognised in the literature on the subject mostly in Central and Eastern Europe. For other countries and areas (e.g., Netherlands), the present distinction is not theorized: Teegen (2003) defines as the third player, the one "filling the void" between public and private, the set of International Non-Profit Organisations (INPOs). Thus, it is necessary first of all to determine in which literature strand insert this work. As already introduced, we are looking at organisations moved by logics different from both private and public, i.e., NPOs, as a sub-sample of the Third Sector. Coherently, Salamon & Sokolowski (2016) recognize NPOs as "the core of the Third Sector", but also the presence of different entities.

NPOs constitute one of the two main elements of focal collaborations. The goal of this section is to clearly define them, i.e., set criteria to determine which organisation can be considered an NPO and which not. In order to do so, the first step is to separate them from all the other entities present in the Third Sector conceptualisation and in civil society.

Studying the Third Sector as the sphere made of private activities towards the interest of a reference community is enough to make emerge the concept of civil society (Salamon & Sokolowski, 2016), a very discussed but blurred concept (Anheier et al., 2001). The confusion can be led back essentially to two important factors:

- The role that this concept has not only in economics, but in many different social sciences, particularly sociology and political science (Anheier et al., 2001), that result in multi-faceted studies oriented to different aspects;
- The absence of a standard normative definition (Salamon and Sokolowski, 2016).

Among the numerous ones, the definition taken from Salamon and Anheier (1997) is proposed: civil society sector consists in "the plethora of citizen initiatives in the private pursuit of public interest purposes".

This statement highlights the driving force, the modality, and the goal of the sector. The active, moving role is played by *citizens*, intended as individuals, potentially in organized forms which may differ according to various degrees of freedom in terms of size, ideology and form through which they manifest themselves. For example, citizens, families, religious

organisations, business associations, political parties, charitable associations and free press are encompassed by such definition. The modality is *private*, aiming to remark the independence of civil society activities from the control of the public sphere (Hutter and O'Mahony, 2004), and related logics. The final objective of these associations, the *public interest*, is pursued exerting normative pressure on the State and on businesses, demanding their compliance to a set of norms that are the guiding principles of their activity, varying with the type of organisation. It is on the behalf of this mission that, in their relationships with business enterprises, they are substituting (or complementing) the State role in directing and framing for-profit activities (Anheier et al., 2001). In particular, margins' realisation does not represent an objective for such entities. This operational separation from the other two forces is – again - the most characteristic element of civil society and justifies the categorisation of the sector in the external stakeholders' area.

Given these premises, it is possible to understand the variety present in the sectors: non-governmental organisations (NGOs), charities, trusts, families, foundations, advocacy groups, trade unions, business associations, political movements and national and international non-state associations as well as individual actions taken for their own benefit or for the one of other people, including improvement of the community or natural environment, participation in elections or demonstrations, informal or direct volunteering, and general political activity (Salamon and Sokolowski, 2016).

The discriminant is properly the structure: while the Third Sector does not encompass individual and/or family activities undertaken for the sake of that restricted group of people, civil society does (Salamon and Sokolowski, 2016). This discussion can be then enlarged to all kinds of individual activities. Such multi-faceted composition of the sector can be summed up as a variegated set of formal and informal structures. To continue in the determination of entities that are “in-scope” or not, it is fundamental to rely on this distinction; from now on, only formal organisations will be considered. This can be easily justified considering that the goal of this work is first of all to map the various forms of collaborations established between different sectors: no business enterprise would start any structured collaboration with a non-organised entity, or, at the least, it would be very difficult to obtain information on such informal agreements.

To be considered as an organisation, an initiative “must evolve in a group of people sharing some understood procedures and one or more common purposes, for a meaningfully extended period, longer than some months” (Salamon and Sokolowski, 2016). This usually, but not mandatorily, coincides with the formation of a legal entity; however, for the practical reasons introduced above, for the scope of this work only legal entities will be considered.

The differentiation among societal spheres provides the second screening condition. Third Sector organizations were reported to be composed of NPOs and social economy enterprises, those enterprises “that mix social purpose with market methods” (Salamon & Sokolowski, 2016). It is the case of, for example, cooperatives, social cooperatives, mutual insurance companies and social enterprises. They are regulated by similar laws than conventional firms and operate to achieve market returns, but they blend social objectives

(Salamon & Sokolowski, 2016), and they do not achieve non-distribution constraints. Thus, are excluded from the present work.

Civil society and Third Sector, while distinct, have a relevant intersection. Given the focal orientation of the present work, i.e., partnerships among players from different societal sectors working for public interest concerns, it is so appropriate to focus the attention on such overlapping area among Third Sector and civil society: Non-profit organisations (NPOs). To summarize and clarify this analysis, a visual conceptualisation of those two blurred sectors is proposed in Fig. 4.

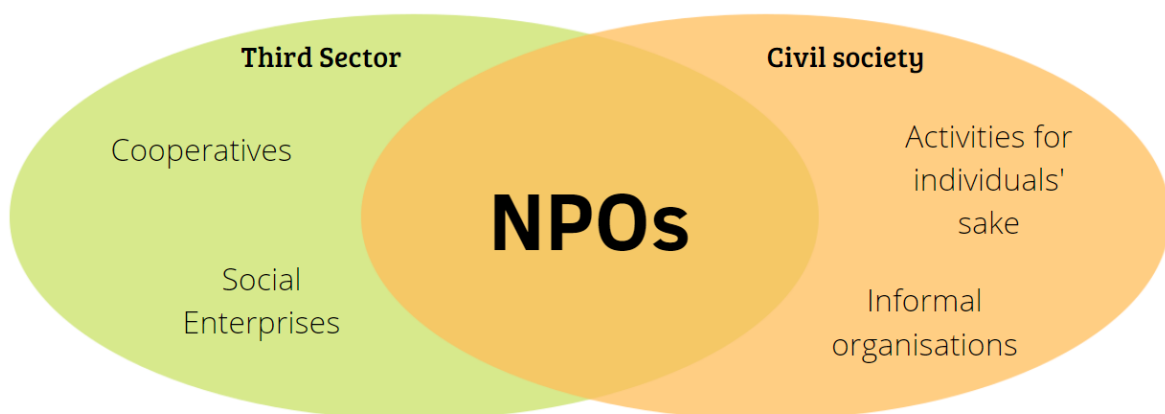


Figure 4. Third Sector and Civil society conceptualizations, and related intersection.

2.4. NPOs' definition and taxonomies

It is now possible to define what an NPO is. In order to do so, the structural/operational definition by Salamon & Anheiner (1992) is proposed. It is noteworthy to specify that such statement must be applied to organisations that respect a common founding principle, the public interest orientation (O'Neill, 1989; Lewis, 2005). NPOs are those organisations, among all the entities serving the public interest, that respect the following structural and operational criteria:

- i. Organisation form;
- ii. Private form;
- iii. Non-profit-distributing constraint;
- iv. Self-governance;
- v. Voluntary character.

What clearly emerges just listing those distinctive criteria is the perfect adherence of those entities at the intersection of civil society and Third Sector. In particular, assumed as foundation the public interest orientation, the organized form remarks the differentiation from some of the civil society initiatives, such as families, informal volunteering, and political demonstrations. On the contrary, the reinforcement of public interest orientation and of the non-distributing constraint distinguish it from social enterprises and cooperatives.

Once settled the general boundaries of the discussion, the screening work can be performed at a more detailed level, considering only some NPOs. For example, NPOs may be classified according to the organisation's field of primary activities, or the legal structure assumed. The first is the case of the International Classification of Non-profit Organizations (ICNPO), the classification system recommended in the United Nations (UN) Handbook on Non-profit Institutions.

Nevertheless, at this stage of the present dissertation is particularly important to define boundaries not according to the field of activity, but to the scope of beneficiaries. In fact, this work addresses sustainable development and how business actors, by collaborating with NPOs, can contribute to face societal-wide challenges. In this sense, it is very useful to rely on the categorisation proposed by Weisbrod (2009, p.10):

- Club-type NPOs: non-profit organisations whose only (or main) beneficiaries can be identified as NPO members. Trade unions and sporting clubs fall into this category;
- Trust-type NPOs: non-profits thought to provide trustworthy information to consumers suffering information asymmetries, in particular regarding quality of a product/service. Examples are day-care centres and environmental label certifiers;
- Collective-type NPOs: NPOs that provide public-type services, so characterised by bringing widely shared benefits. Some examples are environment conservation associations, food banks and medical research organizations.

The fundamental discriminant that emerges from this categorisation results to be the area of beneficiaries related to the NPO activity: in particular, it can be distinguished among organisations seeking benefits for individuals in the range of their own members, or in a broader scope, as it is for trust-type and collective-type NPOs.

Coherently with the main topic of this work, so to discuss the business-NPO collaborations as beneficial in tackling broad societal challenges, it is decided to consider only the last two types of NPOs. All those entities that are legally constituted as non-profit but work primarily for members' sake are so excluded. Trade unions and industry associations are excluded organisations, as club-type NPOs. This distinction can be also identified in some fiscal regime, such as the US Internal Revenue Code, that recognises a variety of grants and tax exemptions only to the trust- and collective-type NPOs as working for the public interest

(US Internal Revenue Code, Section 501(c)(3)), while club-type NPOs must rely on membership fees.

In order to provide both a visual and a schematic summarising conceptualisation of the relevant NPOs, Fig. 5 and Fig. 6 are presented.

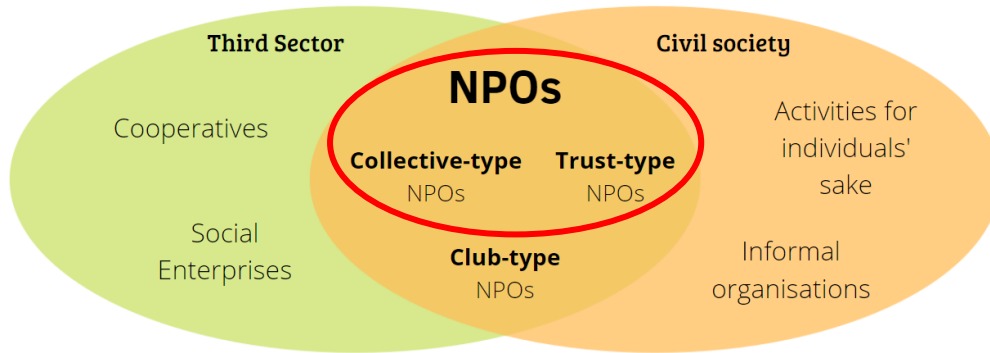


Figure 5. NPOs' classification.

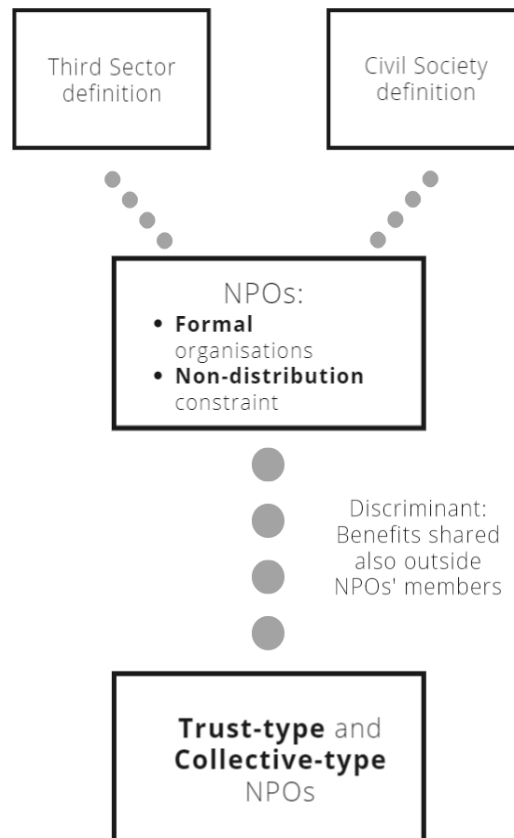


Figure 6. Boundaries' setting process.

Chapter 3

Literature review

3. Literature review

Once that NPOs as entities have been defined and so knowledge about those actors is gathered, it is now possible to deal with collaborations arising between them.

Business-NPO collaboration is a widely debated argument in the economics and management academic literature since late 1980s (Waddock, 1989; Kramer et al., 1990). A critical area of research in this field deals with the classifications of different possible interactions. In fact, given the increasing recognition by the business side of the strategic importance of such partnerships (Austin, 2000; Wymer & Samu, 2003; Selsky & Parker, 2005; Berger et al., 2004), they are flourishing in many different forms. Observed examples range from corporate philanthropy and sponsorships to more integrated ones such as R&D agreements or partnerships for business and product innovation (Dahan et al., 2010; Byiers et al., 2015). In addition to this already very heterogeneous landscape, also peculiar characteristics of each single business-NPO collaboration are often observed. One of the main goals pursued by scholars (Austin, 2000; Chatain & Plaksenkova, 2019; Gray & Stites, 2013; Kolk et. al, 2008; Marano & Tashman, 2012; Seitanidi & Ryan, 2007; Kolk & Lenfant, 2012; Lin & Darnall, 2015; Rondinelli & London, 2003; Selsky & Parker, 2005; Wymer & Samu, 2003; Wassmer et al., 2014) is to identify patterns and commonalities, focusing on those collaborations targeting sustainability-related objectives.

In order to do so, it is crucial to gain understanding on the heterogeneity itself that characterizes the topic and of how previous research has investigated it and has attempted to categorize it. As a last point, it has to be mentioned that related literature refers to nonprofit realm as the overall intersection among Third Sector and civil society. It must be noted that in general no explicit filtering about the type of NPOs, e.g., the classification regarding the scope of the recipients, is considered in literature on business-NPO collaboration taxonomies.

3.1. Review methodology

The literature review process was divided into two phases. A snowball sampling one, i.e., a non-systematic search of papers, represented the first phase. In this stage, results were retrieved by crossing a set of important journals in industrial economics and strategic management (Journal of Industrial Economics; Industrial and Corporate Change; Academy of Management; Strategic Management Journal; Business & Society) and a simple vocabulary made of keywords related to business, nonprofit, collaboration. Important articles in turn cited in such works were retrieved too.

The goal of this preliminary process was essentially, as anticipated, to provide research instruments to better further direct successive steps. In first place, the 17 selected papers allowed to gather further and more precise knowledge, contributing to clarify to the author the research topic and its boundaries. In parallel, this familiarization with the academic discussion was translated into a wider and more precise vocabulary of keywords, to be

employed in selecting relevant material. In particular, those were the building blocks of the queries used in a systematic search of Scopus database.

Scopus was employed as reputed to be an appropriate database for queries in social sciences, reaching a satisfactory trade-off between completeness and quality of contributions (Palomo et al., 2017; Harzing & Alakangas, 2016; Norris & Oppenheim, 2007). The keywords composing the abovementioned vocabulary were searched in the title, the abstract and in the papers' keywords, again to reach a reasonable compromise between thoroughness and vastness of the sample.

The employed string resulted from the application of some filters. In particular, conditions regarding the language of the contributions (only documents in English were considered) and the subject area (again, industrial economics, strategic management and business) were imposed. The goal is to ensure a preliminary adherence to the context of the present dissertation. Research was also limited to Journals, i.e., articles. No constraint was imposed about the publishment year, as no landmark event suggesting starting the sampling there was identified.

The resulting string employed was so:

```
TITLE-ABS-KEY ((("partner*" OR "collaborat*" OR "cooperat*" OR "alliance*" OR
"agreement*" OR "cross sector") AND ("business*" OR "firm*" OR "company*" OR
"enterprise*" OR "corporation*") AND ("nonprofit*" OR "ngo*" OR "npo*" OR "not for
profit" OR "non profit" OR "non governmental*" OR "third sector" OR "civil society"))
AND ( LIMIT-TO ( DOCTYPE,"ar" ) OR LIMITTO ( DOCTYPE,"re" ) OR LIMIT-TO (
DOCTYPE,"ed" ) ) AND ( LIMIT-TO ( SUBJAREA,"BUSI" ) OR LIMIT-TO (
SUBJAREA,"ECON" ) ) AND ( LIMIT-TO ( LANGUAGE,"English" ) ) AND ( LIMIT-TO (
SRCTYPE,"j" ) )
```

The resulting documents were 1273 (day of the search: February 10, 2021). The conceptual nature of the present literature review suggested:

- a considerable filtering work to reduce the numerosity, given the necessity of reading in depth selected papers;
- the focus on the quality of the articles as pivotal in driving the described screening.

Employed proxies to test the quality of an article were the number of citations, as representing the opinion of the involved academic community, and the quality of the journal. For the latter, the SSCI Impact Factor was used, retrieved by searching for each journal of Web of Science. Those represented first, strong screening criteria to reduce the sample. Further considerations were made applying a set of conceptual inclusion / exclusion criteria, related in particular to the topic of the present dissertation and the underpinning assumptions. Namely, there were included in the literature sample only articles:

- centred on business-NPO collaborations, and not just discussing the topic marginally;
- adopting the perspective of business enterprises in approaching such collaborations;
- being rooted in economics and management.

The results of this filtering process starting from structured query to Scopus database were 29 papers, that together with the 17 resulting from the snowball sampling constitute the dissertation's knowledge backbone on the topic, and after been read in depth, a specific data extraction form was filled.

In such structure, relevant information about the papers was gathered. In particular, extracted material was divided into 3 categories:

- Reference information, such as author, title, year, source, abstract and the phase of the sampling in which the paper is collected
- General paper information: problem tackled and discussion's objectives, in terms of research questions and gaps to be filled; the presence of literature review is checked, and eventual methodology; the research mode and methodology; results and contributions to different subjects (policymakers, managers, etc.)
- Research-specific information: a set of information about results interesting from the present dissertation's point of view. Namely, it was tracked:
 - i) the presence of CSPs' taxonomies
 - ii) the discussion about characteristics of CSPs themselves and/or of business-side actors and/or NPOs.

3.2. Business-NPO collaborations' taxonomies

The literature review first deals with typologies of business-NPO collaborations that may be found in literature. 15 documents over the whole sample present an original taxonomy conceptualisation.

A seminal work in the business-NPO collaboration field resulted to be the one written by Austin (2000). It proposes a tripartite taxonomy, then widely referred to and/or deepened by other scholars (Gray & Stites, 2013; Kolk et. al, 2008; Marano & Tashman, 2012; Kolk & Lenfant, 2012). The focal framework, called "Collaboration Continuum" (CC), theorizes a possible evolution of the relationship between two (or more) actors. Along this continuum, three stages – mirroring, according to the author, three classifications of existing partnerships – are identified, on the basis of the observed level of characteristic parameters. Those are constructs such as the level of engagement, the importance to the respective missions, the magnitude of the resources and the strategic value for the business side. Resulting typologies of collaboration are:

- As Stage 1, the *philanthropic* collaborations. They are characterised by a one-way resource flow from the business players to NPOs. Those resources are largely economic ones; in general, it is the resources' economic value that represents the main benefit for the non-profit side in this relationship, so mitigating the resource scarcity phenomenon.
- As Stage 2 collaborations are presented as *transactional*. Those are characterised by the identification and the recognition of an overlapping of missions and a compatibility of values. It so requires a reciprocity in the exchange, that represents, from a resource-based point of view, the main upgrade in the continuum with respect to the philanthropic ones.
- As the ultimate stage possible in the continuum (Stage 3) collaborations are classified as *integrative*. This step approximates a joint venture and represents the highest strategic level of collaboration. In fact, the principal characteristic is the vanishing of the boundaries among entities (Austin defined it as "boundarylessness"). They arise in presence of the recognition of a very consistent common, strategic value to be extracted, whose realisation is possible only through efforts' coordination.

In Table 1 a summary of the work by Austin (2000) is reported.

	Philanthropic	Transactional	Integrative
Definition	"Donor-recipient relationships, (...) characterised by being very circumscribed in terms of resources deployed and points of interaction "	"Mutually beneficial relationship in which there are two-way benefit flows that are consciously identified and sought "	"Mutual mission Relationship. (...) like an equity-based relationship in a joint venture"
Keywords	Charitable donations; One-way resource flow; Limited reciprocity; Economic resources	Two-way resource flow; Reciprocity; Overlapping of missions; Compatibility; Strategy	Cultural influence; Boundarylessness; Value creation
Examples	Timberland donated in 1988 50 pairs of shoes to City Year, a local NPO	Timberland became the provider of City Year's entire uniform; City Year organised community service projects for Timberland employees	Timberland CEO named to City Year's BoD; community service as integral part of Timberland's strategy and culture; assistance to City Year in financing and recruiting

Table 1. Austin's Collaboration Continuum. Source: Author's elaboration of Austin (2000).

What Austin theorizes is the – possible – development of a business-NPO collaboration along these stages. This migration comes together with a change in nature of the partnership itself, i.e., in the level of the characteristic constructs. For example, the interaction intensity moves from the annual donation contact in the philanthropic stage to a way higher frequency in the transactional and integrative stages.

In this work is also interesting the conceptualisation, for the business side, of a “collaboration portfolio”. It mirrors the idea of brand portfolio, suggesting the creation and the management of a set of relationships with different non-profit entities, according to the logics described by the taxonomy. In this sense, what should result is a pyramid, with at the basis philanthropic collaborations: just some of them, i.e., the ones whose balance among strategic value and coordination efforts is positive and important, by time are tightened along the continuum.

As introduced, many scholars levered on Austin’s work as pivot. Gray & Stites (2013) enlarged and modified the framework proposed by Austin, maintaining transactional and integrative classifications, and proposing “reactive” and “transformative” collaborations. Reactive collaborations are defined as “threat-induced”: the authors grouped together charitable actions with measures taken, by the business, to be compliant with external pressure by governments and/or by civil society. This represents a shift of paradigm with respect to Austin, as the pivotal role in the classification is here given to business motives. The link with business core activities is even more interesting, due to the orientation to sustainability-related problems and the firms’ point of view adopted by the focal paper. Transactional and integrative remains practically untouched, as the mutuality of the benefits and its nature was already considered by Austin. With “transformative” label instead the authors refer to very complex initiatives aiming to again transform the business itself and its way of doing. The present work represents a very interesting attempt to deepen and detail Austin’s seminal taxonomy, by adding a classification and changing some constitutive elements, but maintaining its fundamental concepts.

Kolk et. al (2008) remained on the triadic framework, but they developed it on different constructs, namely the geographical and activities’ scope ones, more than on the temporal one characterising the collaborations’ evolution. Philanthropic and some of the transactional collaborations are so reclassified as “micro”, as referring to relationships exclusively linked to specific projects in specific countries. Other transactional collaborations, broader from the point of view of region, scope and objectives (for example, the sustainability of a whole supply chain) are reclassified as “meso”. Finally, global and with multiple activities and objectives collaborations are categorized as “macro”, overlapping to Austin’s integrative ones.

Lin & Darnall (2015) proposed a different taxonomy, based on the dichotomy between competency and legitimacy. In this work, differently from the others selected, business-NPO collaborations are analysed in the same way as generic strategic alliances. Their importance is recognised in particular for what concerns efforts for environmental

protection, a crucial topic for business management. In fact, NPOs and the associate normative pressure are a powerful threat for business prosperity. A firm can decide to collaborate with NPOs for two motives. The first is for pure institutional reasons of image of the focal company or even the whole reference industry (“legitimacy-oriented” collaborations): the NPO is called to justify the collective approach undertaken in terms of environmental attention. The other possible drivers bringing firms to undertake such a collaboration are more long-term based and connected to a strategic view. In this case, the intended rationale is to exploit some unique knowledge, that is missing internally, that can change the whole organisation’s way of working and/or lead to new business models. Collaborations are so defined as “competency-oriented”.

This conceptualisation introduces a different kind of debate around business-NPO collaborations, namely the one about the types of resources involved and sought. In addition to the tangible vs intangible vs human-based classification retrieved by Grant (1991), the distinction among “internal” and “external” resources is posed as crucial. It derives from resource-based theory and proposes aggregations of resources exchanged taking as discriminant properly the company boundaries. Different typologies of business-NPO collaborations are depicted as characterised by different types of involved resources. This taxonomy presents also the time basis as a crucial determinant, but not in terms of an evolution like in the work of Austin. The duration is here presented as an element defining a priori the type of relationship the business wants to start.

Another important categorisation framework is the one proposed by Rondinelli & London (2003). Similarly to Lin & Darnall (2015), the main focus is on environment-oriented collaborations, as the topic is recognised of strategic concern for the business side. As in Austin’s work, the proposed taxonomy is a triad, but some differences should be highlighted. First of all, the multiple parameters, whose levels determines the stage at which - in Austin’s continuum - the relationship can be placed, are substituted by a single, more comprehensive one: the intensity of the relationship. It is a comprehensive construct that encompass in it concepts such as the frequency of the interactions and the value of the resources shared. Secondly, in the categories-conceptualisation phase, a very strong focus was posed on the reputational side, something absent in the other taxonomies. The resulting triad ranges from low-intensity “arm’s-length” relationships to highly intensive environmental management alliances.

- *Arm’s length* are defined as those interactions in which “collaboration requirements are only that a corporation be willing to contribute to, or support their employee's participation in, NPO environmental activities and that an NPO be willing to accept support from that corporation.” They encompass, for example, corporate support for employee volunteering in NPO activities, corporate contributions NPOs and corporate-NPO marketing affiliations;
- *Interactive* collaborations are those strictly related to a specific NPO project. This happens when NPOs certify certain corporate business practices and when corporations target support for specific NPO projects or engage in environmental awareness and education collaborations;

- *Intensive* collaborations are those undertaken by firms to tackle internal management problems, mainly environmental in these cases.

The focal classification is interesting, as it presents a triad founded on the scope of the collaborations itself, differently from the other works. Moreover, the authors themselves recognised a substantial differentiation between “arm’s length” collaborations and the other two categories, this representing a clear distinction from the continuum concept presented by Austin. A collaborations portfolio of a firm is here not thought as a set of relationships with NPOs, that can evolve over time to more structured and strategic versions of themselves, but as a dichotomous, static sample of collaborations.

Seitanidi & Ryan (2007) represented another crucial step among the works building up on Austin’s considerations. In fact, focal scholars identified as a key limitation of his work the absence of differentiation among the forms of the interactions. In other terms, they suggested that to have a complete comprehension of the phenomenon, researchers must look inside the stages. Aggregating different forms (e.g., sponsorships and socio-sponsorship) under the same class is useful for the research’s sake as identifies a common starting point, but it is only looking at the constitutions that collaborations practically take and to their edges that is possible to guide managers in the evaluation process.

Namely, the theorised possible forms are:

- Charitable donations: collaborations associated with in cash or in-kind (products, materials, and labour) contributions from a business to an NPO. The relationship between donors and NPOs is asymmetrical in nature, as the underpinning motivation is ‘altruism’. This denotes a one-way resource flow, without direct (economic or non-economic) rewards for the business. It is assimilable to the idea of benefaction;
- Patronage form refers to those collaborations where instead the business side wants something back in return, even if it is indirect;
- Sponsorship form refers to collaborations considered more symmetrical in nature, with direct benefits to both parties clearly identified from the outset, and quantifiable (for example in monetary terms). The tight link with some recipient’s activity, and the predominant commercial nature are the main factors that differentiate sponsorships from patronage collaborations;
- Socio-sponsorships: sponsorships characterised by the primary intent, for Company’s side, of attaining social responsibility objectives. The difference with the previous category relies so in the motivation: to meet social needs and facilitating the addressing of its social responsibilities;
- CSM (Corporate Societal Marketing) refers to those collaborations based on the association between a product and a ‘good cause’. In particular, they are characterised by the recognition, by the firm, of a small percentage of the money generated from product sale to the NPO.

The first point resulting by this work is the increasing number of classifications resulting by putting at the centre the forms. This is a first clue about the characteristics of a taxonomy of this kind, trying to be more adherent to the reality and to its heterogeneity. Moreover, detailing those five typologies of business-NPO collaboration forms, Seitanidi & Ryan shed light on an interesting aspect for the classification: the presence (or not) of a link between the objects of the interaction and the characteristic activities of the involved parties.

Given the firms' point of view assumed in this dissertation, the existence of such link between collaboration and firms' core businesses becomes a crucial feature. It is also a dimension not considered as so important by Austin (2000). Thus, it can be potentially exploited to further detail previous classifications analysed.

Also Wymer & Samu (2003) focused their classification effort on forms more than on stages. The trend about the increasing number of resulting classes while focusing on forms is confirmed. In fact, the presented thesis is that business-NPO interactions can assume here seven different forms. Namely, those are:

- Corporate philanthropy: In corporate philanthropy the business's interest in the relationship is on supporting the nonprofit organization and its mission. Business may also wish to help its target markets and its employees identify with it by supporting causes they care about. The primary benefit to the participating business is favourable publicity, enhanced public goodwill, and greater public awareness of the business or its brand. Examples are monetary donations; in-kind donations; employees' volunteering;
- Corporate foundations: a nonprofit entity created by a company to manage its philanthropy objectives;
- Licensing agreements: nonprofit organizations allow corporations to use their names and logos in return for a flat fee and/or a royalty. Businesses look mainly for nonprofit organizations with strong, favorable images in the minds of important market segments;
- Sponsorships: the business pays the nonprofit a sponsorship fee for using the business's brand in the nonprofit's advertisements or other external communications;
- Transaction-based promotions: the process of formulating and implementing marketing activities characterized by an offer from the firm to contribute a specified amount to a designated cause when customers engage in revenue-providing exchanges that satisfy organizational and individual objectives;
- Joint Issue Promotion: Instead of a business giving money to a nonprofit to support its activities, businesses engage in activities to further the cause;
- Joint Ventures: A business-nonprofit joint venture is a new entity created by the partnering organizations to achieve mutually desirable objectives.

Despite of the conceptual underpinning differences, it is still clear the influence and the validity of Austin's taxonomy on this work. In fact, classifications proposed can be seen, as

schematised in Table 2, as more granular views of Austin’s three macro-blocks, and so more adherent to the empirical situation. Such goal is achieved by decoupling the form that the business-NPO collaboration takes from its possible evolution over time, and results in a more detailed representation of the existing variety.

Austin’s stage	Wymer & Samu’s form	Description
Philanthropic	Corporate Philanthropy	Donations to support NPOs and their missions
	Corporate Foundations	Entity created by the firm, that manages its philanthropy objectives
Transactional	Licensing Agreements	NPOs allowing corporations to use their names and logos in return for a flat fee and/or a royalty
	Sponsorships	Business paying NPOs a sponsorship fee for using the business’s brand in the nonprofit’s advertisements
	Transaction-based promotions	The firm directs part of the revenues of a given product to the NPO
Integrative	Joint Issue Promotion	Businesses engagement towards NPOs’ causes
	Joint Ventures	New entity created by the partnering organizations to achieve mutually desirable objectives

Table 2. Comparison between taxonomies by Austin (2000) and by Wymer & Samu (2003).

An interesting addition is the comment, by the authors, related to the effectiveness or not of the business-NPO collaboration. They state that the degree of satisfaction of the two sides about the interaction does not depend on the form but on actors’ motives and involvement. This reflection is crucial to reinforce, for the sake of the present dissertation, the necessity of consider the alignment of collaboration’s object and business characteristic activities, as already introduced by Seitanidi & Ryan (2007).

Further original point raised by Wymer & Samu is the recognition, in the broader “philanthropic” realm, of the distinctive nature of corporate foundations. Although technically the Foundation-NPO relationship is a nonprofit-to-nonprofit, it is included because it represents the vector through which a corporate is associating with the civil society. Such presence can represent a signal of business integration of social activities, as

well as previous experience (Ashraf et al., 2019) by the business side to NPO activities, and so something to monitor in analysing such interactions from a managerial point of view.

From this research point of view, it is interesting as represent the first attempt to divide the philanthropic block into two different subsets. In this sense, it is a first example of a progression towards the solution of the trade-off between completeness and quality in the classification of business-NPO collaborations.

Switching to licensing and sponsorships, those are classifications proposed also by Wassmer et al. (2014). The focal work considers again just environmental-oriented CSPs, and the most peculiar edges of it is first of all the absence in the discussion of both philanthropic and integrative interactions. It is stated that environmental collaborations present traits completely different from ones presenting a social orientation; thus, they are studied separately from them. Four possible collaborations' forms were identified: firm license of NPO name, corporate sponsorship of NPO projects, NPO endorsement of firm's products and conflict resolution tables. The aspect of benefits' mutuality, characteristic of transactional interactions, is always present, but it does not evolve into an activity, an outcome, that is an effective expression of a joint action.

The detailing effort is concentrated exclusively on transactional relationships. Particularly interesting is the splitting of sponsorship category into two subsets: sponsorships by business side of NPO's activities are divided from the endorsement, by NPO, of firm's products.

Selsky & Parker (2005) developed a taxonomy that represents a sort of hybrid among Austin and Wymer & Samu proposals. The peculiarities of their work arise also from the research boundaries. They defined and considered just CSSPs (Cross Sectoral Social Partnerships), so those collaborations arising from interactions among business and nonprofit spheres, aiming precisely to address social issues. Then, retrieving Austin's taxonomy, they firstly voluntarily neglected in their work philanthropic collaborations. The reason behind is the consideration of just partnerships that actively engage the partners on an ongoing basis. Philanthropic relationships, again intended as the pure one-way transfer of mostly economical resources from business to nonprofit side, do not present such specific process activation according to the authors. Focal CSSPs are so classified just as transactional or as developmental. This last conceptualisation is retrieved from Wymer & Samu's work (2003) and refers to longer term, open-ended, and largely common-interest oriented collaborations.

In synthesis, what results from this literature review on taxonomies' proposals is a very rich environment; a summary can be found in Table 3. Austin (2000) paved the way to an important number of scholars, that – surely influenced by his work – developed it following several directions. Nevertheless, their efforts followed a common identifiable goal: granularization. Papers presented in this section tried to be more detailed - within Austin's influence - to be more adherent to the real heterogeneity of the phenomenon. This common objective was then pursued in many ways, considering as pivotal different aspects, i.e., constructs, from Austin's ones, such as the alignment with business' characteristic activities (Seitanidi & Ryan, 2007) or the type of resource exchanged (Lin & Darnall, 2015).

Author	Typology of taxonomy	Classes identified	Focus
Austin (2000)	Triad	Philanthropic; Transactional; Integrative	Stages
Gray & Stites (2013)	Quartet	Reactive; Transactional; Integrative; Transformative	Types
Kolk et. al (2008)	Triad	Micro; Meso; Macro	Types
Lin & Darnall (2015)	Couple	Legitimacy-oriented; Competence-oriented	Types
Rondinelli & London (2003)	Triad	Arm's length; Interactive; Intensive Environmental Management Alliances	Types
Seitanidi & Ryan (2007)	Five-piece	Charitable Donations; Patronage; Sponsorships; Socio-sponsorships; CSM (Corporate Societal Marketing)	Forms
Wymer & Samu (2003)	Seven-piece	Corporate Philanthropy; Corporate Foundations; Licensing Agreements; Sponsorships; Transaction-based promotions; Joint Issue Promotion; Joint Ventures	Forms
Selsky & Parker (2005)	Couple	Transactional; Developmental	Types

Table 3. Business-NPO collaborations' taxonomies analysed in literature.

However, this detailing opera is not brought up as comprehensive from any scholar. Some like Selsky & Parker (2005), Rondinelli & London (2003), Wassmer et al. (2014) and Lin & Darnall (2015) distinguished business-NPO collaborations on the basis of the orientation, i.e., the reference sustainability pillar. What results is a distinction among social-oriented and environment-oriented ones; presented conclusions regard just one of those two sub-samples. In the same way, some of the focal works (Selsky & Parker, 2005; Wassmer et al., 2014; Gray & Stites, 2013) concentrated just on some of the stages proposed by Austin; classification outcomes are so to be again applied just to those single blocks. To sum up, existing taxonomies have investigated mostly sub-samples of business-NPO collaboration in detail, while wider taxonomies are too general to draw finer-grained conclusions. This requires a wider, more general and more operative taxonomy for large-scale studies.

3.3. Business-NPO collaborations' characteristics

In this section, the main characteristics of business-NPO collaboration are reviewed. Taxonomies' proposals presented before moved from different considerations in terms of importance of various characteristics. Understand which are the analysed aspects, their recurrence and the possible shortcomings is essential to understand the constructs to be then monitored in the reference sample of the present dissertation, and can highlight possible gaps.

Again, given its importance in the present literature branch, it is reasonable to start with the work by Austin (2000). The author theorized an evolution, a "migration (of the collaboration) from one stage to another", changing the nature of the business-NPO collaboration itself. This progression – if present - is governed by seven collaboration characteristics, namely:

- level of engagement;
- importance to mission;
- magnitude of resources;
- scope of activities;
- interaction level;
- managerial complexity;
- strategic value.

Those factors are conceptualised each one as an ordinal variable, representing a level, and this can be in general "low", "medium" or "high". Their expected progression over the Collaboration Continuum results from the correspondent variable taking value [0; 1; 2]. It is now interesting to investigate how other authors findings compare to this seminal contribution.

Byiers et al. (2015) discussed about the *relation with the core business* of the involved firm(s) as one of the crucial characteristics. This represents an interesting reformulation of the "importance to mission" concept by Austin, as more direct to be assessed. Byiers et al. (2015)

defined also relevant the level of engagement and the scope of activities comprehended in the collaboration.

An important original point in the debate is represented by the *governance structure*. The authors believe it is important to define who is the driving actor in running such activities. There can be “Civil Society Organisation (CSO) as a leader”, “donor as a leader” and “multistakeholder” collaborations, according again to the prominent subject in the realisation of the expected results. Jamali & Keshishian (2009) share, in their conceptualisation, these peculiar factors with this last theorisation by Byiers et al. but adding an important aspect that is the geographical scope of collaboration-related activities. This is an angle of the discussion about the scope of the activities that was not deepened by Austin too, firstly introduced by Selsky & Parker (2005) and then deepened also by Kolk et. al (2008).

Selsky & Parker (2005) raised another point that is significantly different from Austin’s characterisation: activities, and so the social and/or environmental issues to be tackled, are selected because they are, or are shaped to be, strategic. Therefore, those two constructs can be considered not as independent, but vice versa correlated.

The scope of collaborations’ activities is in general a crucial point in the work of Selsky & Parker (2005). In addition to the elements already discussed, they employed such construct as pivot to define the whole business-NPO collaborations concept. In fact, such interactions aimed to the solution and/or the mitigation of a social issue must not prescind from the *activation of specific operational processes*. The absence of any specific activity signals the non-collaborative nature of the relationship, according to the authors; in fact, they did not consider philanthropic relationships.

Rondinelli & London (2003) retrieved this process activation concept, but from a different angle. In fact, it is now linked to strategic objectives of the sought collaboration: firms are looking to NPOs, in medium and high-intensive collaborations, as capable to perform activities – that are, processes – which business is unable to. Again, the independence of strategic value to other construct(s), as instead theorised by Austin, is posed in discussion.

Chatain & Plaksenkova (2019) are deliberately working in the conceptual boundaries set by Austin, focusing on transactional ones. They posed the accent on the *resource flow*: in particular, the mutuality of the benefits is studied as the main characteristic of such interaction. The other relevant parameters - the interaction level, the magnitude of resources (intended also as services), the strategic value sought and the importance to the mission - serve to the firms as assessing elements in the comparison against the internalisation of such activities (e.g., upfront investments, transaction costs).

Clarke & MacDonald (2019) present again the concept of activities’ scope, but declined in a different way. In fact, they refer to “*task specificity*” meaning that the focal business-NPO collaboration was specifically born having a tight link with a given project. In the latter, activities to be covered can be multiple, from the simple funding to the organisation of the activities, relationships with the final recipients, and so on. This is an important difference,

present not only in other contributions proposing taxonomies based on collaborations typologies (Gray & Stites, 2013; Lin & Darnall, 2015), but also when exploring possible collaboration forms (Seitanidi & Ryan, 2007; Wymer & Samu, 2003, Wassmer et al., 2014). All these works conceptualised the idea that, introducing the focal discriminant, is possible to better differentiate the three building blocks proposed by Austin, realising the desired granularization work. For example, retrieving considerations from the works of Seitanidi & Ryan (2007) and Webb et al. (2010), the “philanthropic” stage proposed by Austin can be decoupled in pure altruistic philanthropic collaborations - “charitable donations” -, and sponsorships. There, despite of the direct resource exchange is still one-way, it is inserted a constraint about the activities to which the firm’s name would be related on. Such considerations contribute so to clarify some of the grey areas of Austin’s considerations, located within and at the contact points between the different stages. Clarke & MacDonald presented also as important the governance structure, but in a different way than Chatain & Plaksenkova (2019). More than on the identification of the leading actor, they focused on the legal and organisational structure: they distinguished both between contracted relationships or not and between collaborations presenting a formal leadership structure or not. This is a distinction present also in the work by Wassmer et. al (2014).

Dahan et al. (2010) evoked the same concept of task specificity, but in a broader way. In fact, they considered equivalent business-NPO collaborations project-specific and short-term ones (e.g., a single donation). This sub-sample is then opposed to long-term ones. This reasoning, retrieved also by den Hond et al. (2015), King (2007) and Ordonez-Ponce et al. (2021), introduces the idea of employing the *time duration* of a collaboration too as a defining characteristic. Dahan et al., together with other scholars like Perez-Aleman & Sandilands (2008) and Selsky & Parker (2005), have carried on also another important characterisation about the governance structure: they distinguished among dyad business-NPO collaborations and multistakeholder one. Dyad are those collaborations involving just one actor from the business and one from the nonprofit side, while multistakeholder ones encompass also higher numerosity of involved entities and /or belonging to different spheres, e.g., from the academic world, from the public sector, etc. (Rivera-Santos et al., 2012). More than on balance power and/or on the legal forms, the accent is so posed on the variety of involving actors, and proxies of the unique contributions they can bring to the activities.

Such construct is considered also by Gray & Stites (2013) in their personal development of an Austin-like taxonomy. Another important ones upon which they concentrate regard firstly the characterisation of the involved NPO, in terms of NPO mission and reputation, similarly to what done by King (2007). Another different angle found in literature from which look at involved NPO is their role. In particular, Rondinelli & London (2003) and Luo & Kaul (2019) placed emphasis on NPOs’ role against information asymmetry and quality shading. A possible practical outcome of this opera concerns certifications, e.g. environmental certifications of positive practices implemented by the business side. Secondly, they discussed about the importance of previous experience in such kind of

collaborations. The presence of corporate foundations, such as for Wymer & Samu (2003), can be useful as a signal.

Husted (2003) deepened the analysis of two of Austin's characteristics. First of all, the level of interaction, that is actually declined as the degree of coordination – or viceversa, autonomy – in running collaboration's activities. Secondly, the strategic level, that it is proposed to be strictly related to the business side motivation. This in turn, according to the author, influences the coordination and so the effort exerted by the business side in the collaboration. The author makes explicit reference to Burke & Logsdon (1996) in introducing such reasoning: the strategic level is correlated to the degree of overlapping of focal CSR activities and firm's core activities. It is this construct the crucial determinant for the magnitude and the typology of the sought strategic value.

Linked to this concept of the business side aspired value is the characterisation of the resource flow. More than on magnitude, as theorized by Austin, scholars like Lin & Darnall (2015) focused their attention on the typology of the resources. In particular, they distinguish between proprietary – of the business - resources, generic resources, like money, and strategic ones, i.e., missing internally to the business. These last can be knowledge of a particular social/environmental situation, of a customer base, reputation, etc. In general, they suggest that learning can be a desirable, strategic outcome from the business side in certain partnerships, as suggested also by Holmes & Smart (2009) and Kolk & Lenfant (2012).

Paper	Relation with core business	Resource flow	Scope of activities	Governance structure	Strategic objectives	Level of engagement	Interaction level
Austin (2000)	X	X	X	X	X	X	X
Byiers et al. (2015)	X		X	X		X	
Chatain & Plaksenkova (2019)	X	X			X		X
Clarke & MacDonald (2019)			X	X			
Dahan et al. (2010)	X		X	X			
den Hond et al. (2015)			X				
Gray & Stites (2013)		X	X				
Holmes & Smart (2009)		X	X		X		
Husted (2003)	X						X
Jamali & Keshishian (2009)	X	X	X				
King (2007)					X		
Kolk et al. (2008)			X	X			
Kolk & Lenfant (2012)		X	X	X			
Lin & Darnall (2015)		X	X	X	X	X	
Luo & Kaul (2019)				X			X
Ordonez-Ponce et al. (2021)			X	X			
Perez-Aleman & Sandilands (2008)				X			
Rivera-Santos & Rufin (2010)			X		X		
Rondinelli & London (2003)			X	X	X	X	X
Seitanidi & Ryan (2007)						X	X
Selsky & Parker (2005)		X	X	X	X		
Wassmer et al. (2014)				X			
Webb et al. (2010)				X			
Wymer & Samu (2003)	X			X			

Table 4. Constructs monitored by the reference scholars.

In Table 4 the constructs monitored by Austin (2000) are originally re-elaborated at the light of most recurrent interpretations by other scholars. The attempt is however to maintain a certain degree of aggregation in this phase.

From Table 4 what clearly emerges is the predominance, in the definition of business-NPO collaborations, of characteristics related to the scope of the activities and to the managerial complexity. If, on the one hand, the debate about the scope is broad and touching different angles proposed by different scholars (geographical scope, temporal scope, relation to a single project, environmental vs social orientations), the one about managerial complexity is more straightforward. In fact, many scholars declined it as the governance structure of the collaboration itself. The considerable attention reserved to such construct suggests a shared recognition in the academic community of a tight link between governance complexity and the resulting interaction.

The discussion about involved resources and proximity with business mission and objectives is quite shared too. The level of engagement and of interaction are the least analysed constructs: this is probably due to the difficulties in setting uniform and quantitative related metrics and/or proxies.

In general, this review process was needed not only to gather knowledge about past efforts in terms of classifications, but also to define which will be the aspects to be monitored, at least in a first phase, while analysing the present sample of business-NPO collaborations. To select among them will constitute a further, important outcome of the present dissertation.

Chapter 4

Research questions

4. Research questions

4.1. Research gaps

The literature review upon classification frameworks and significant constructs of analysis for business-NPO collaborations provided some fundamental starting points. The first one is the pivotal nature of Austin's work (2000). It demonstrated itself to be the one presenting the highest degree of completeness, as its three theorised stages encompass every possible collaboration in place. In addition to, it is unmatched in the considered literature also for what concerns the coverage of constructs.

The main limitation in that work, explicitly identified also by Seitanidi & Ryan (2007), regards the inability to differentiate within the identified macro-blocks, and so to be effectively adherent to the empiric reality. Translating this limitation into a research direction, the object taxonomy of business-NPO collaboration should overcome these three main literature gaps:

1. Few papers developing taxonomies exist. Most of them are either too general, lacking detail on relevant constructs, or too specific (i.e. investigating only certain types of collaborations);
2. Few taxonomies deepen more intensive collaboration types, i.e., integrative (Austin, 2000) ones;
3. There is a lack of quantitative, empirical-based evidence supporting such works.

As already discussed, a synthesis between the vast coverage ensured by works like the one by Austin (2000) and the granularization proposed by other ones (Gray & Stites, 2013; Kolk et. al, 2008; Marano & Tashman, 2012; Seitanidi & Ryan, 2007; Kolk & Lenfant, 2012; Wymer & Samu, 2003; Wassmer et al., 2014) is desirable. However, detailing proposals regarded almost exclusively philanthropic and – for the major part – transactional stages; the integrative one, embedding the most complex and at the same time the cases carrying the largest potential benefits, are absent. This is a first point to be touched.

The successive review had as object the analysis' constructs, i.e., the defining characteristics of business-NPO collaborations. Considered different studies highlighted how some of those are much more discussed in literature. Moreover, those can be further detailed, in particular given the sustainable development orientation of this dissertation.

The first force to consider in the formulation of a taxonomy is so the selection of important defining characteristics. Such screening has to be performed also considering the abovementioned necessity of heterogeneity adherence, in this continuous balance between detail and patterns' identification. Important in this sense seems to be the source of such classifications. The half of the existent and considered studies is conceptual or a literature review (23 papers over 46); in many others, the empirical part consists in case studies (17

over 46 papers). This in general means the *a priori* creation of business-NPO collaborations classes; only later those are tested against selected cases.

Papers moving from a large sample of observations are so a minority (7/46). In addition, all those studies do not present any taxonomy proposal, witnessing a clear lack of large-sample based frameworks. It is the author's opinion that starting from a way larger view on the reality, i.e., with an empirical approach, would allow to consider both the phenomenon in its completeness and its inner heterogeneity.

An eventual taxonomy arising from such a study will for sure answer to the academic necessities illustrated in this review; the analysed literature studies will provide the instruments, the theoretical lenses by which read the reality. It practically means to identify patterns, commonalities but also substantial differences among the different collaborations.

4.2. Research questions

The previous section described the literature branch in which the present dissertation lies in, and which research direction should be pursued in order to provide a significant contribution to the business-NPO collaborations realm. Nevertheless, another differentiation point from the reference contributions regards the boundaries of the research itself. In fact, scholars did not present any distinction in terms of the actors involved on the nonprofit side. The author instead, as presented in Section 2, moved from a univocal definition of the focal actor in the analysed collaborations with firms: Nonprofit Organisations (NPOs). Their peculiar characteristics and their positioning at the intersection between the Third Sector and the civil society were highlighted. Furthermore, just a subset of NPOs is considered, namely ones working for the sake of a scope of recipients larger than the mere members of the organisation itself.

Only the participation of entities respecting all the set criteria can make a business-NPO collaboration relevant for the present research. It works so as a screening criterion in the selection of the cases that are relevant for the large-scale empirical sample constituting the foundation of the peculiar research modality of this work. Expected outcomes are two-fold: to be capable of solving the introduced trade-off between completeness and detail, and to be quantitative in derive such findings.

In order to do so, it was necessary to gather knowledge about the possible and most shared dimensions along which to monitor and classify collaborations. The second part of the literature review was properly deputed to this objective, and allowed to answer to this first research question:

RQ1. *Which are the most relevant constructs in characterising business-NPO collaborations?*

Based on the identified relevant constructs, another research question can be answered, namely:

RQ2. Which are the empirically observable typologies of business-NPO collaboration, oriented to sustainable development, arising from the interaction of relevant characteristics?

The construction of the database needed to derive as data-driven such proposals will be another fundamental and original contribution from the present dissertation. In fact, not only it constitutes potentially the basis for future studies on the topic, but also can be exploited to obtain additional results. In particular, a series of statistic studies can be performed exploiting the database information. For example, monitoring observations for successive years will provide an idea of the evolution of the phenomenon; characterising the involved players, i.e., firms and NPOs, and arising interactions among them will allow to understand which are the main types of collaborations undertaken, and the most targeted themes.

Several similar analyses like these will be performed, allowing to answer to the following research question:

RQ3. What is the current landscape of business-NPO collaboration in the empirical context of Italian large, listed firms, in terms of size and distribution of the phenomenon?

In the following sections of this work, the construction of the original database will be described in detail. It will be as first employed to describe the situation concerning business-NPO collaborations in Italy. Then, the clustering model adopted will be presented together with related results. Those will constitute the taxonomy proposal, answering to one research question. Once identified objective clusters, further, more detailed statistical analyses within their boundaries will be performed, allowing to answer to the last research question.

Chapter 5

Methodology

5. Methodology

In the present dissertation, the key instrument in answering the research question is so a database mapping business-NPO collaborations. Such information regards collaborations undertaken by selected Italian listed companies. To the author's best knowledge, a similar database does not currently exist. Therefore, one of the main contributions of this work has been the creation from scratch of a similar database, referred to the 2017-2019 period.

In the following section of this work, the methodology followed in the construction of this database will be illustrated. The statistical techniques employed in the analysis of the database itself will be introduced too, as describing the results' extraction process. The order will be the same as the logical one followed by the author.

5.1. Preliminary considerations

The research direction that drove this work was to classify identified business-NPO collaborations in a preliminary classification made up of two orthogonal dimensions. It consists of two main axes, representing two distinct classification dimensions; being independent one from each other, they allow to conceptualise a bidimensional space. It assumes the form of a matrix, where resulting, conceptual quadrants, corresponds to a certain combination of characteristics and will be populated by the gathered observations.

The first dimension concerns the resource flows; in particular, the objective is to distinguish the mono or bidirectionality of those resource flows and, in case of unidirectional relationship, observe which of the two actors is the contributor and who the recipient. The second dimension regards the activation of operational processes within the collaboration. Again, we expected cases in which those processes are carried out or by both the involved actors or by just one of them; there can be also cases without activation of operational processes by any actor.

The choice of such dimensions as pivotal in the development of the present work is not casual. The analysis of the resource flow is widely recognised in the reference literature as fundamental. A resource-based point of view is adopted by several scholars. Austin (2000) employed the bidirectionality or not of the resource flow as discriminant among different collaborations' stages; the same was retrieved by the several other studies that starts from his considerations (Chatain & Plaksenkova, 2019; Gray & Stites, 2013). Such resource-based analysis of collaborations represents also the needed foundation to more deepened studies, for example about the characterisation of the involved resource (Clarke & MacDonald, 2019; Lin & Darnall, 2015).

For what concerns the activation of operational processes, the reasoning was different. Along with some studies explicitly considering such dimension as a discriminant (Selsky & Parker, 2005; Rondinelli & London, 2003), the analysis of constructs most considered in literature highlighted as dominant the managerial complexity and the scope of activities. The activation or not of such processes, and from which side, represented, in author's

opinion, the best synthesis possible of those two features to be represented. The activation of such processes implies a higher complexity for the involved actor; such intricacy is faced to undertake broader actions in terms of scope, seeking for higher benefits.

In Figure 7 is represented the preliminary matrix made of 16 possible intersections. The observed business-NPO collaborations will be there organised.

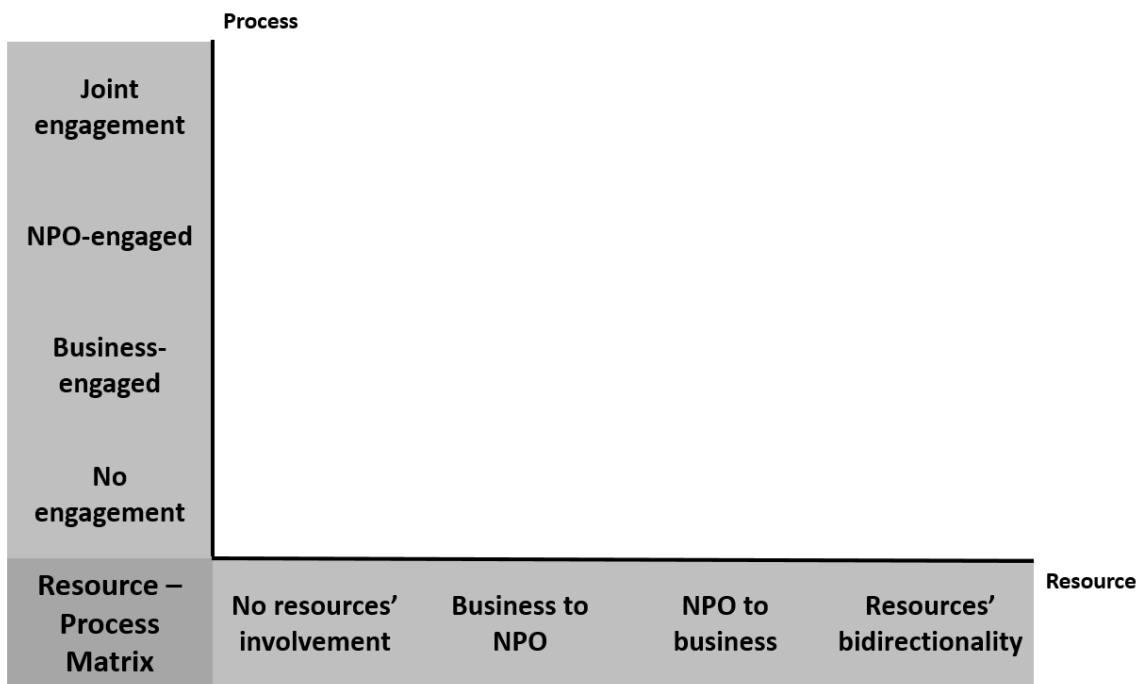


Figure 7. Conceptual resource-process matrix (RPM).

The idea is to verify the resulting conceptual matrix against the reality of the business-NPO collaboration landscape. The empirical study (and the associated database construction) will allow in a first moment to observe which of the possible combinations practically exist and their frequency. The analysis will be then broadened: this preliminary framework will be enriched with more sophisticated dimensions derived from the literature review, resulting in an n-dimensional clustering analysis of the considered sample.

5.2. Firms' sample description

As already introduced, the main instrument enabling such analysis is an ad-hoc database, to be built from scratch. The construction of such instrument moved from the theoretical considerations applied to the research object. Namely, the scope was restricted to business-NPO collaborations related to sustainable development. For this reason, the analysis encompasses only those NPOs, intended as organisations located in the conceptual intersection among Third Sector and civil society, presenting a clear orientation to the public interest, i.e., acting for the sake of a number of recipients well larger than their members.

The scope of the study is so made of the involved players and of the collaborations arising from their interactions. Mirroring this conceptualisation, the database will be made of three sections: one section for each on the main actors involved i.e., considered firms and NPOs, and a central one in which the monitored business-NPO collaborations are classified according to a series of relevant, characteristic constructs.

The methodology employed in building those three main sections will be now described.

Before describing the database section deputed to the description of the business actors, it is needed to characterise the reference sample. The point of view adopted throughout all the research, while facing the business-NPO collaborations' world, is the firms' one. In order to be coherent, the sampling was performed on their side. In other words, the focus is restricted on just a subset of firms, and from there it is re-expanded embracing all the NPOs found to collaborate with them.

The first sampling criterion referred to the *listing* on the stock exchange. Going public is considered as a clear signal of the adherence to market rules and of the relationship with a plethora of investors. Moreover, it was decided to consider only such firms as the listing itself determines the application of a uniform set of rules and conducts, that cannot be given for granted in the case of non-listed ones. The abovementioned constraints are oriented to favour the transparency towards investors. This happens by means of disclosures, that, as will be explained later, constitute the main information source for the present dissertation.

Therefore, the listing not only increases the availability of information, for the research's sake, but also the fact that such disclosures must comply with a set of requirements makes it more standardised.

The second sampling criterion concerned the *geographical scope*. Only companies listed into the Italian Stock Exchange were considered. This choice derived from two different reasons, that made it the preferred one against other countries and/or a more international scope:

- Considering only one country in the construction of the database, rather than more than one, allows to provide a snapshot of the current situation of that country for what concerns business-NPO collaborations;
- Considering Italy as the reference country contributes to: (i) the originality of the present work, given that, as highlighted in the literature review, such a database and relative analysis do not currently exist; (ii) the fastening of the process of eventual deepening of observations and/or results by means of case studies, thanks to University tight bonds with the firms on the territory.

The focus is so on Italian listed companies. Given their very large numerosity and the pioneering nature of the present work, it seemed appropriate to considerably restrict the reference sample. The first adopted criterion in this sense concerned the size of the firms. In the literature review was highlighted how just a very small number of works (7 out of 46)

employed a large sample in their analyses. Moreover, five of those employed an already existing database, so did not have to face this delicate database-building phase. The other two works (Albino et al., 2012; den Hond et al., 2015) focused their attention, similarly to the present dissertation, on a single country, but considering only the largest firms in the reference geographical scope. Albino et al. (2012) analysed the 500 largest U.S. companies; the same is done by den Hond et al. (2015) but referred to Netherland situation.

Despite of the reference sample of the present dissertation will be narrower, the firms' size appeared a quite shared criterion, although the numerosity of works with a similar approach is very limited. Applied to the Italian case, such research direction is translated into the consideration of just two stock indexes. The first one is the FTSE MIB: according to the website of the Italian Stock Exchange (Borsa Italiana, 2021), it encompasses the shares of the 40 Italian companies with the largest market capitalisation. Given their too low numerosity, also FTSE STAR was considered. Such decision was taken to have a higher degree of variety in the reference sample: in fact, FTSE STAR encompasses 75 Italian companies with capitalisations up to one billion of euros. Moreover, firms, to be allowed into the index, must respect very strict rules in terms of transparency, liquidity, and corporate governance (Borsa Italiana, 2021).

The resulting sample is so made of 115 Italian listed firms, with medium-high market capitalisation. An additional screening was performed for what concerns the *sector*.

The rationale behind the choice of further restrict the sample was two-fold. On the one hand, the necessity of reduce the vastness of the sample itself, given the very time-consuming research activities that were planned to be performed on the selected firms' sample; at the same time, the goal was to make it the most significant possible. Firms operating in the financial sector were so excluded, as they lack the operational processes and resources differentiation content that constitutes the two fundamental blocks in the present analysis. Their absence was considered to make the introduction of biases, e.g., a net predominance of just monetary resource flow towards NPOs, very likely. Furthermore, they operate in the financial sector, which is heavily regulated. For the same reason, i.e., to avoid bias introduction, other firms operating in regulated sectors – such as utilities – were excluded. Such decision was taken as, in these sectors, also the investments and in general the efforts towards sustainability are directed and, for a certain quota, mandatory due to regulation. These attributes make falling not only the voluntariness in the interaction with NPOs and in general with the Third Sector, that, as repeated, is a defining characteristic of the whole societal sphere, but also the placing of such collaborations in an idea of firm strategy. If a firm not operating in a regulated sector has many strategic alternatives to evaluate, e.g., if invest, and which amount, in social problems, if internalise or not such solution, with whom collaborating, etc., such process is way more streamlined and simplified in the regulated sector case. The risk is to not properly represent the real Italian firms' landscape in terms of collaborations with NPOs. Thus, they are excluded by the reference sample too.

The final sample of firms for the present dissertation is so made of Italian listed firms, present in FTSE MIB or FTSE STAR indexes, *excluded* ones operating in financial and/or regulated sector.

81 Resulting firms are so: AEFPE S.P.A.; AEROPORTO GULIELMO MARCONI DI BOLOGNA S.P.A.; ALKEMY S.P.A.; AMPLIFON SPA; AQUAFIL S.P.A.; ARNOLDO MONDADORI EDITORE SPA; ATLANTIA S.P.A.; AVIO SPA; B&C SPEAKERS S.P.A.; BB BIOTECH AG; BIESSE SPA; BREMBO SPA; BUZZI UNICEM S.P.A.; CAIRO COMMUNICATION SPA; CAREL INDUSTRIES S.P.A.; CELLULARLINE S.P.A.; CEMBRE S.P.A.; CEMENTIR HOLDING SPA; CENTRALE DEL LATTE D ITALIA S.P.A.; CNH INDUSTRIAL N.V.; D'AMICO INTERNATIONAL SHIPPING S.A.; DATALOGIC SPA; DAVIDE CAMPARI-MILANO N.V.; DIASORIN S.P.A.; DIGITAL BROS S.P.A.; EL.EN. S.P.A.; ELICA SPA; EMAK S.P.A.; ESPRINET S.P.A.; EUROTECH SPA; FABBRICA ITALIANA LAPIS ED AFFINI S.P.A. F.I.L.A.; FCA ITALY S.P.A.; FERRARI N.V.; FIERA MILANO SPA; GEFRAN S.P.A.; GIGLIO GROUP S.P.A.; GRUPPO MUTUIONLINE S.P.A.; GUALA CLOSURES S.P.A.; I.M.A. INDUSTRIA MACCHINE AUTOMATICHE S.P.A.; IMMOBILIARE GRANDE DISTRIBUZIONE SOCIETA DI INVESTIMENTO IMMOBILIARE QUOTATA S.P.A.; INTERPUMP GROUP SPA; IRCE S.P.A.; ISAGRO SPA; ITALMOBILIARE S.P.A.; IVS GROUP S.A.; JUVENTUS FOOTBALL CLUB SPA; LA DORIA S.P.A.; LANDI RENZO S.P.A.; LEONARDO S.P.A.; MARR SPA; MONCLER S.P.A.; MONDO TV SPA; NEWLAT FOOD S.P.A.; OPENJOBMETIS S.P.A.; ORSERO S.P.A.; PANARIAGROUP INDUSTRIE CERAMICHE SPA; PIOVAN S.P.A.; PIRELLI & C. SPA; POLIGRAFICA SAN FAUSTINO SPA; PRIMA INDUSTRIE SPA; PRYSMIAN S.P.A.; RECORDATI INDUSTRIA CHIMICA E FARMACEUTICA S.P.A.; RENO DE MEDICI SPA; REPLY S.P.A.; RETELIT SPA; SABAF SPA; SAES GETTERS SPA; SALVATORE FERRAGAMO SPA; SANLORENZO S.P.A.; SERVIZI ITALIA SPA; SESA S.P.A.; SICIT GROUP S.P.A.; SOGEFI S.P.A.; STMICROELECTRONICS NV; TELECOM ITALIA SPA; TENARIS S.A.; TESMEC SPA; TXT E-SOLUTIONS SPA; UNIEURO S.P.A.; WIIT S.P.A.; ZIGNAGO VETRO S.P.A.

Once the firms' sample was defined, starting from that the observations constituting the database, i.e., business-NPO collaborations undertaken by reference companies, were gathered. In the following section, the methodology followed will be depicted.

5.3. Collaborations' sample description

In the identification and categorisation of focal business-NPO collaborations, it is of fundamental importance to describe information sources exploited. Those can be essentially two. As first and foremost reference, the *non-financial documents* made available to the public by the analysed firm. Namely, such sources are sustainability reports or non-financial disclosures (DNF); for the purposes of this analysis, they are considered as equivalent. The choice of listed companies was also taken to increase the probability of find such sources publicly available on focal companies' investor areas. If present, the information source became those non-financial documents, over the available years in the 2017-2019 period.

The investigation was performed by searching in the object documents for a dictionary of keywords drawn from literature on business-NPO collaboration:

Partner; Collaborat*; Associat*; Foundation*; Initiative*; Cooperat*; Communit*; Onlus; NGO; NPO; Non-profit / No-profit / No profit / Non profit / Nonprofit; Alliance*; Contribut*; Support*; Charit*; Philantrop*; Sponsor*; Organization*; Solidarity; Third Sector.*

Potentially interesting collaborations were deepened with the support of punctual online searches. It is important to verify the adherence of observed collaborations with the research questions of the present work. In particular, the nature of partners and of the collaboration, e.g., if the involved NPO can be considered a club-type or not, and the orientation towards sustainable development activities are checked.

Nevertheless, some of the firms in the reference sample resulted to not present any similar documentation. For companies not presenting any non-financial document, systematic research was performed querying the following Italian newspapers online archives through web search engines, in the same time horizon (2017-2019): *Il Sole 24 Ore, Il Corriere della Sera, La Repubblica, Il Resto del Carlino, Il Messaggero*. Newspapers were selected according to their diffusion, both in terms of printed copies and of geographical diffusion.

More precisely, the followed procedure was an iterative one. Keeping fixed the analysed firm, the performed steps were:

- i. select one of the firms which do not present any non-financial reporting;
- ii. select one of the reference press sources, and fixed the firm and the journal, go through the keywords;
- iii. once all the keywords are reviewed, change the press source, restarting the keywords' browse as in phase;
- iv. completed the previous research, the same process restarted for a different company.

Corroboration with media sources was performed on a sample of firms with available non-financial disclosures, revealing the comprehensiveness of the latter as data sources to map collaborations with NPOs. Collaborations identified by means of online press sources are treated in the same way as ones identified in non-financial documents provided by firms.

5.4. Variables

Once that both firms' and collaborations' samples were defined, and so all the analysis objects (firms, NPOs and undertaken, in-scope collaborations) were identified, the database can be populated with the selected constructs of analysis. Variables modelling such characteristics are so to be set.

The three main sections, one for each focal object of the analysis - firms, NPOs and collaborations - will be now described case by case. Sub-sections are present too, made of several variables aggregated as they concur to characterise a certain angle of that object.

5.4.1. Business firms

In the focal section of the database, relevant information about the contained players is gathered. Deputed part is then articulated into three subsections. Those cover distinct identifying dimensions of a firm, that are thought to be relevant and correlated to collaboration activities. Embedding those in such a database will allow to build a very versatile but complete instrument for analyses, both for the sake of this work and for future developments. In particular, the three subsections are related to demographic information, financial information, and sustainability-related activities' information.

Demographic information

Demographic elements are those capable to define each firm as unique and distinct to the other ones. For each of the 81 companies composing the reference sample, collected information are:

- the location of the headquarters, in terms of geographical area, country and city;
- the reference operating sector and related NACE Rev.2 code;
- the Italian Stock Exchange index (FTSE MIB or FTSE STAR) to which they belong.

In Table 5 defined variables are summarised.

Variable	Description	Type of variable
<i>City</i>	Alphabetic string defining the urban agglomerate where headquarters are located	Categorical
<i>Country</i>	Alphabetic string made of the ISO code referred to the nation where headquarters are located	Categorical
<i>Area</i>	Alphabetic string defining the supranational area where headquarters are located	Categorical
<i>NACE_Rev2</i>	Alphanumeric string that, retrieving NACE Classification, describes the economic activities run by focal firm	Categorical
<i>FTSE_MIB</i>	Variable signalling the listing of the focal firm to that stock index	Binary
<i>FTSE_STAR</i>	Variable signalling the listing of the focal firm to that stock index	Binary

Table 5. Variables describing the demographic information of sample firms.

In addition to, also qualitative and descriptive information are added to the database in form of text, such as the description of firms' core businesses and of the associated NACE Rev.2 code.

This information, except for the reference stock exchange index, which was an antecedent, has been collected through the Orbis database. A univocal numerical code ("Firm_Code") is also arbitrarily assigned to each single company as identifier, for the sake of the analysis.

In Figure 8 a screenshot of the focal section of the database and related information is reported.

	A	B	D	E	F	G	H	I	J	K
1	Demographic information									
2	Firm	Firm_Code	FTSE MIB	FTSE STAR	City	Country	Area	Activities' del	NACE Rev. 2	NACE Rev. 2
3	AEFFE S.P.A.	1	0	1	SAN GIOVANNI I	IT	Western Europe	The Company is	14.13	Confezione di al
4	AEROPORTO GUGLIELMO MARCONI DI BOLOGNA S.P.A.	2	0	1	BOLOGNA	IT	Western Europe	The main activit	52.23	Attività dei servi
5	ALKEMY S.P.A.	3	0	1	MILAN, LOMBAR	IT	Western Europe	The Company pr	70.22	Altre attività di c
6	AMPLIFON SPA	4	1	1	MILANO	IT	Western Europe	The main activit	32.50	Fabbricazione di
7	AQUAFIL S.P.A.	5	0	1	ARCO	IT	Western Europe	The Company's r	20.16	Fabbricazione di
8	ARNOLDO MONDADORI EDITORE SPA	6	0	1	MILANO	IT	Western Europe	The Company wi	58.14	Edizione di rivist
9	ATLANTIA S.P.A.	7	1	0	ROMA	IT	Western Europe	The main activit	52.29	Altre attività di s
10	AVIO SPA	8	0	1	ROMA	IT	Western Europe	The Company's r	84.12	Regolamentazio
11	B&C SPEAKERS S.P.A.	9	0	1	BAGNO A RIPOLI	IT	Western Europe	The main activit	26.40	Fabbricazione di
12	BB BIOTECH AG	10	0	1	KUSNACHT	CH	Western Europe	The Company is	72.11	Ricerca e sviluppp
13	BIESSE SPA	11	0	1	PESARO	IT	Western Europe	The main activit	28.99	Fabbricazione di

Figure 8. Database extract of demographic information of sample firms.

Financial information

Several economic and financial measures of sample firms are introduced to enable eventual inter-firm comparisons in this sense and/or to have quantitative elements to be inserted in an econometric model. Values populating such continuous variables have been again collected through the Orbis database; values are observed for the whole 3-year period considered.

In Figure 9 a screenshot of the focal section of the database and related information is reported.

	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA
	Financial Information												
Firm	Production	Production	Production	EBT [th. U	EBT [th. U	EBT [th. U	Net Profit	Net Profit	Net Profit	Net Cash I	Net Cash I	Net Cash I	Total Asse Tr
3 AEFPE S.P.A.	406071.975	403047.07	379532.74	24496.86	32972.58	22712.34	13135.91	19151.28	13779.95	43138.55	32617.63	27642.66	566861.9
4 AEROPORTO GULIELMO MARCONI DI BOLOGNA S.P.A.	140576.641	130635.41	118905.76	33805.35	28597.53	26442.16	23425.13	20526.43	19151.61	38110.22	31288.29	29733.04	302194.6
5 ALKEMY S.P.A.	94949.7556	82015.246	n.d.	276.3564	4893.732	n.d.	-156.153	3718.962	n.d.	1799.687	4607.482	n.d.	103324.7
6 AMPLIFON SPA	1947342.87	1559758.7	1523890	168666.1	158669.6	156325.1	122075.4	115007.3	120623.2	339452.1	197627.1	195956	3203193
7 AQUAFIL S.P.A.	619566.253	638693.92	659124.25	11822.66	42460.06	32189.2	10116.22	34461.08	30122.81	52540.29	64644.44	59180.64	694634.1
8 ARNOLDO MONDADORI EDITORE SPA	999932.593	1023827.5	1524808.7	55154.44	-183529	56951.14	31679.88	-202817	39504.93	77258.45	-178487	81530.78	1049735
9 ATLANTIA S.P.A.	14646887.3	8958655.1	8157878	529121.3	1762788	2477072	401053.7	936657.4	1405319	4790177	2499705	2710732	91689649
10 AVIO SPA	448575.808	509868.76	395600.96	30313.82	31898.57	26418.17	29430.83	27867.02	22019.14	47469.26	43933.67	34766.5	1142167
11 B&C SPEAKERS S.P.A.	48266.8747	63139.912	48692.762	10868.89	10524.85	10134.08	8795.097	10674.84	7471.636	10493.68	12293.87	8475.45	52441.43
12 BB BIOTECH AG	390.415192	294.50594	4.1013021	699751.1	-478595	704993.3	699680.8	-478667	704914.4	n.d.	n.d.	n.d.	3671315
13 BIESSE SPA	800184.235	855187.19	833260.15	26335.86	46319.85	72834.66	14634.53	29584.52	51040.99	62827.26	55961.9	76701.2	699863.5

Figure 9. Database extract of financial information of sample firms.

Sustainability-oriented efforts information

The elements collected in this subsection of the database are the least standardised one, and this nature directly descends from the topic they are trying to describe. The followed approach has a direct link with the subsequent part of the study, i.e., the description of undertaken collaborations.

In detailing the collaborations' sample, a differentiation among companies presenting a dedicated document to non-financial matters and companies not producing it was introduced. This has implications not only for what concerns the information gathering phase - whose respective alternative processes were already described - but represents also a clear signal of the attention posed, by focal firms, on sustainability matters. Therefore, the first part of firms' information recorded was related to available sources and composed by:

- A binary variable "Source" representing if the company presents or not a non-financial reporting, in any form;
- Two binary variables detailing, only for firms presenting such reporting, the form through which they present it. Namely, observed possibilities consist in having a dedicated document ("DNF") or just a section in the financial integrated annual report ("Integrated_DNF");
- Other three binary variables defining the time coverage of such reporting action: in particular, firms are observed to have a complete coverage of the considered period ("Triennium"), to cover the last two years ("2018-2019") or just the 2019 ("2019"). No

cases of companies ceasing the non-financial reporting during the period were observed.

Identified non-financial sources, if present (*Source* = 1) were exploited to collect other possible elements considered interesting as proxies of sustainability-oriented efforts by the focal companies. First of all, an additional binary variable is introduced, aiming to monitor the presence or not of an explicit reference, in the analysed reporting, to one or more Sustainable Development Goals (“*SDGs*”). At a more granular level, for the firms presenting such direct reference to this well-known framework, what it is also recorded is the presence of each single SDG. This analysis step was performed by a set of binary variables, one for each Goal (“*SDG_1*”; “*SDG_2*”; “*SDG_3*”; ... ; “*SDG_17*”). It allowed to detail in a more precise way the sustainability direction of the focal company. Moreover, for each firm information is gathered about the presence or not of an integrated philanthropic foundation (“*Foundation*”). Such cases are interesting as it was identified as a direct witnessing of interest and resource allocation to the topic of CSPs and in general Corporate Social Responsibility (CSR) (Wymer & Samu, 2003; Ashraf et al., 2019). It can be also seen as an alternative to collaboration with NPOs (Wymer & Samu, 2003). In any case, it is so interesting to be monitored. A final variable embedded in this section is a binary one, witnessing the undertaking or not, by the focal firm, of at least one in-scope business-NPO collaboration (“*Collab_NPO*”).

The objective of such set of monitored variables is in general to characterize the effort, and so the attention, of firms towards the broad concept of sustainability. This part of the study was conducted to verify, in a subsequent research phase, the existence of correlation phenomena between the concrete interest and effort towards sustainable development by firms and the engagement in a collaboration (*Collab_NPO* = 1); such analysis can be even broadened, extending it to the nature of the collaborations themselves. The granular and multifaceted footprint given to the database will allow then to have different possibilities in the characterization of such relationship, both in terms of scope and detail level, as will be discussed in the next sections.

In Table 6 the whole set of the variables composing such section of the database is recalled, together with their short description and statistical nature (e.g., binary, categorical, etc.). In Figure 10 a screenshot of the focal database section and related information is reported.

Variable	Description	Type of variable
<i>Source</i>	Variable signalling the eventual presentation of non-financial documents by the focal firm	Binary
<i>DNF</i>	Variable signalling the eventual presentation of a dedicated non-financial documents by the focal firm	Binary
<i>Integrated_DNF</i>	Variable signalling the presence of non-financial section within financial disclosures by the focal firm	Binary
<i>Triennium</i>	Variable signalling the coverage of the whole considered period by firms' non-financial documents	Binary
<i>2018-2019</i>	Variable signalling the coverage only of the last two years of the considered period by firms' non-financial documents	Binary
<i>2019</i>	Variable signalling the presence of firms' non-financial documents only in the last considered year	Binary
<i>SDGs</i>	Variable indicating the presence of explicit reference to SDGs in firms' non-financial document	Binary
<i>SDG_1</i>	Variable indicating the presence of explicit reference to SDG 1 in the considered non-financial document	Binary
<i>SDG_2</i>	Variable indicating the presence of explicit reference to SDG 2 in the considered non-financial document	Binary
...	...	Binary
<i>SDG_17</i>	Variable indicating the presence of explicit reference to SDG 17 in the considered non-financial document	Binary
<i>Foundation</i>	Variable signalling the existence of a corporate foundation associated to the focal firm	Binary
<i>Collab_NPO</i>	Variable signalling if the focal firm undertakes at least one relevant business-NPO collaboration	Binary

Table 6. Variables describing the demographic information of sample firms.

	A	M	N	O	P	R	S	T	U	V	W	AL	AM	AN	
		Non-financial information													
1	Firm	DNF	Report	Integrated	Source	Triennium	only 2019	only 2019	SDGs	SDG_1	SDG_2	SDG_17	Foundation	Collab_NPO	
2	AEFFE S.P.A.	0	0	1	1	1	0	0	0	0	0	0	0	0	
3	AEROPORTO GULIELMO MARCONI DI BOLOGNA S.P.A.	1	1	0	1	0	0	1	1	0	0	0	0	1	
4	ALKEMY S.P.A.	1	1	0	1	0	1	0	0	0	0	0	0	0	
5	AMPLIFON SPA	1	1	0	1	1	0	0	0	0	0	0	1	1	
6	AQUAFIL S.P.A.	0	0	1	1	1	0	0	1	0	0	0	0	1	
7	ARNOLDO MONDADORI EDITORE SPA	1	1	0	1	1	0	0	0	0	0	0	1	1	
8	ATLANTIA S.P.A.	1	1	0	1	1	0	0	1	0	0	1	0	1	
9	AVIO SPA	1	1	0	1	1	0	0	1	0	0	1	0	1	
10	B&C SPEAKERS S.P.A.	0	0	0	0	0	0	0	0	0	0	0	0	0	
11	BB BIOTECH AG	0	0	0	0	0	0	0	0	0	0	0	0	0	
12	BIESSE SPA	0	1	0	1	1	0	0	1	0	0	1	0	1	
13		0	1	0	1	1	0	0	1	0	0	1	0	1	

Figure 10. Database extract of sustainable oriented efforts by sample firms.

5.4.2. Business-NPO collaborations

The second section of the focal database contains all the information thought to be relevant in the characterisation of the undertaken, in-scope collaborations. The reference sample is the one detailed in the deputed section of this work.

It is noteworthy to remember that preliminary information, such as the NPO(s) involved in the collaboration, the year(s) in which the focal collaboration is reported and a synthetic, textual description of the object and the functioning of the collaboration, had been already gathered during sampling phase.

In particular, the description of the collaborations themselves, as reported in the exploited sources and/or integrated by Google search investigation, constituted the starting point for the categorisation of the observations.

Extracted information was categorised along some main dimensions. Such characteristics were chosen to allow not only to achieve a more complete and precise knowledge of collaborations, but also to translate textual, variegated knowledge about such collaborations into a uniform, statistical basis. In this way, the database can be capable of supporting many different descriptive and inferential statistical analyses. All the gathered and categorised information, together with companies' and NPOs' characteristics, will be exploited in next sections of the present work to describe, by means of statistical analyses, the current landscape of business-NPO collaborations in Italy; to derive an empirical-based taxonomy of business-NPO collaborations; to investigate possible existing correlations with the type of partnership they are likely to undertake. The abovementioned dimensions of analysis are:

- The *structure* of the business-NPO collaboration, i.e., the number and typology of partners;
- The *scope* of the business-NPO collaboration, i.e., the geographical, time and objective coverage;
- The *activation of operational processes* associated to business-NPO collaboration, and the responsible actor(s);
- The *resource flow(s)* associated to business-NPO collaboration.

Each of the previous dimensions is then composed of several variables. The database structure that results is the following: the selected variables represent the columns of the database, while the single collaboration constitutes the row. Consequently, each cross represents a certain characteristic of a given collaboration.

Selected analysis constructs are not casual, but directly derived as those emerged as the most recurrent in the literature review. In the introduction to the present Section, it was already discussed about the importance of resource flows and specific operational processes. In Table 4 the frequency analysis of interesting dimensions for each of the sample literature contribution highlighted as prominent the modelling of the structure and the

scope of observed collaborations. However, such aspects are very broad, and in fact are then declined in different ways by reference scholars, and by the present dissertation too.

Two dimensions from Table 4 were instead excluded: it was the case of the level of engagement and interaction level. Those dimensions, as defined by Austin (2000), cannot prescind from a case-study approach, i.e., the deepening of single observations especially by means of interviews with the interested parts. For example, a proxy for the interaction level was set to be the number of meetings by the interested parties along a year: this is an information clearly not reported in any kind of public disclosure. Moreover, such aspects are qualitative: they are more likely to be measured by a scale – again, in particular by means of interviews – than by objective indicators.

As detailed in the RQs, the present dissertation follows a diametrically opposed direction, aiming to enlarge the sample of observations and to derive conclusions by objective measures and computations. This is the reason why such dimensions were excluded.

It is noteworthy to pose the attention on the fact that the present work, differently from other in the same literature branch, voluntarily focuses on the structure of the partnership more than on aspects related to the expected outcomes and or to possible drivers/barriers in the undertaking of them. The authors' goal is to define a set of first-level variables, as objectively as possible. Going to the root of partnerships' structures, by analysing their composition according to the multiple presented dimensions, it will be first of all possible to provide a snapshot of the current situation. Imaging a n-dimensional space, such investigation will determine which intersections are actually pursued, and their relative occurrence rate. The description of the current landscape, with particular reference to the state-of-the-art of business-NPO collaborations in Italy, will allow to answer to RQ3, being one, first, important contribution of this work.

Moreover, leveraging on this first conceptualisation, it is possible to eventually refine the analysis. This is possible by means of a series of second-level variables. For example, observations presenting similar values in monitored characteristics can be then grouped by empirical form assumed by the collaboration, i.e., the typology of agreement (sponsorship, donation of monetary resources, joint ventures) through which the collaboration takes place (Seitanidi & Ryan, 2007; Wymer & Samu, 2003; Wassmer et al., 2014). Moreover, involved resources can be reclassified by grouping them according to set criteria about the form in which the focal collaboration is constituted, e.g. as proposed also by Clarke & MacDonald (2019) and Lin & Darnall (2015), while discussing about tangible and intangible resources.

Collaboration structure

The first sub-section of the database related to the collaborations refers to the structure of collaborations. Embedded variables are so defined in order to cover all the elements that can, in the most quantitative and objective way possible, define the governance of the focal collaboration.

Firstly, a binary variable ("*Membership*") describing if the focal collaboration consists in a membership, by the focal firm, in the NPO or in a project led by the NPO. The introduction of such aspect, absent in the literature, arose from the empirical observations of several sort of cases. Indeed, memberships are likely to present peculiar features, such as the presence of a membership fee (Smith, 1993), the possibility of participating in the organisation's board (Tschirhart, 2006, pp. 523-541), the knowledge sharing with community members (Fang et al., 2021), the visibility deriving from such adhesions (Carbonsink, 2021).

More adherent to what observed in literature was the introduction of a set of binary variables signalling the presence of a collaboration structured in a different way from the simplest configuration possible, i.e., the dyad. The dyad refers to a collaboration involving just one player from the business sector, i.e., a firm, and one from nonprofit sector, i.e., an NPO. Namely, deviations from such structure are sought in a numerosity of actors higher than two and/or in additional players belonging to other sectors. Namely, those are public sector, academia or research centres, and business associations.

Such conceptual guesses are translated into statistical information in the following way. Firstly, a binary variable ("*Other_NPO*"), signalling the presence of a numerosity of involved NPOs higher than one, is introduced. In the affirmative case, the NPO name is reported too, and it is analysed in the same way as all the other NPOs (see "*NPO side*" Section of this work). The same procedure is implemented in case of reported involvement of other firms ("*Other_Firm*"), with the only difference that such firms are not integrated in the reference sample. A set of binary variables ("*Bus_Association*"; "*Public*"; "*Academic_World*") is also introduced, to monitor the presence of actors from the different sectors above listed.

To sum up all this variegated information, a second-level variable is introduced. Namely, a binary variable defining if the focal collaboration can be considered a multi-stakeholder one or not ("*Multi_Stake*"). This variable aims to be an aggregation of the information associated to the previous variables, and to represent the eventual opposition to the structural concept of dyad. The condition is so fulfilled ($Multi_Stake = 1$) when at least one among *Other_NPO*, *Other_Firm*, *Bus_Association*, *Public* or *Academic_World* presents value equal to 1. Again, this signals a structure more complex than a single firm collaborating with a single entity in the analysed sample of civil society is observed.

The variables described above are synthetically enumerated and described in Table 7. Particular attention is given to their presence, if any, in the reference literature sample. In Figure 11 a screenshot of the present section of the database is reported.

Variable	Description	Type of variable	Literature references
<i>Membership</i>	Variable signalling if the focal collaboration is taking the form of a membership or not	Binary	---
<i>Other_NPO</i>	Variable modelling the involvement, in the focal collaboration, of a numerosity of NPOs higher than one	Binary	Perez-Aleman & Sandilands (2008); Dahan et al. (2010); Selsky & Parker (2005)
<i>Other_Firm</i>	Variable modelling the involvement, in the focal collaboration, of a numerosity of firms higher than one	Binary	Perez-Aleman & Sandilands (2008); Dahan et al. (2010); Selsky & Parker (2005)
<i>Bus_Association</i>	Variable modelling the involvement, in the focal collaboration, of a firms' association as additional player	Binary	Perez-Aleman & Sandilands (2008); Dahan et al. (2010); Selsky & Parker (2005)
<i>Public</i>	Variable modelling the involvement, in the focal collaboration, of public entities as additional players	Binary	Perez-Aleman & Sandilands (2008); Dahan et al. (2010); Selsky & Parker (2005)
<i>Academic_World</i>	Variable modelling the involvement, in the focal collaboration, of an academic institution as additional player	Binary	Perez-Aleman & Sandilands (2008); Dahan et al. (2010); Selsky & Parker (2005)
<i>Multi_Stake</i>	Variable modelling the presence of a governance structure more complex than the dyad	Binary	Perez-Aleman & Sandilands (2008); Dahan et al. (2010); Selsky & Parker (2005)

Table 7. Variables modelling the structure of observed business-NPO collaborations.

	A	B	C	J	K	L	M	N	O	Q
	CSP_Code	Company	Company_Co	Other_NPO	Other_Firm	Bus_Association	Public	Academic world	Multistakeholder	Membership
1										
2		AMPLIFON SPA								
3	1	AMPLIFON SPA	4	0	0	0	0	0	0	0
4	2	AMPLIFON SPA	4	0	0	0	0	0	0	0
5	3	AMPLIFON SPA	4	0	0	0	0	0	0	0
6	4	AMPLIFON SPA	4	0	0	0	0	0	0	0
7	5	AMPLIFON SPA	4	0	0	0	1	0	1	0
8	6	AMPLIFON SPA	4	0	0	0	0	0	0	0

Figure 11. Database extract of the section dedicated to collaborations' structure.

Collaboration scope

As already mentioned, a second set of variables to be associated to the focal business-NPO collaboration regards its scope. Also by means of the insights emerged by the literature review, it seemed significant to practically decline such concept as the scope of the activities, i.e., the objective, the geographical scope and time coverage of the interactions.

Referring to these, introduced variables are:

- A set of three binary variables ("*Soc*"; "*Env*"; "*Econ*") that defines the objective of the collaboration, in the wake of sustainability pillars, namely the social, the environmental and / or the economic one (Elkington, 1997; Carter & Rogers, 2008; Gennari 2019). In the literature review, it was pointed out how such scope presents a tight bond with the strategic objectives to be pursued by the undertaking of the focal collaboration (Selsky & Parker, 2005). In this sense, while social and environmental orientation are quite self-explaining, it is noteworthy to deepen the discussion about the economic pillar. A collaboration is determined to have economic objectives if it is contributing to the economic growth and prosperity of subjects external to firm boundaries. Examples in this sense are job inclusion projects and trainings for disadvantaged people and minorities, as well as international development project;
- A binary variable ("*Central*") representing the centrality or not of the CSP. Centrality concept was introduced in the reference literature by Husted (2003). He explicitly refers to Burke & Logsdon (1996)'s definition: "Centrality is a measure of the closeness of fit between a CSR policy or programme and the firm's mission and objectives." The introduced variable aims to polarise such aspect, in the sense of identifying or not an overlapping between collaboration activities and firm's core business. From Husted (2003) it is also retrieved the consideration that such aspect is one of the crucial determinants of the eventual strategic value that such a relationship can have from the point of view of the involved firm. Therefore, the introduction of the focal variable allows to encompass another construct monitored in Table 4, the strategic value;
- A set of 4 binary variables representing information about the geographical boundaries of the CSP. Namely, the monitored facts are related to the definition of an area of influence that can be global ("*Global*") or can be limited to a single country, that can be Italy ("*Italy*") or one belonging to the developed world ("*Developed*") or to the developing one ("*Developing*"). To assess if a country belongs to a group or to the other, the classification present in the World Economic Outlook – 2018 by the International Monetary Fund was employed;
- A binary variable signalling the temporal dimension of the CSP, i.e., it is registered for more than one year ("*Multi_Year*"). It is a second-level variable, in the sense that it assumes value 0 or 1 according to the years in which the focal collaboration is reported, as monitored in the sampling phase. For collaborations reported only in 2019, the focal variable assumes 0 as value. The alternative, i.e., signalling such information as not available (N/A), would have harmed too much in particular clustering models, being so discarded as idea.

The variables described above are synthetically enumerated and described in Table 8; again, their presence, if any, in the reference literature sample is reported.

Variable	Description	Type of variable	Literature references
<i>Env</i>	Variable signalling the targeting, by the activities embedded in the collaboration, of environmental matters	Binary	Selsky & Parker (2005); Rondinelli & London (2003); Wassmer et al. (2014); Lin & Darnall (2015)
<i>Soc</i>	Variable signalling the targeting, by the activities embedded in the collaboration, of social matters	Binary	Selsky & Parker (2005); Rondinelli & London (2003); Wassmer et al. (2014); Lin & Darnall (2015)
<i>Econ</i>	Variable signalling the targeting, by the activities embedded in the collaboration, of topics related to the economic thriving of contexts different from firms' ones.	Binary	Selsky & Parker (2005); Rondinelli & London (2003); Wassmer et al. (2014); Lin & Darnall (2015)
<i>Central</i>	Variable identifying the presence of a overlapping between collaboration activities and firm's core business	Binary	Husted (2003); Austin (2000)
<i>Italy</i>	Variable signalling the geographical scope of the collaboration as the Italian one	Binary	Selsky & Parker (2005); Kolk et al. (2008); Jamali & Keshishian (2009)
<i>Developed</i>	Variable signalling the geographical scope of the collaboration as one of more countries classified as Developed Economies (WEO – 2018)	Binary	Selsky & Parker (2005); Kolk et al. (2008); Jamali & Keshishian (2009)
<i>Developing</i>	Variable signalling the geographical scope of the collaboration as one of more countries classified as Developing Economies (WEO – 2018)	Binary	Selsky & Parker (2005); Kolk et al. (2008); Jamali & Keshishian (2009)
<i>Global</i>	Variable signalling a collaboration scope as all or many of the countries in which the focal multi-national enterprise operates	Binary	Selsky & Parker (2005); Kolk et al. (2008); Jamali & Keshishian (2009)
<i>Multi_Year</i>	Variable signalling the duration of the focal collaboration over more than one year	Binary	Dahan et al. (2010); den Hond et al. (2015); King (2007); Ordonez-Ponce et al. (2021)

Table 8. Variables modelling the scope of observed business-NPO collaborations.

In Figure 12 it is showed a screenshot of the present section of the database.

	A	S	T	U	V	AA	AB	AC	AD	AE	AF
1						Scope of the CSP					
2	CSP_Code	Env	Soc	Econ	Central	Multi_Year	Location	Global	Italy	Developed	Developing
3	1	1	1	1	1	1	Cambodge	0	0	0	1
4	2	1	1	0	1	1	Africa	0	0	0	1
5	3	0	1	0	1	0	Australia	0	0	1	0
6	4	0	1	0	0	0	EIRE	0	0	1	0
7	5	1	1	0	1	1	Samoa	0	0	0	1
8	6	0	1	0	1	0	New Zealand	0	0	1	0
9	7	0	1	0	1	0	UK/EIRE	0	0	1	0

Figure 12. Database extract of the section dedicated to collaborations' scope.

Operational Processes activation

Further dimension of analysis is proposed to be about the activation of specific operational processes for the sake of the focal business-NPO collaboration.

This is not a complete novelty, as other scholars (Selsky & Parker, 2005; Rondinelli & London, 2003) adopted it as a classification discriminant. Nevertheless, the importance given to this aspect in the present dissertation is paramount: it represents one of the axes of the theorised resource-process matrix (RPM), the bi-dimensional space that will work as preliminary in the classification of observations themselves.

This decision arose again from the consideration that the activation or not of such processes represents, in author's opinion, the best synthesis possible between other significant dimensions, otherwise difficult to be objectively and quantitatively monitored: the managerial complexity and the engagement level.

It is noteworthy to define what is meant, in the present work, for operational process activation. An operational process can be defined as "those processes that create, produce, and deliver products and services" (Garvin, 1998, pp. 35-37). In terms of business-NPO collaboration, this aspect is present when one of the involved sides, or both, can be reasonably believed to have had the necessity of activating internally such a process specifically to fulfil their duties and roles in the collaboration.

What is monitored is so first of all the activation or not of such processes, and by which involved actor. Therefore, the variables modelling such aspect are just two: *Process_BUS*, modelling the presence of operational process activation by involved firm(s), and *Process_NPO*, the same consideration but for the NPO side.

Collaborations' resource transfers

The other pivotal analysis dimension in the present dissertation is made of the modelling of the *resource transfer(s)* involved in the focal business-NPO collaborations.

It is one of the determinants defining the bi-dimensional space of the RPM. It is so useful first of all to mirror what performed for operational processes, and so monitor which is the actor transferring some resources.

Nevertheless, differently from what seen for operational processes, this is an aspect deeply analysed in the reference literature. A resource-based point of view is adopted by several scholars. Austin (2000), and several contributions on its wake (Chatain & Plaksenkova, 2019; Gray & Stites, 2013), employed the bidirectionality – and so the transfer of resources by both the involved sides - or not of the resource flow as discriminant among different collaborations' typologies. Moreover, other scholars (Clarke & MacDonald, 2019; Lin & Darnall, 2015) developed such considerations in terms of characterisation of the involved resource. In particular, the classification proposed by Clarke & MacDonald (2019) is interesting, as it is based on quantitative and objective criteria. RBV theory defines a firm as “made up of a mix of tangible and intangible resources” (Prahalad & Hamel, 1990; Wernerfelt, 1984). Definitions of tangible and intangible resources are retrieved – also by Clarke & MacDonald (2019) - from Grant (1991). Tangible resources are those resources “that have physical, manifest properties”, while intangible ones are negatively defined as all the remaining ones. Typical examples are knowledge, networks, organisational culture (Schriber & Löwstedt, 2015). It is important to differentiate among such resource categories as intangible ones are widely recognised as the most valuable ones, as sources of competitive advantages (Barney, 1991; Dierickx & Cool, 1989).

For what concerns the present research, the modelling of such aspects was structured as following. Information sources were exploited in order to identify which are practically the resources involved, and by which actor. This last information is modelled by means of two binary variables: *Res_BUS* and *Res_NPO*, respectively defining which is the resource transfer's origin(s) in the focal relationship. These are the focal variables determining the positioning of observations in the resource-process matrix.

The single resources monitored are instead successively reclassified according to Grant (1991)'s definitions. In Table 9 the schematisation of resources identified to be transferred in the empirically observed business-NPO collaborations is analysed. From the database point of view, each of them corresponds to a binary variable that signals the transfer of that resource.

Transferring actor	Tangible vs Intangible	Resource Transferred
Business firm	Tangible	Money
		In-kind
	Intangible	Knowledge
		Network
NPO	Tangible	Mission_Contribution
		Certification
		Advertising
	Intangible	Personnel
		Service
		Knowledge
		Network

Table 9. Resources involved in business-NPO collaborations and their classification.

Following this conceptual scheme, four more binary variables were introduced. Those are second-level variables, monitoring the transfer of any tangible or intangible resources in the focal collaboration, by each actor. Namely, those are *Tang_BUS*, *Intang_BUS*, *Tang_NPO* and *Intang_NPO*.

Those are added to the abovementioned variables to be employed in the population of the RPM matrix. Therefore, in addition to the variables presented in Table 9 – very detailed and punctual – a more synthetic modelling of resource transfers associated to business-NPO collaborations is proposed through variables presented in Table 10.

In Figure 13 an extract of the nodal database is shown.

Variable	Description	Type of variable	Literature references
<i>Res_BUS</i>	Variable signalling the presence of a resource transfer from focal firm(s) to focal NPO(s)	Binary	Austin (2000); Chatain & Plaksenkova (2019); Gray & Stites (2013)
<i>Res_NPO</i>	Variable signalling the presence of a resource transfer from focal NPO(s) to focal firm(s)	Binary	Austin (2000); Chatain & Plaksenkova (2019); Gray & Stites (2013)
<i>Tang_BUS</i>	Variable signalling the presence of a transfer of tangible resources from focal firm(s) to focal NPO(s)	Binary	Clarke & MacDonald (2019)
<i>Intang_BUS</i>	Variable signalling the presence of a transfer of intangible resources from focal firm(s) to focal NPO(s)	Binary	Clarke & MacDonald (2019)
<i>Tang_NPO</i>	Variable signalling the presence of a transfer of tangible resources from focal NPO(s) to focal firm(s)	Binary	Clarke & MacDonald (2019)
<i>Intang_NPO</i>	Variable signalling the presence of a transfer of intangible resources from focal NPO(s) to focal firm(s)	Binary	Clarke & MacDonald (2019)

Table 10. Variables modelling the resource transfers in business-NPO collaborations.

	A	AK	AL	AM	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA
1																	
2	CSP_Cot.	Money	In-kind	TANG_BUS	Knowledge	Network	Mission_Contrib	INTANG_BU	Resource Flow NPO to Bus	Knowledge	Network	INTANG_MP	Certification	Advertising	Service	Personnel	TANG_NPO
3	1	1	1	0	0	0	0	0	1	0	1	1	0	0	1	0	1
4	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
6	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
7	5	0	0	1	1	0	1	1	1	0	1	1	0	0	0	0	0
8	6	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
9	7	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 13. Database extract of the section dedicated to resource transfers.

5.4.3. NPOs

A section of the database was dedicated to involved Non-Profit Organizations (NPOs). The objective of this section is to collect relevant characteristics of NPOs mirroring the work done for business enterprises. However, as Third Sector organizations are very diverse and not homogeneously regulated in their disclosure requirements, achieving the same level of detail was not possible.

As performed for business firms, the first analysed dimension concerned the available sources of needed information, and their quality. By means of three, mutually exclusive, binary variables, it was monitored:

- the presence or not of any type of official disclosure ("*Report_NPO*") about analysed NGO's activities (e.g., annual reports available on NGO website);
- the presence of a 3rd party source ("*Internet_NPO*") reporting needed information about the focal NGO (e.g., a newspaper article reporting the number of employed volunteers);
- the complete absence of the two previous sources ("*No_Source_NPO*").

The mutual exclusivity derived from the logical prioritization, during the information extraction phase, of the sources, and the associated, descending quality of the source itself.

The identified sources were exploited to gather information about the sector of the NGO and its size. Firstly, information about the mission of the focal NPO is extracted. This was performed to better characterise the nature of the NPO, e.g., to understand that it is not a club-type one, and at the same time the scope of the activities of the NPO itself and ones embodied in the focal business-NPO collaboration.

NPOs organizations were classified according to their activity area following the International Classification of Non-Profit Organizations (ICNPO) categories. This categorization into the 12 possible areas was not univocal since some NPOs operate in different ways for different recipients, and it is not possible to determine which is the primary area of activity, and, for some NPOs, the mission can be accomplished only operating in different areas at the same time.

For what concerned the size, the above-described information sources were investigated in order to collect quantitative measures about volunteers ("*Volunteers*") and personnel ("*Personnel*"), i.e., the employed people with regular contract (Pearce, 1993). Those are quite shared in the academic literature as the prominent dimensions for the whole non-profit sector when looking at its size (Anheier & Salamon, 1999; Jäger et al., 2009; Pearce, 1993).

Additional information gathered regarded the country in which the NPO is established ("*Country_NPO*") that can differ from the one where it works, and the belonging or not to a supranational NPO ("*International_NPO*"). For example, Red Cross is an NPO operating worldwide, but many countries have their own national division, with large autonomy.

Information about the legal country was monitored by means of categorical variables, whilst the latter by a binary one.

In Table 11 the variables defining the observed NPOs are reported, together with their definition and their statistical nature. In Figure 14, a screenshot of the focal section of the database is reported.

Variable	Description	Type of variable
<i>Report_NPO</i>	Variable signalling the presence of official disclosures by the focal NPO.	Binary
<i>Internet_NPO</i>	Variable signalling the presence of 3 rd parties sources about NPOs activities.	Binary
<i>No_Source_NPO</i>	Variable signalling the absence of any information source about NPOs activities.	Binary
<i>ICNPO_1</i>	Variable signalling the possible classification of the focal NPO under the class #1 of ICNPO classification	Binary
<i>ICNPO_2</i>	Variable signalling the possible classification of the focal NPO under the class #2 of ICNPO classification	Binary
...	...	Binary
<i>ICNPO_12</i>	Variable signalling the possible classification of the focal NPO under the class #12 of ICNPO classification	Binary
<i>Country_NPO</i>	Variable describing the country in which the NPO is headquartered	Categorical
<i>International_NPO</i>	Variable signalling the belonging of the focal NPO to a supranational network of organisations	Binary
<i>Volunteers</i>	Number of volunteers (FTE) employed by the focal NPO	Quantitative
<i>Personnel</i>	Number of employees (FTE) employed by the focal NPO	Quantitative

Table 11. Variables describing the information gathered about focal NPOs.

	A	B	C	D	M	N	P	Q	AA	AC	AD	AE
	NPO	Code	ICNPO_1	ICNPO_2	ICNPO_11	Country	Volunteer	Personnel	International_NP	Report_NP	Internet_NP	No_Source_NP
1	Trenta Ore per la Vita	300	0	0	0	Italy	790		0		1	0
3	5 al dia Spain	5AD	0	1	0	Spain			1			1
4	Associação de Assistência à Criança Deficiente	AAC	0	0	0	Brasil	1185	2013	0	1		0
5	ABIO	ABI	0	0	0	Italy	5000		0	1		0
6	Abilitando	ABL	0	1	0	Italy			0			1
7	Associazione Bimbo Tu	ABT	0	0	0	Italy	200		0	1		0
8	Action Innocence	ACT	0	0	0	Switzerland		10	0	1		0
9	ActionAid	ACA	0	0	0	Italy	46	134	0	1		0
10	ADMO	ADM	0	0	0	Italy	3976	33	0	1		0
11	Asociación Española Contra el Cancer	AEC	0	0	0	Spain	14000	730	1	0	1	0
12	A&I Onlus	AEI	0	0	0	Italy	4	92	0	1		0

Figure 14. Database extract of the section dedicated to NPOs.

5.5. Descriptive statistics

In the previous sections the database construction phases have been analysed. In particular, after the characterisation of the firms' sample and of business-NPO collaborations, the relevant variables to describe have been defined. The database resulting from the gathering of such information from the selected sources – non-financial reporting and press – will be so now described from a statistical point of view. The goal is to obtain a snapshot, considering the reference sample in the 2017-2019 period, that can be representative of the business-NPO collaborations' landscape in Italy. Such description will be articulated along the three main parts of the database listed before, namely firms, collaborations and involved NPOs.

5.5.1. Firms' landscape

As illustrated in the Section 5.2, the reference firms' sample is composed by 81 Italian companies listed on the FTSE MIB and/or FTSE STAR indexes and not operating in the financial or in regulated sectors.

The data collection about current business-NPO collaborations allowed to determine first of all which of the identified firms undertakes such collaborations or not. This was conceptualised by means of a binary variable, named *Collab_NPO*, that assumes value 1 if the focal company results to report at least 1 in-scope business-NPO collaborations.

In the Fig. 15 is plotted the share of the firms composing the sample that results having such interactions with NPOs. In particular, 56 firms out of the total 81 (69.1%) resulted to collaborate with NPOs.

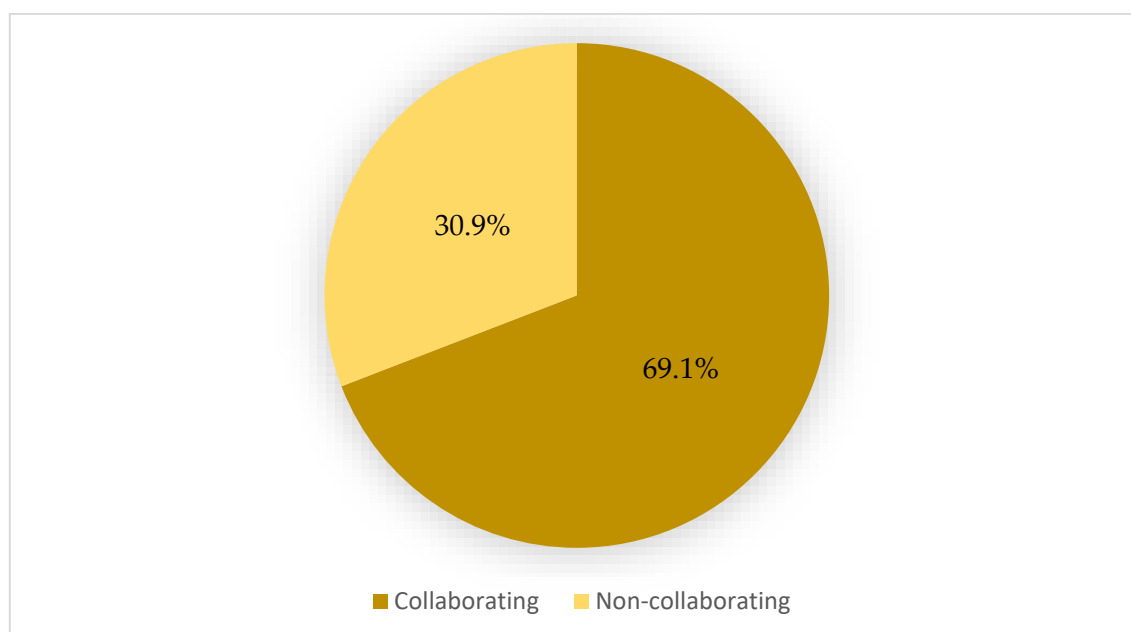


Figure 15. Breakdown of sample firms: collaborating vs non-collaborating ones.

It is interesting to compare such result with the only similar study present in literature. Den Hond et. al (2015) reported as a first result of their investigation, performed through a survey, a share of collaborating firms over their sample of 70.1%. Such value is very close to the one provided by our research and, despite of the different methodology followed, contributing to its robustness. Moreover, it signals that, in Italy as in Netherlands, the major part of the firms actually collaborates with the non-profit sector. This evidence reinforces the idea of business-NPO collaborations as a fundamental lever in implementing actions and policies towards sustainable development.

In Table 12 summary statistics regarding the collaborations observed as undertaken by the 56 collaborating firms are reported. Results are referred to the number of different NPOs with which they have interacted over the reference period.

Total	Average	Minimum	Maximum	Std. deviation
437	7.804	1	35	7.475

Table 12. Summary statistics of undertaken collaborations per firm.

As emerges, the maximum number of different NPOs with which a single firm collaborated over the 2017-19 period was 35 (ESPRINET S.P.A.), whilst the minimum number was 1. These latter cases (ATLANTIA S.P.A.; DIGITAL BROS S.P.A.; ELICA SPA; FERRARI N.V.; MARR SPA; PANARIAGROUP INDUSTRIE CERAMICHE SPA; REPLY S.P.A.; SANLORENZO S.P.A.; TENARIS S.A.; WIIT S.P.A.) signal firms undertaking relationships with just one NPO; thus, such companies are likely to have very recently started to look at nonprofit world as a potential partner for sustainability actions.

In this sense, firms are then divided into different classes based on the number of NPOs they interact with. Such Pareto analysis, reported in Fig. 16, is interesting as allows to depict the Italian situation for what concerns business-NPO collaborations seen from business point of view. 37 firms out of the 66 collaborating ones (66.07%) resulted to have established relationships with maximum 6 different NPOs over the 3-year period. Then, in general, the relative frequency curve appears to be monotonically decreasing, i.e., the higher the number of different NPOs with which collaborations have been undertaken per firm, the lowest the numerosity of firms observed.

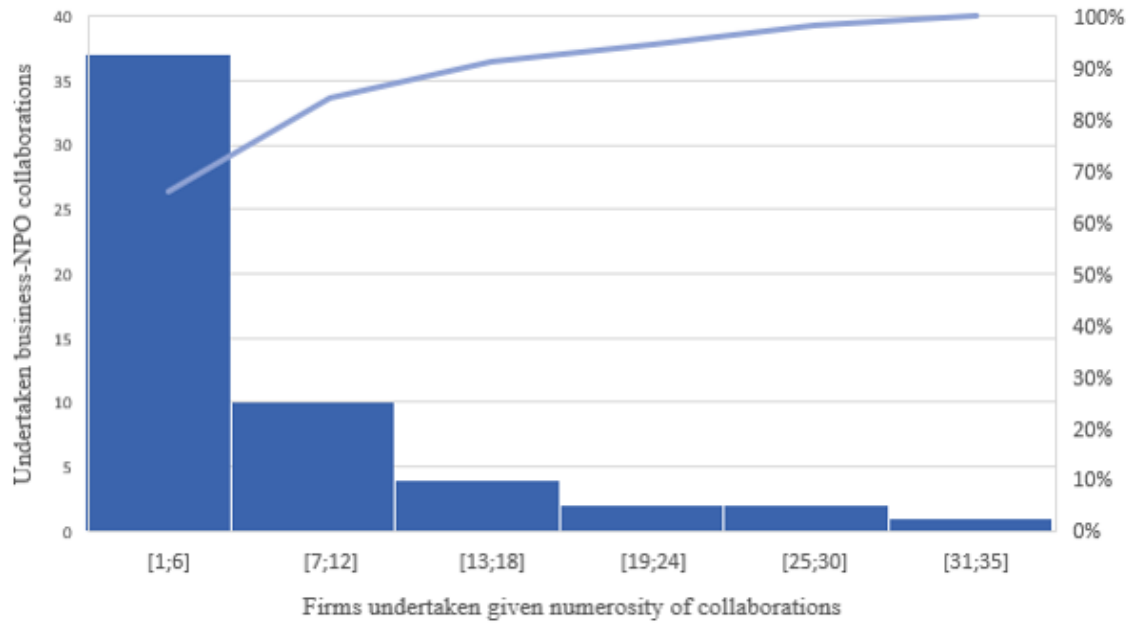


Figure 16. Frequency analysis of number of undertaken collaborations per firm.

Once that such considerable subset of collaborating firms is identified, it is noteworthy now to characterise it. A first interesting lens through which look respectively to the whole sample and to collaborating subset is the reference Stock Exchange index. Among the identified 56 collaborating firms, 15 are listed in the FTSE MIB index, 40 in the FTSE STAR index, while one in both the indexes. The breakdown of the subset from this point of view is plotted in Fig. 17.

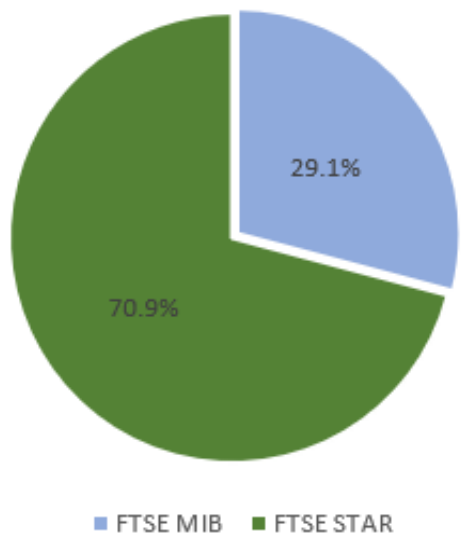


Figure 17. Breakdown of collaborating firms: reference Stock Exchange Index.

However, the different numerosity of firms into the two baskets requires the extension of such reasoning to the indexes themselves. Out of the considered 19 firms listed in the FTSE

MIB, 16 (84.2%) resulted to be undertaking, in the reference period, collaborations with NPOs. For what concerns FTSE STAR index, the ratio is of 41 firms out of the considered 63 (65.1%). Those shares present important differences between each other. A preliminary guess about the reasons behind such discrepancy can be logically connected to the different economic criteria to be admitted into the different indexes. In particular, as introduced in the Section 5.2, the first index includes the Italian companies with the highest market capitalisation, while the latter only firms with caps up to 1 billion euros. At a first sight, it can be so guessed that a certain correlation exists between the size of the firm and its tendency to undertake collaborations with NPOs.

It is possible to leverage on some of the economic variables extracted by Orbis and reported in the database to empirically test such hypothesis. The variable *Collab_NPO* – again, signalling which firms resulted to collaborate or not – is employed as a pivot to compare some economic characteristics of the overall sample versus the subset of collaborating ones. Namely, the chosen variables for the comparison are:

- Production value;
- Total assets;
- Number of employees.

Such variables were chosen as the ones employed by the official criteria set by the European Commission to distinguish among SMEs and LEs (European Commission, 2003).

General statistics firstly over the whole firms' sample and then just on collaborating subset are derived from the database analysis; full results can be seen in Appendix A. The evolution of such values over the considered 3-year period is monitored too.

A t-test was run to statistically test the existence of eventual differences, in terms of the monitored economic and financial measures, among the collaborating firms' subset (*Collab_NPO* = 1) and the non-collaborating one (*Collab_NPO* = 0). The outcome confirmed the previous hypothesis: all the considered metrics present an important increase. This holds for each of the considered statistics: the p-value for the test on production value in 2019 resulted to be 0.0166, while 0.0466 for total assets in 2019 and 0.013 for employees in the same year. Summarising, such increments can be all accepted at a significance level of 5%.

Quantifying such average increments, it can be seen they are considerable in magnitude: respectively, they are the 31.5% for the production value, the 35.3% for total assets and 34.9% for what concerns employees. Such statistics suggest that the largest part of the non-collaborating firms, i.e., the ones whose values are considered only for the whole sample's average, belongs to the sample's portion characterised by the smallest size. Such phenomenon is what had been preliminarily observed by the breakdown of selected firms for each index, where FTSE MIB showed way higher percentages than FTSE STAR.

Such comparison can be extended to variables and proxies related to the different attention, by the firms, to sustainable development topics. The first point to assess, that had a crucial relevance in the database construction too, is the release or not, by the firms, of any kind of non-financial documentation. As introduced, in the affirmative case, the binary variable *Source* takes value 1.

In Fig. 18 is reported the characterisation in this sense of the overall firms' sample. 66 firms out of the total 81 present a document- or an apposite section of financial disclosures – devoted to such non-financial information. Among these 66 companies, 52 resulted to be collaborating.

In an analogue manner as before, restricting such analysis only to collaborating firms, obtained results present considerable differences, as shown in Fig. 19. Such differences were verified by means of the implementation of a t-test, whose p-value resulted to be 0.0000. Such extreme value signals a very strong evidence of the correlation between the presentation of any non-financial documentation and the undertaking of collaborations with the non-profit sector.

To be quantitative, considering collaborating firms, the share of those presenting any non-financial document or section – thus, witnessing an attention to the theme by them and their stakeholders – increases, from the previous 81.5% referred to the whole sample to 92.9%. This last value is particularly significant, as representative of the very strong correlation discussed before.

Nevertheless, 4 firms not presenting any non-financial disclosure resulted, thanks to the press review described at the beginning of the present Section, to be collaborating. Their role is however minor not only in terms of firms' numerosity – refer again to Fig. 19 – but also in terms of observations' one (just 14 out of the total 437 ones were found by the focal procedure).

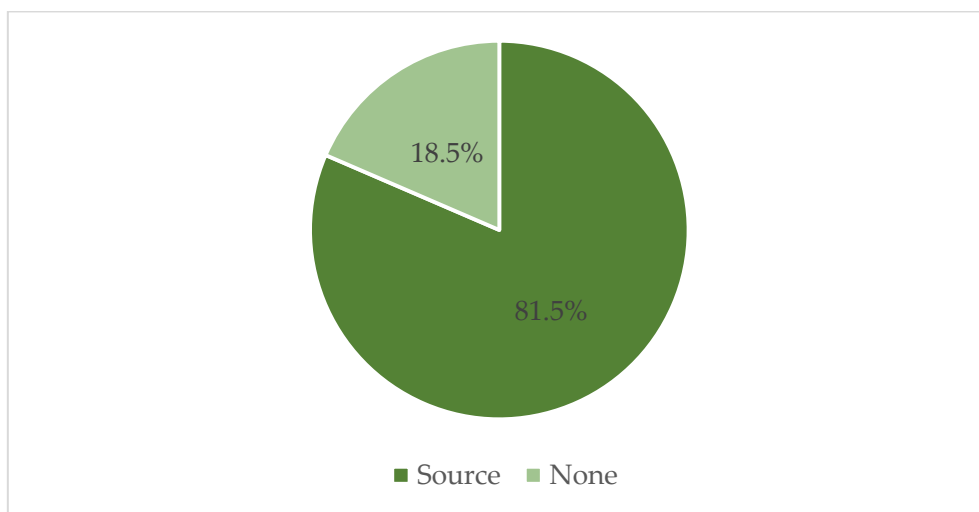


Figure 18. Presentation of non-financial reporting by the whole sample of firms.

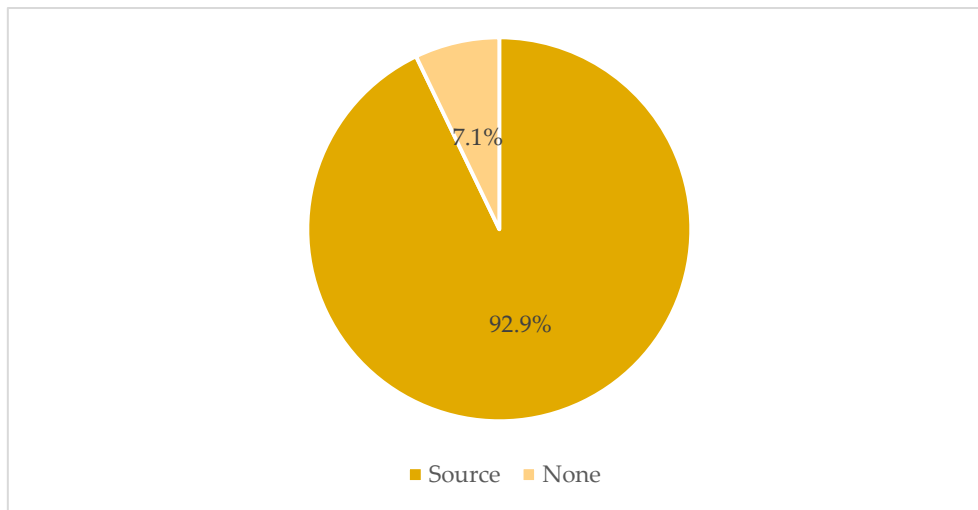


Figure 19. Presentation of non-financial reporting by collaborating firms.

The reference framework to direct and monitor sustainability-oriented actions is made of the 17 Sustainable Development Goals (SDGs). Again, a positive trend can be identified: considering the whole sample, the percentage of firms explicitly declaring the commitment to SDGs is the 37.4%, that increases up to 50% in case of collaborating firms' subset. Looking at the focal dimension in absolute terms, such correlation results even clearer. In fact, in the whole sample, firms referring to SDGs are 30, and 28 of these firms presents at least one undertaken collaboration. Just the 6.67% of firms explicitly committed to SDGs is so not collaborating with NPOs towards sustainable development.

It is also possible to further characterise firms' sustainability efforts, by means of the reference to different SDGs. In Fig. 20 is plotted the frequency of occurrence of each single SDG for the 28 committed collaborating firms. Quite surprisingly, the goal 17, the one dedicated to partnerships, is not one of the prominent for the focal subset. It means that some firms, despite of collaborating with NPOs towards sustainability contributions, do not recognise them as so crucial and impactful. This is for sure a point with a lot of managerial implications in such historical period, characterised by an increasing attention on the topic.

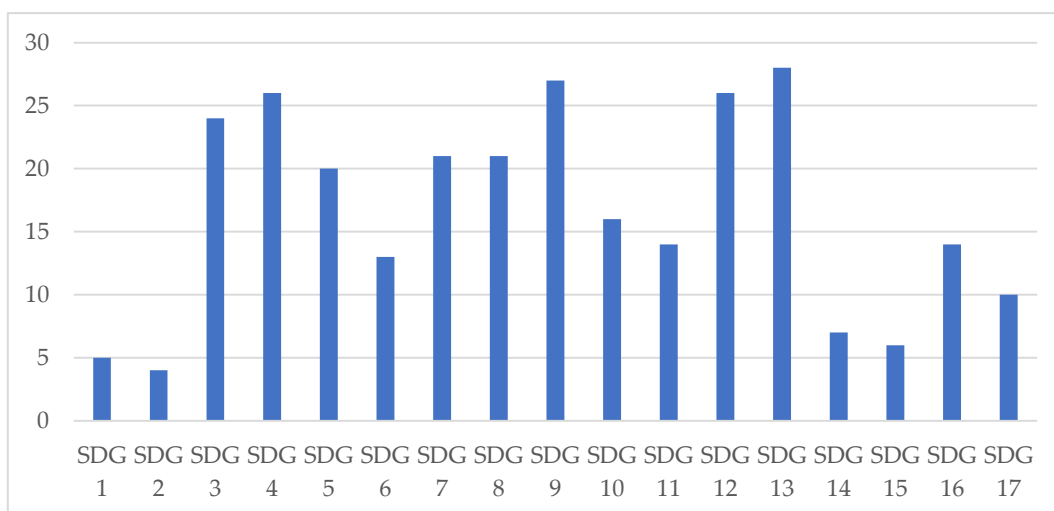


Figure 20. Frequency of reference to single SDGs by considered firms.

5.5.2. Collaborations' landscape

The characterisation, thanks to descriptive statistics analyses, of the collaborating firms versus the whole sample was, as standalone, able to provide insights about the companies that decide to undertake object business-NPO collaborations, and about the links between such decisions and their strategies. In this section, the focus will be instead on the undertaken collaborations themselves, so taking as reference unit not anymore the firms, but the interactions with NPOs.

Over the considered 3-year period, and for the reference firms' sample, 437 in-scope business NPO collaborations were identified. As analysed before, they involved 56 different firms; for further information about NPOs please refer to the next section of this work.

To provide interesting analysis dimensions, it is useful to refer to the same categorisation employed for the different variables present in the focal section of the database. Therefore, identified business-NPO collaborations will be characterised for what concerns the structure, the scope, the activation or not of operational processes and the resource flows.

Collaborations' structure

The literature review highlighted a fundamental dichotomy present in the analysis of business-NPO collaborations' structure. In fact, different scholars (Perez-Aleman & Sandilands, 2008; Dahan et al., 2010; Selsky & Parker, 2005) distinguished among dyad and multi-stakeholder structures. Dyad refers to a collaboration between just one firm and one NPO; everything that differs from that, such as the involvement of entities from different spheres and/or higher number of present firms/NPOs, belongs to the multi-stakeholder umbrella. In Fig. 21 is plotted the breakdown of the two possible structures in identified collaborations.

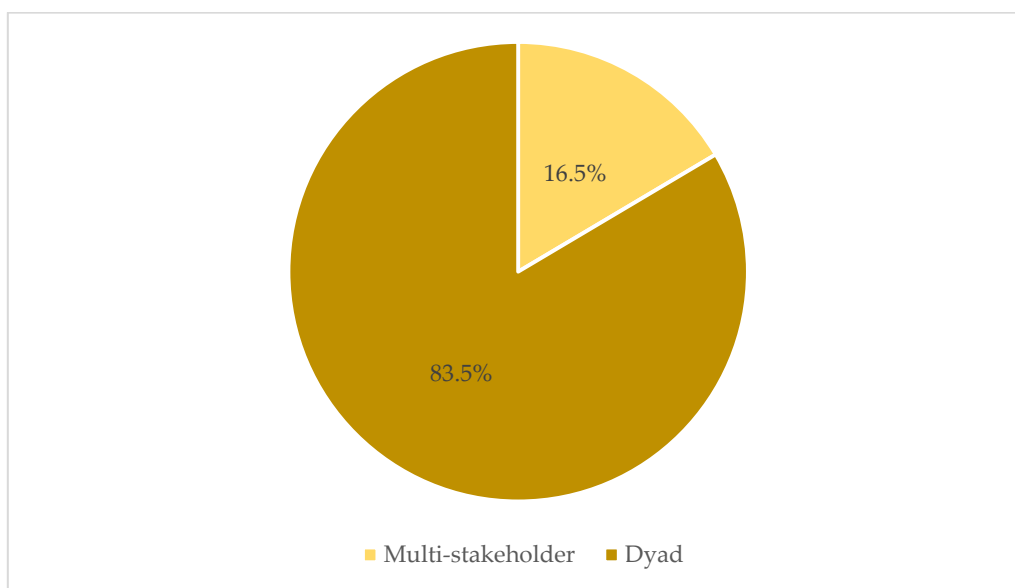


Figure 21. Multi-stakeholder vs Dyad business-NPO collaborations.

The 16.5% of collected observations presents a structure more complex than the simplest one, i.e., the dyad. However, these represent a not negligible share, and it is noteworthy to deepen their study. In addition, the typology of the involved actor was monitored. Identified possibilities consist in the involvement of more than one firm (*Other_Firm* = 1) and /or a business association (*Bus_Association* = 1) and/or more than one NPO (*Other_NPO* = 1) and/or a representative of the public sector (*Public* = 1) and/or an academic institution (*Academic_World* = 1). In Fig. 22 is plotted the frequency of involvement of such actors, within the 72 identified cases.

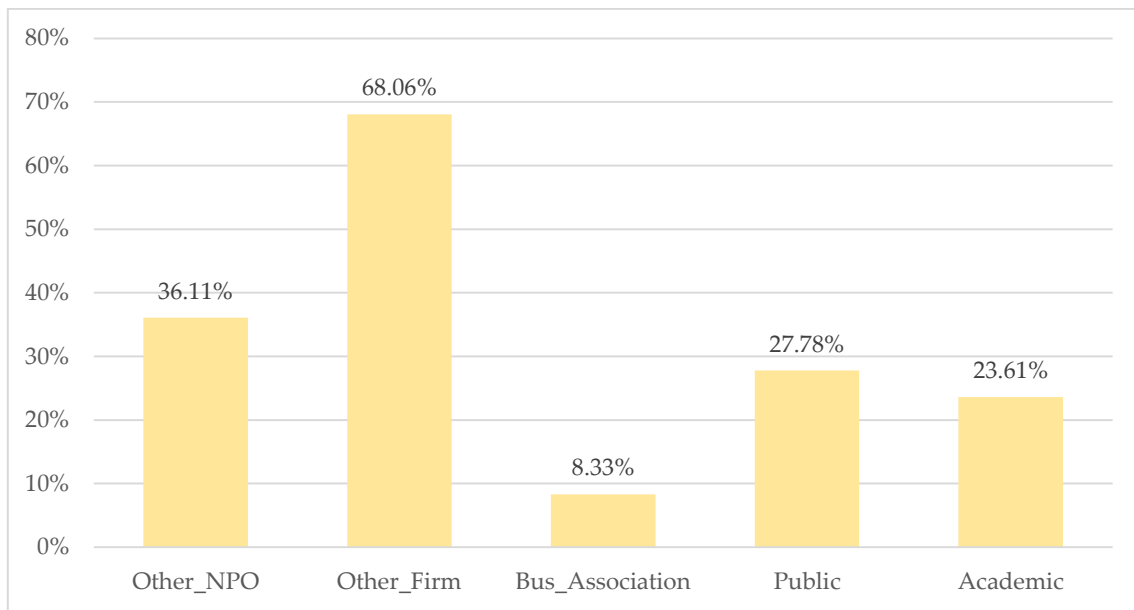


Figure 22. Actors involved in multi-stakeholder business-NPO collaborations.

What emerges is the dominance – among multi-stakeholder collaborations – of the aggregation of companies more than of NPOs (68.06% vs 36.11%). Adopting, as usual, the business perspective it can be so guessed that companies, in case of higher complexity, prefer to face and share it together with other firms more than with NPOs. It can derive from a - real or perceived - lower organisation degree and ability in handle collaborative relations by NPO side. Among different kind of actors, public and academic representatives show similar values, while business associations represent a minority in the considered landscape (8.33%).

Collaborations' scope

A further dimension of analysis of the observed business-NPO collaborations is the scope of the related activities. Such broad concept, as already introduced, can be declined as geographical scope, temporal one and sustainability one, i.e., the reference pillar for the involved activities.

In the present analysis, run over the 2017-19 period, keeping fixed the sample, it is appropriate to start with the time basis. The selected 81 firms, of which 56 collaborating, resulted to have undertaken an increasing number of focal collaborations over years. Namely, from the 195 observed in 2017, overall numerosity increased up to 257 in 2018 (+31.79%) and to 273 in 2019 (+6.23%), as plotted in Fig. 23.

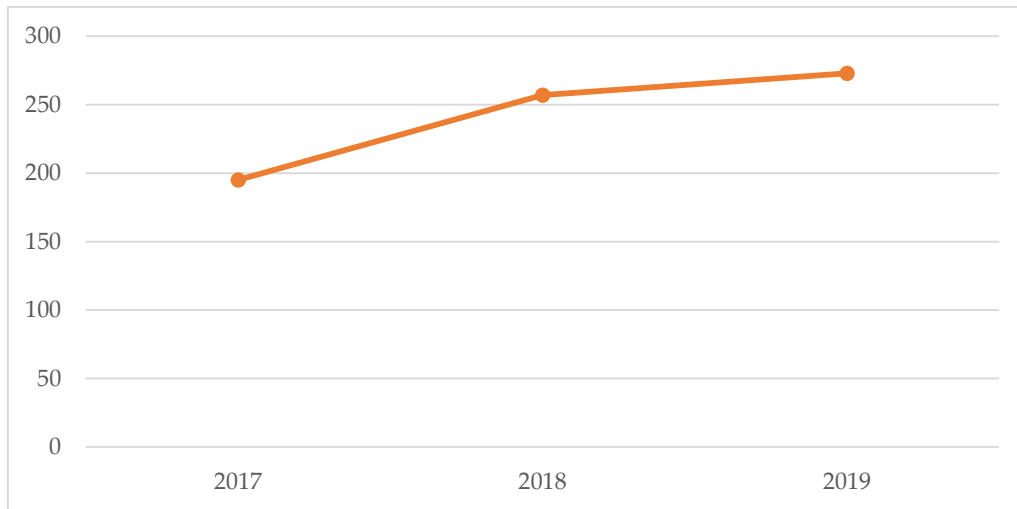


Figure 23. Evolution of collaborations' numerosity over years.

Further analyses can be performed in this sense on the reference sample. Firstly, a relevant characteristic of business-NPO collaborations resulted from the literature to be its lasting over years (Dahan et al., 2010; den Hond et al., 2015; King, 2007; Ordonez-Ponce et al., 2021). Of the monitored 437 business-NPO collaborations, 205 (46.91%) showed a duration higher than one year. Practically speaking, it means that the collaboration among focal firms and NPO(s) was reported in at least two consecutive non-financial documents and/or it is mentioned as starting at least one year before the focal communicate. The eventual renewal of a collaboration signals a certain degree of satisfaction from both parties, in particular about the value that the interaction brings to them.

It is so interesting to observe how many collaborations were stopped, and how many new ones were undertaken. Between 2017 and 2018, 59 collaborations over the 195 observed (30.25%) were not continued the next year, against 121 new ones, of which 9 than lasting at least all along the 3-year period. From 2018 to 2019, 109 collaborations (42.41%) were dismantled in front of incoming 125 ones. Such values witness a very important turnover value for what concerns such relationships among focal sectors' representatives. Such turnover rates¹ were of 79.64% between 2017-2018 and 88.3% between 2018-2019.

In the definition of a taxonomy, it will have to be verified if such shortly-changing collaborations present some peculiar characteristics' pattern, as for example theorised by

¹ Turnover rate = ((new units in the focal year + units not repeated in the focal year / average between years) * 100

several scholars (Dahan et al., 2010; den Hond et al., 2015; King, 2007; Ordonez-Ponce et al., 2021), or not. Those results are here synthetically reported in Fig. 24.

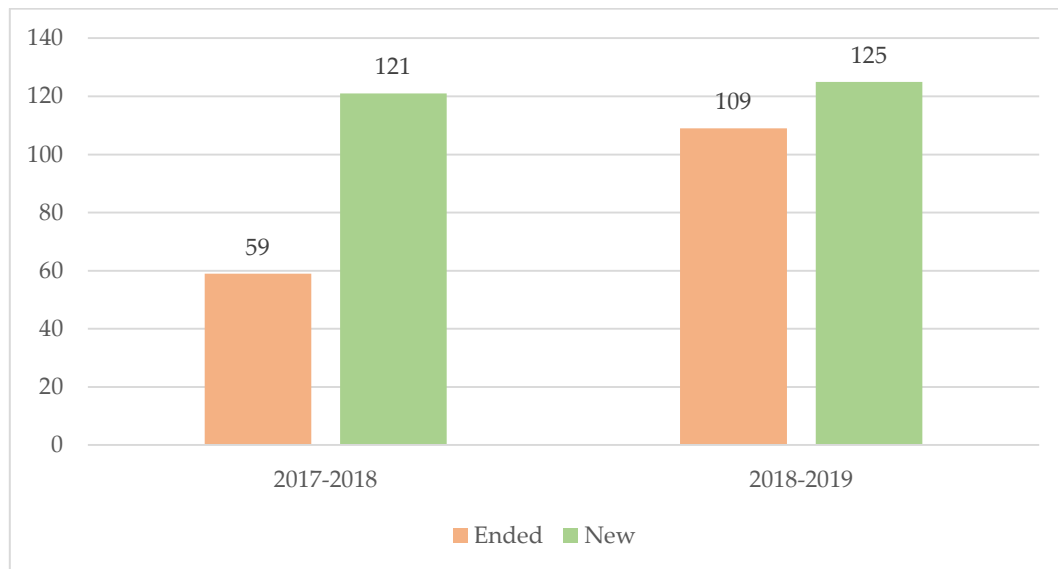


Figure 24. Turnover of business-NPO collaborations over the 2017-2019 period.

The repetition of observations over years is also useful to better detail and characterise the evolution of business-NPO collaborations landscape also for what concerns other aspects. One of these is the geographical scope of collaborations itself. As described while defining considered variables, the proposed categorisation differentiates among:

- Collaborations whose related activities find fulfilment in Italy (*Italy* = 1)
- Collaborations flourishing in one of more countries classified, according to the 2018 World Economic Outlook, as developed economy (*Developed* = 1)
- Collaborations flourishing in one of more countries classified, according to according to the 2018 World Economic Outlook, as developing economy (*Developing* = 1)
- Collaborations that interest all (or a very important share) the countries where considered firms – often multinational ones – operate (*Global* = 1).

The resulting breakdown of 437 observed collaborations is reported in Fig. 25.

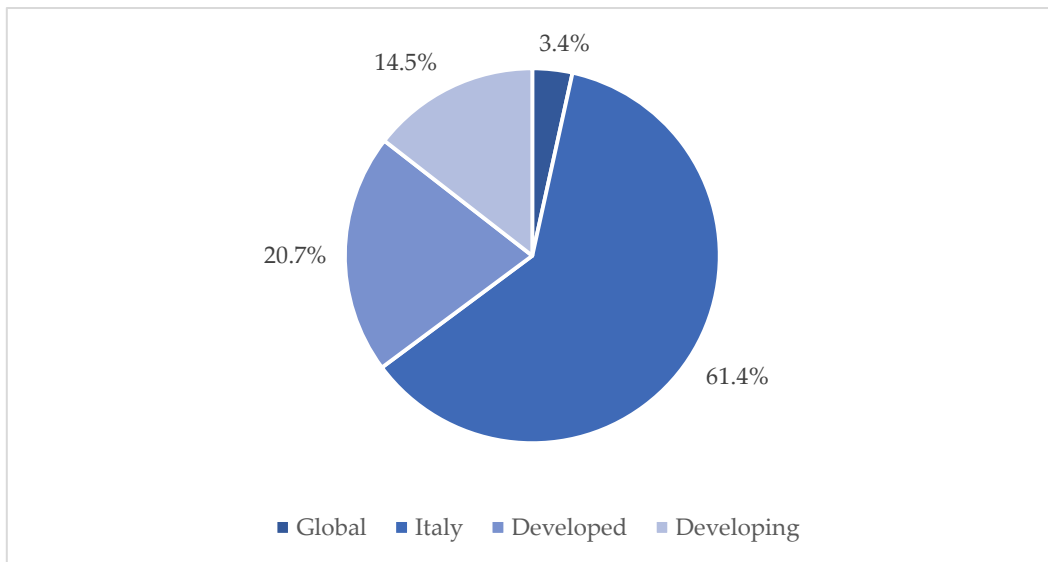


Figure 25. Breakdown of observed collaborations: geographical location.

The share of observed business-NPO collaborations bounded in Italy is largely majoritarian (61.4%), as expected. In a descending order, there can be found ones happening in one country of the developed world (20.7%), of the developing one (14.5%), and finally interesting the focal firm at general level (3.4%). Monitoring such distribution, and in particular its evolution over focal years, allows to add insightful information to all the discussion made before about collaborations' turnover, for example.

In Fig. 26 are plotted the variations in the number of the collaboration, for each year and geographical dimension considered. As emerges, only collaborations based in Italy witnessed a monotonic trend, namely a considerable yearly growth of respectively 31.4% and 14.5%. For what concerns the other dimensions, the growth in the 3-year period characterizes all of them, but it is very limited in terms of absolute magnitude (+1 for collaborations flourishing in developing countries, +11 for developed ones and +4 for which interesting firms at global level). Therefore, it can be derived that the observed growth in the business-NPO collaboration phenomenon is consistently driven by the growth at local level, i.e., in Italy.

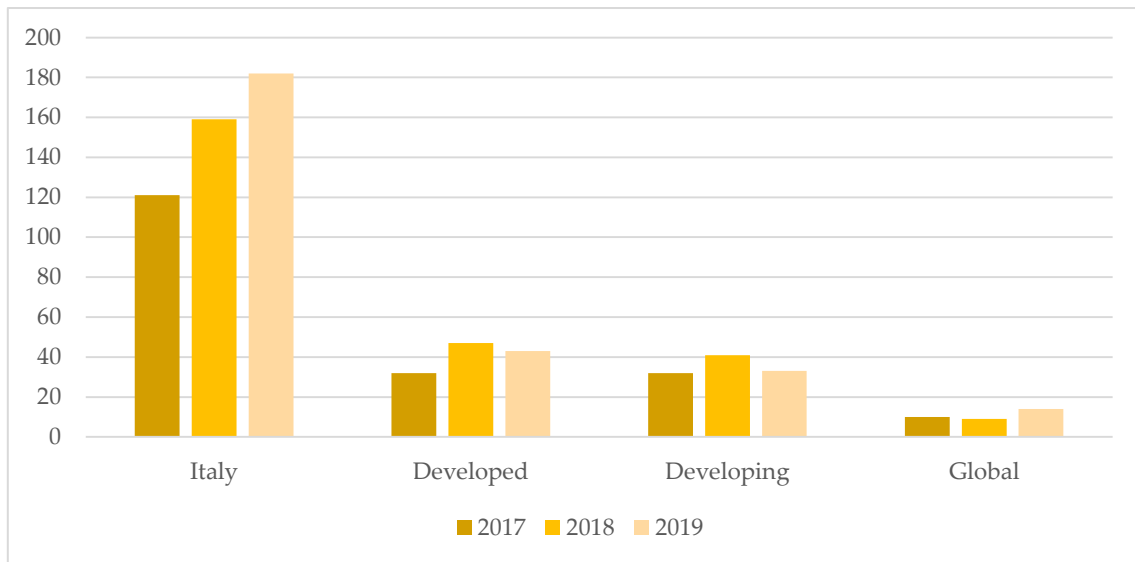


Figure 26. Yearly evolution of collaborations in terms of geographical location.

Limiting the analysis to multi-year collaborations, it is possible to derive insights about this subset of the observed collaborations. Most interesting results regard first of all the percentages of collaborations, organised for geographical scope, that effectively last more than one year; those are reported in Table 13.

	Italy	Developed	Developing	Global
Multi-year	131	31	31	11
Overall	269	90	63	15
% multi-year	48.70%	34.44%	49.21%	73.33%

Table 13. Breakdown of multi-year collaborations for geographical location.

Multi-year collaborations resulted to be distributed in a quite balanced way independently from the geographical scope. An exception is made by Global ones, whose numerosity is however too narrow to derive significant conclusions. Such geographical distribution of multi-year collaborations is then reported in Fig. 27. The main difference with the same analysis performed on the whole collaborations' sample, regard the share of collaborations in the developed world, that decreases from 20.7% to 15.2%.

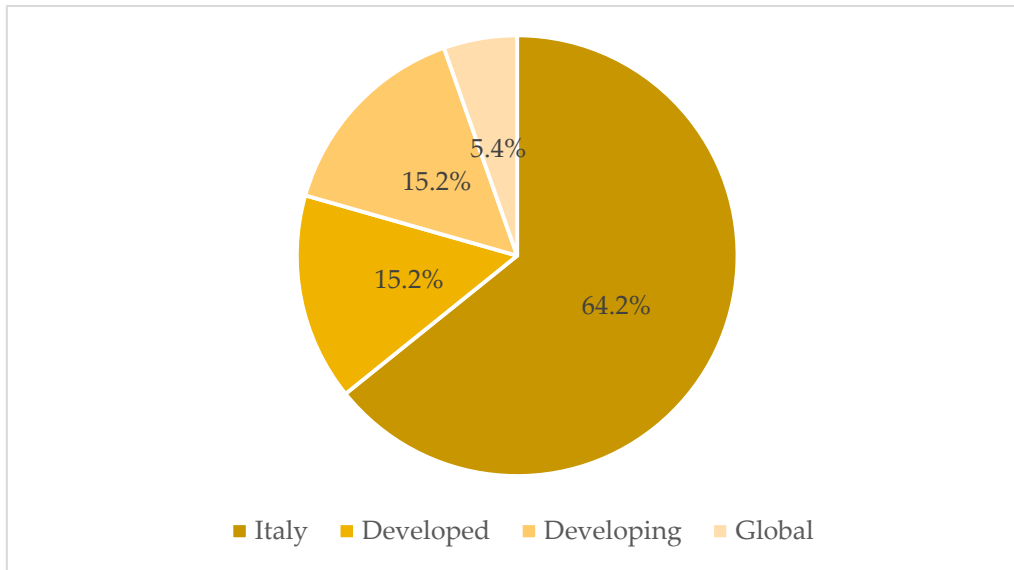


Figure 27. Geographical breakdown of multi-year collaborations.

The last proposed aspect to be analysed about business-NPO collaborations' scope is the reference sustainability pillar. As described before, three binary variables were introduced (*Env*, *Soc* and *Econ*) to verify the adherence or not of the focal collaboration to the bottom lines. Sustainable development, for industrial firms, stays at the intersection of the three pillars (Elkington, 1997; Carter & Rogers, 2008; Gennari 2019); however, the undertaking of a single collaboration can be seen as a part of the overall effort in this sense by the firm. It is so interesting to detail which area(s) the business believes crucial to target collaborating with NPOs. In other words, the goal is to have a better understanding of why firms are undertaking such collaborations and not internalising certain activities (Lin & Darnall, 2015; Chatain & Plaksenkova, 2019). In order to do so, a useful approach is to observe which is the target sustainability area of the collaborations.

In Fig. 28 is reported the breakdown of the total 437 observed business-NPO collaborations. As clearly emerges, social-oriented collaborations represent a very large majority of the sample, almost 5 times more than environmental ones. This is a result to be not underestimated, as environmental-oriented collaborations are extensively studied in the reference literature (Rondinelli & London, 2003; Lin & Darnall, 2015; Wassmer et al., 2014).

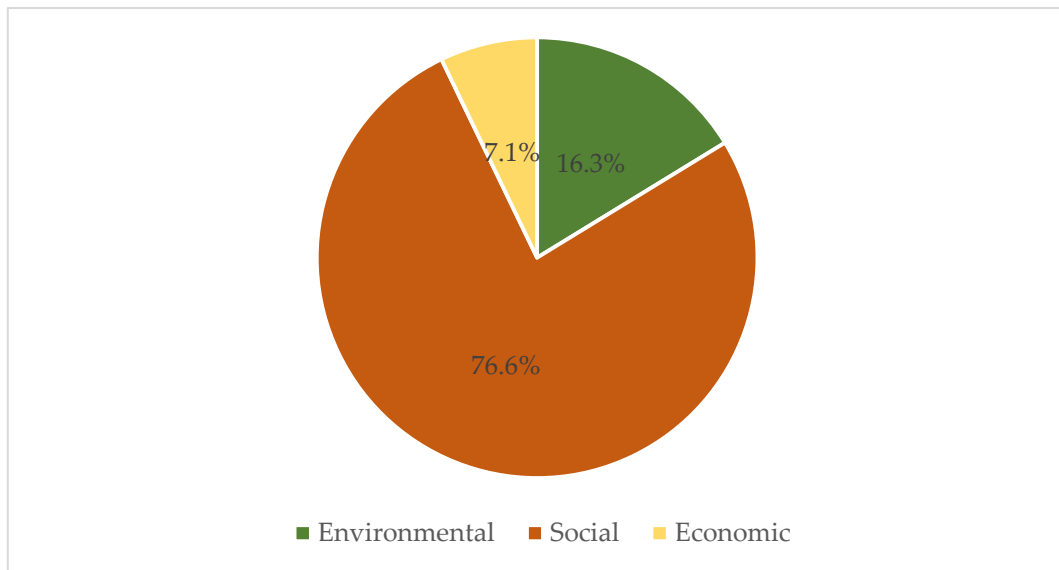


Figure 28. Breakdown of collaborations: reference sustainability pillar.

Therefore, the probable motivation behind this clear result is the higher difficulty found by business firms in tackling social problems more than environmental ones. In parallel, as will be deepened in the next sections, also the NPOs universe present a clear unbalance towards these kinds of themes. A clear signal of this is that, in the reference NPO classification employed, the INCPO, among 12 possible classifications of NPOs just one is referred to organisations working for the planet's sake; the other eleven are exclusively oriented to social problems.

The same analysis can be deepened crossing it with temporal and geographical dimensions. For what concerns the first dimension, observed collaborations presented a continuously growing numerosity for all the 3-year period, as showed in Fig. 29. During the reference period, the pillar that presented the more consistent increase was the environmental one (+58.97%), followed by social (+42.60%) and economic one (+38.89%). More detailed values, considering also single yearly increments, are shown in Table 14. Variations in terms of shares if considering only long-lasting collaborations are instead negligible.

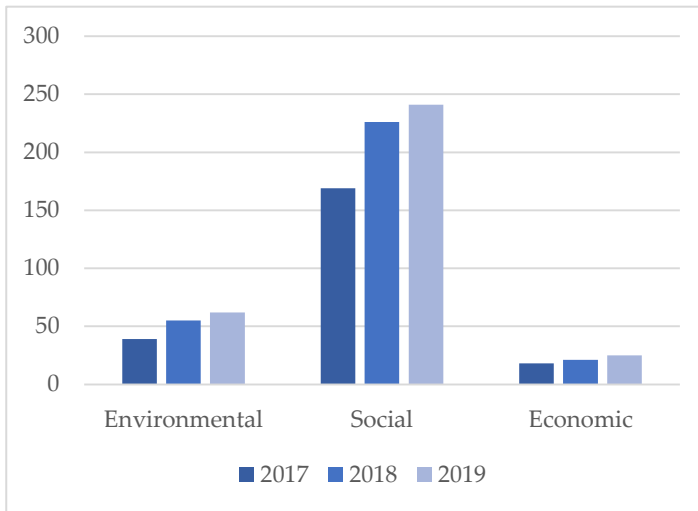


Figure 29. Yearly evolution of collaborations per sustainability pillar.

%Growth/ year	Env	Soc	Econ
2017-2018	+41.03%	+33.73%	+16.67%
2018-2019	+12.73%	+6.64%	+19.05%
TOTAL	+58.97%	+42.60%	+38.89%

Table 14. Growth rates per sustainability pillar.

Now discussing pillars' reference by geographical area, similar results are obtained, in the sense that not so significant differences are found. In Fig. 30, 31 and 32 is reported the distribution of the collaborations among the pillars, for each of the considered geographical areas (except for Global ones, given the above discussed too narrow numerosity). As expected, Italy, as presenting a developed economy according to the 2018 World Economic Outlook classification, presents share very close to developed world in general. In particular, social orientation is dominant (79.6%) versus environmental (respectively 14.6 and 10.7%) and economic (5.7 and 9.7%). The situation changes when analysing collaborations having as recipients developing economies: environmental and economic collaborations gain important shares (19 and 10.1%) against social ones, decreasing up to 70.9%. A large majoritarian share is so kept, but decreasing; even more insightful is the difference, from this point of view, presented by economies with different characteristics.

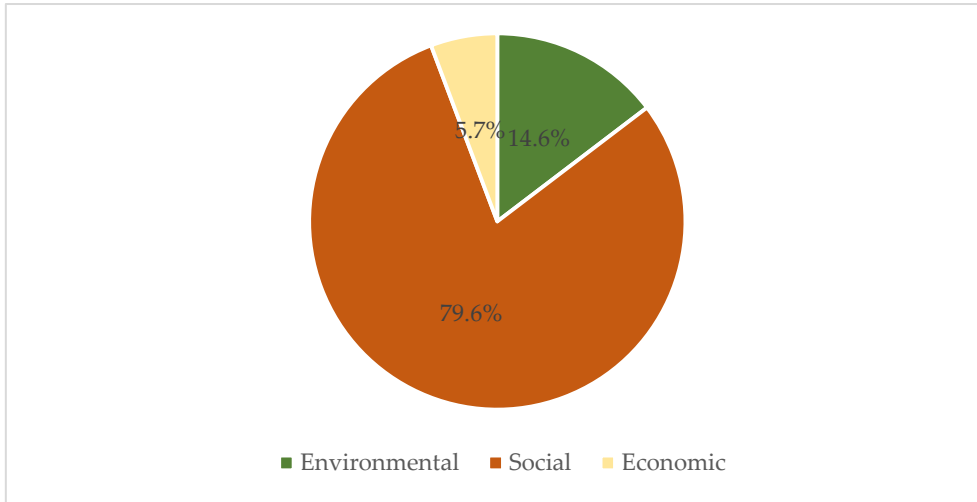


Figure 30. Italy-based collaborations' breakdown: reference sustainability pillar.

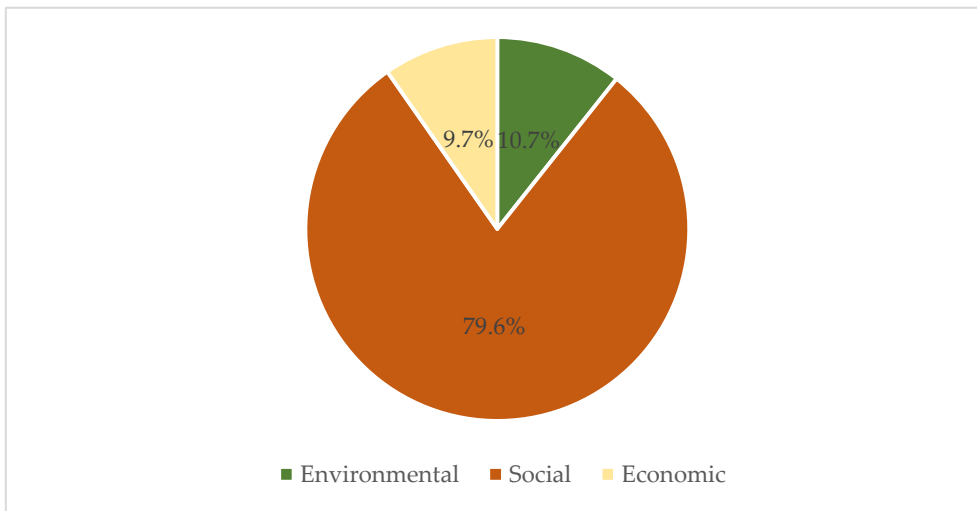


Figure 31. Developed world based collaborations' breakdown: reference sustainability pillar.

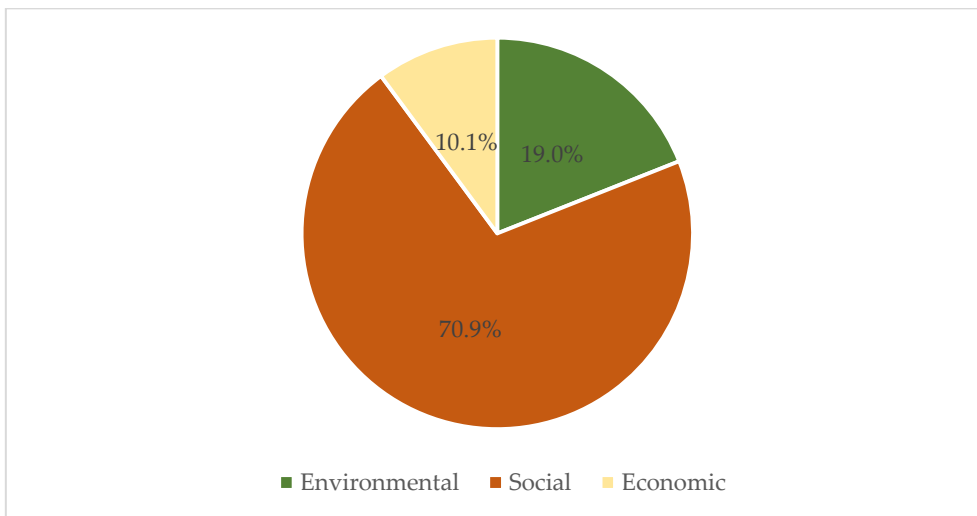


Figure 32. Developing world based collaborations' breakdown: reference sustainability pillar.

Resource – process matrix

A distinctive element of the classification and categorisation effort contained in the present work is the attention to two main dimensions in the business-NPO phenomenon: the resources exchanged, and the operational processes activated. The matrix, resulting by the division of the bi-dimensional space containing all the observed collaborations into sectors, that in turn represent the possible combinations between the abovementioned dimensions, was conceptualised as a resource-process matrix.

While introducing such analysis, related variables were defined too. In particular:

- Two binary variables (*Process_BUS* and *Process_NPO*) were introduced, to monitor the activation of operational processes by each side
- Two binary variables (*Res_BUS* and *Res_NPO*) were introduced too, to monitor the sides involved in the provision of resources.

Therefore, the resource-process matrix sees 16 different areas, i.e., sixteen possible combinations of those 4 variables. Such conceptualisation is presented in Figure 33.

		Process				
Resource – Process Matrix	JOINT ENGAGEMENT (<i>Process_BUS</i> = 1 AND <i>Process_NPO</i> = 1)					
	NPO-ENGAGED (<i>Process_BUS</i> = 0 AND <i>Process_NPO</i> = 1)					
	BUSINESS-ENGAGED (<i>Process_BUS</i> = 1 AND <i>Process_NPO</i> = 0)					
	NO ACTIVATION (<i>Process_BUS</i> = 0 AND <i>Process_NPO</i> = 0)					
		NO RESOURCES' INVOLVEMENT (<i>Res_BUS</i> = 0 AND <i>Res_NPO</i> = 0)	BUSINESS TO NPO (<i>Res_BUS</i> = 1 AND <i>Res_NPO</i> = 0)	NPO TO BUSINESS (<i>Res_BUS</i> = 0 AND <i>Res_NPO</i> = 1)	RESOURCES' BIDIRECTIONALITY (<i>Res_BUS</i> = 1 AND <i>Res_NPO</i> = 1)	Resource

Figure 33. RPM matrix, in terms of variables' combinations.

A fundamental result of the statistical analysis on such an empirical database is the determination of which of those combinations practically exists, i.e., which type of business-NPO collaborations are present from the point of view of resource flows and operational processes.

The most important result is that the business side always put resources in such collaborations (*Res_BUS* = 1). This evidence alone determined the practical insignificance of

the matrix's sectors identifying collaborations with no resource exchanges ($Res_BUS = 0$ AND $Res_NPO = 0$) and with resource effort exclusively by NPO side ($Res_BUS = 0$ AND $Res_NPO = 1$).

Another empirical evidence is the perfect univocal correlation between the activation of operational process by one of the two sides and the involvement of resources by that same side ($Process_BUS = 1 \Rightarrow Res_BUS = 1$; $Process_NPO = 1 \Rightarrow Res_NPO = 1$). On the contrary, the inverse relation is not necessary, i.e., the involvement of resources by a certain side is not sufficient condition for the activation of processes by the same side.

These considerations have important relevance from the matrix point of view, as they 10 out of the 16 possible combinations resulted inexistent. The analysis of the remaining six highlighted that another combination is absent in the empirical reality: namely, it is the case of collaborations not presenting any process activation ($Process_BUS = 0$ AND $Process_NPO = 0$) but bidirectionality in the resource flow ($Res_BUS = 1$ AND $Res_NPO = 1$).

Thus, only 5 out of 16 possible typologies, according to the focal matrix, of business-NPO collaborations practically exists; their placement in the matrix itself is highlighted in Fig. 34.

		Process				
Resource – Process Matrix	JOINT ENGAGEMENT ($Process_BUS = 1$ AND $Process_NPO = 1$)					Resource
	NPO-ENGAGED ($Process_BUS = 0$ AND $Process_NPO = 1$)					
	BUSINESS-ENGAGED ($Process_BUS = 1$ AND $Process_NPO = 0$)					
	NO ACTIVATION ($Process_BUS = 0$ AND $Process_NPO = 0$)					
	Resource – Process Matrix	NO RESOURCES' INVOLVEMENT ($Res_BUS = 0$ AND $Res_NPO = 0$)	BUSINESS TO NPO ($Res_BUS = 1$ AND $Res_NPO = 0$)	NPO TO BUSINESS ($Res_BUS = 0$ AND $Res_NPO = 1$)	RESOURCES' BIDIRECTIONALITY ($Res_BUS = 1$ AND $Res_NPO = 1$)	

Figure 34. Empirically-verified existing combinations in the RPM matrix.

The empirical evidence of the inexistence of collaborations not presenting resources' involvement by the business side allows to redesign the matrix simplifying the horizontal axis itself. In fact, the only two possible cases become:

- Collaborations presenting *unidirectional resource flows*; in particular, from firms to recipient NPOs;
- Collaborations witnessing *bidirectional resource flows*.

Resulting resource-process matrix (RPM), that will be the one employed from now on, is shown in Fig. 35.

		Process		
Resource – Process Matrix	JOINT ENGAGEMENT <i>(Process_BUS = 1 AND Process_NPO = 1)</i>		5	Resource
	NPO-ENGAGED <i>(Process_BUS = 0 AND Process_NPO = 1)</i>		4	
	BUSINESS-ENGAGED <i>(Process_BUS = 1 AND Process_NPO = 0)</i>	2	3	
	NO ACTIVATION <i>(Process_BUS = 0 AND Process_NPO = 0)</i>	1		
		UNIDIRECTIONAL RESOURCE FLOW <i>(Res_BUS = 1 AND Res_NPO = 0)</i>	BIDIRECTIONAL RESOURCE FLOW <i>(Res_BUS = 1 AND Res_NPO = 1)</i>	

Figure 35. Updated RPM.

Once that the meaningful combinations have been determined, it is possible to analyse the distribution of observations among them. The populated matrix sectors are labelled with numbers from 1 to 5, following the principal diagonal of the matrix itself, as was showed in Fig. 35. Defined this numeration, the population of these sectors in terms of contained business-NPO collaborations is plotted in Fig. 36.

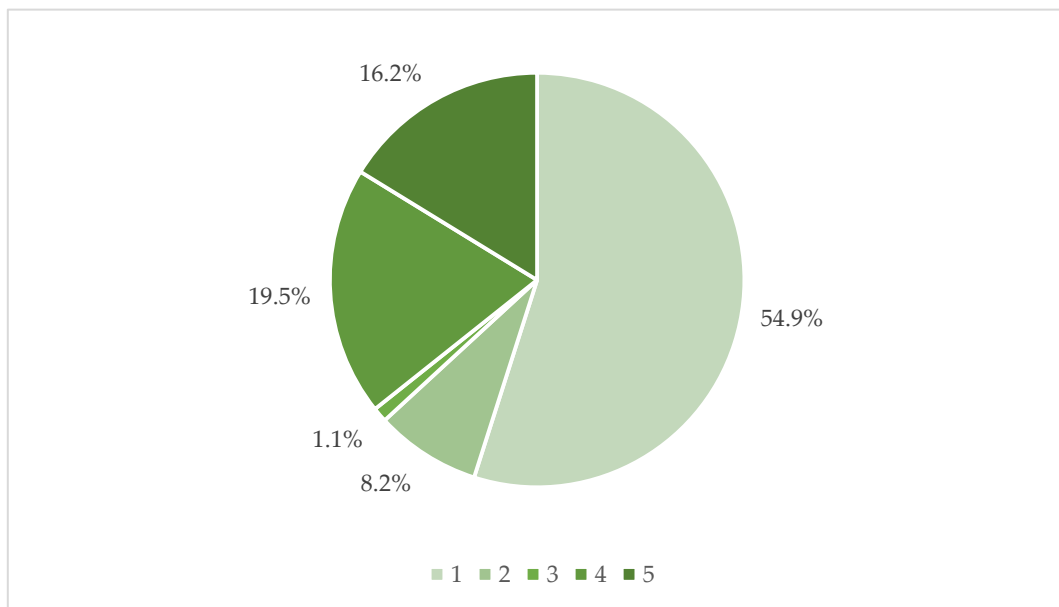


Figure 36. Breakdown of observed collaboration: RPM sectors.

A more detailed interpretation of these results will be performed in Section 6. However, some preliminary insights can be discussed. First of all, the clear predominance of one sector, the number 1, on the others. In fact, such matrix area, embedding business-NPO collaborations that are unidirectional in terms of resource flow ($Res_BUS = 1$ AND $Res_NPO = 0$) and that are not presenting any specific process activation ($Process_BUS = 0$ AND $Process_NPO = 0$), alone contains 240 observations, more than the half of the total sample. The associated variables' combination, compared with the ones characteristics of other matrix sectors, suggests that such collaborations are the simplest one in the landscape.

These two insights together provide a net picture of the Italian situation in terms of business-NPO collaborations: the dominance of very simple collaborations, in which the complexity is lowered as much as possible, as also the sought benefit is limited. In fact, the resource flow is unidirectional, that is, the business does not expect nothing in direct exchange for its resources. It is so not surprising as collaborations still unidirectional for what concerns resources but presenting in addition the activation of operational processes by the involved firm, are way less minor (8.2%).

Following this order, the next sector to be analysed results to be very narrow in terms of embedded collaborations, just 5. Such 5 collaborations present again process activation exclusively on business side, but now the resource flow is bidirectional. The very limited numerosity makes difficult to perform further analysis on this sector; it will be very interesting to see how the adopted clustering model will reclassify them, i.e., which of the other employed variables will result to strongly characterise such 5 collaborations as similar to other ones, even if different from RPM point of view.

Other two sectors characterised by resources' bidirectionality are sectors 4 and 5. The first presents process activation exclusively on NPO side and contains 85 observations; the latter instead is made of collaborations characterised by specific operational processes by both involved parties (71 observations). This last case is particularly interesting, as it is diametrically opposed to sector 1. It embeds observations that are the most complex possible from RPM point of view: managerial complexity in terms of organisation and coordination, but also more variegated and valuable resources are involved by both sides, seeking for a benefit that should be obviously higher than the mere sum of the inputs. Keeping in mind the focus of the present dissertation, i.e., business-NPO collaborations oriented to sustainable development advancements, observations contained in this matrix sector – that are a considerable share of the total sample - will be probably the most interesting to be deepened and further detailed.

This analysis can be extended, as done before, increasing the number of considered variables. In particular, it is interesting to add to the discussion variables modelling the complexity of a business-NPO collaboration, namely a structure more complex than the dyad (*Multi_Stake*) and the lasting of the collaboration itself for more than one year (*Multi_Year*).

In Table 15 are reported the variations in the distribution of the observations within the matrix. What can be observed is the following phenomenon: matrix areas witnessing an increase in their relative share, while considering only business-NPO collaborations lasting more than one year, are in particular sectors 4 and 5, i.e., the most complex one, further from the origin on the principal diagonal. This trend is perfectly mirrored, while limiting the analysis to single-year observation vs the overall sample, by the increase in the relative share of just sectors 1 and 2, at the expenses of the last two ones. In both cases, the magnitude of relative increase/decrease is more consistent at the extremes, so sectors 1 and 5, that shows increments and drops of about 5 percentage points each.

RPM Sector	Overall	<i>Multi_Year = 0</i>	<i>Multi_Year = 1</i>
1	54.92%	60.78% (+)	48.29% (-)
2	8.24%	9.48% (+)	6.83% (-)
3	1.14%	0.86% (-)	1.46% (+)
4	19.45%	17.24% (-)	21.95% (+)
5	16.25%	11.64% (-)	21.46% (+)

Table 15. Collaborations' breakdown per RPM sectors and time duration.

Shifting the focus of the analysis now on the structure of the observed business-NPO collaborations, other insights can be gathered. The trend is in general similar to the one observed for the lasting over years, so that tighter, more complex collaborations are more concentrated in matrix sectors further from the origin. As shown in Table 15, what changes is the magnitude of such redistributions: the weight of sector 5 – and correspondent drop in sector 1 – dramatically increases while considering only collaborations with structures more complex than dyad. It rises from 16.25% up to 51.39%, becoming the dominant RPM area.

RPM Sector	Overall	<i>Multi_Stake = 0</i>	<i>Multi_Stake = 1</i>
1	54.92%	61.64% (+)	20.83% (--)
2	8.24%	9.59% (+)	1.39% (--)
3	1.14%	1.37%	0.00% (--)
4	19.45%	18.08% (-)	26.39% (+)
5	16.25%	9.32% (--)	51.39% (++)

Table 16. Collaborations' breakdown per RPM sectors and their structure.

Presented analyses allowed to better detail not only the distribution of observations along the matrix, but also the matrix itself. However, this is only the starting point of what will be refined by means of clustering model: to develop an empirical-based taxonomy of business-NPO collaborations.

5.5.3. NPOs' landscape

The focal database was built, as described, starting from a restricted sample of firms; for those, non-financial reporting documents or press was exploited to gather information about the collaborations, in-scope for the present dissertation, undertaken with NPOs. By means of this procedure, a sample of NPOs was so derived: in this section, it will be further characterised by means of statistical analyses.

The first insight that can be brought as takeaway is the following: the analysed firms' sample made of 81 companies, of which 56 collaborating, undertook in the reference period collaborations with 347 different NPOs. This way larger numerosity is a factor to be kept in mind for further developments of this work that want to expand it for what concerns firms' sample: on average, each collaborating company introduces about 6 new NPOs.

The identified 347 entities were categorised, as introduced in the 'Variables' Section of this work, according to four dimensions. Namely, their geographical location, the sector of activity, the size, and the availability of information sources such as disclosures. The idea is, for the largest extent possible, to mirror what performed in the firm characterisation, despite of the lowest availability of standardised information and the larger size of the sample, as discussed before.

In this sense, the first point to be touched by the present characterisation opera consists in the detailing of available information sources. Nonprofit world is a way less regulated and standardised realm than listed companies' one, and this is reflected on the eventual disclosures made available by themselves. In the 'Variables' Section the three binary entities (*Report_NPO*, *Internet_NPO* and *No_Source_NPO*) introduced to monitor such aspect were defined. In Fig. 37 results in this sense are plotted.

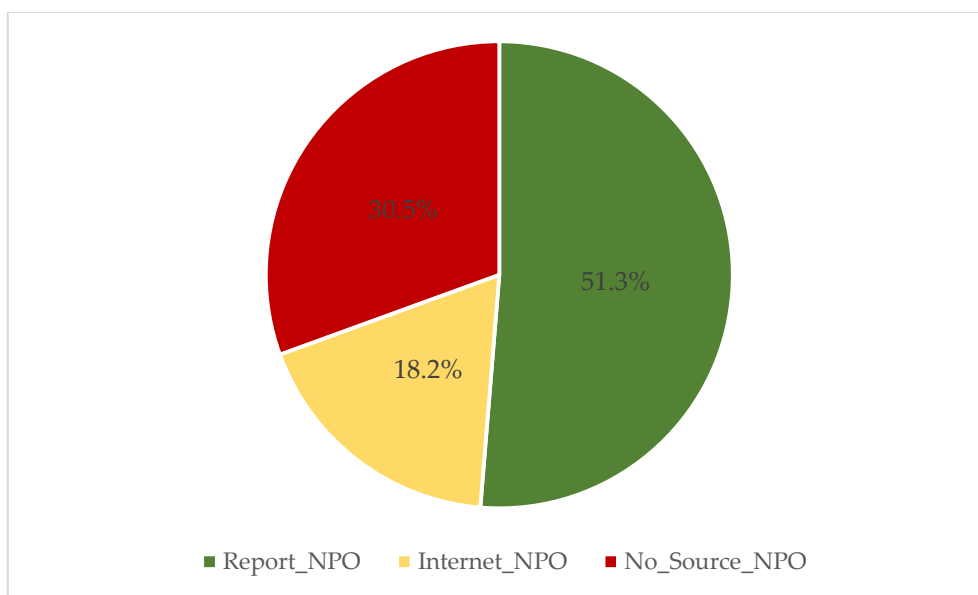


Figure 37. Breakdown of observed NPOs: disclosures' availability.

The depicted situation can be summarised as following. While about the half of the NPOs presents on their own channels (e.g., websites) documents dedicated to present to external stakeholders values and figures such as the number of collected resources, the activities performed, etc., the other half does not. Sometimes, 3rd parties' sources can be exploited to collect relevant information about such entities (*Internet_NPO*). Moreover, not only the reliability and quality of such extractions is obviously lower, but also a considerable portion of identified NPOs still do not present such possibility (*No_Source_NPO*). This is to underline the difficulties in performing an analysis that aims to be specular to the one performed for listed firms; on the other way round, it is a due remark about the results that will be presented in this subsection and their quality.

Starting with the geographical distribution of NPOs, it resulted to be astonishingly vast. The 347 identified NPOs are distributed across 33 different countries. However, what results is a strong concentration of NPOs in few countries and continents. Here in Table 17 and 18 are reported the distribution of NPOs across TOP-5 – in terms of observations registered - countries and continents.

Country	Observed NPOs
Italy	200
USA	44
Spain	24
UK	11
France	8

Table 17. NPOs' geographical breakdown - TOP5 Countries.

Continent	Observed NPOs
Europe	260
North America	25
Asia	21
South & Central America	16
Oceania	5

Table 18. NPOs' geographical breakdown – Continents.

What results is a net concentration of the geographical coverage in Europe, and in particular in Italy, embedding alone the 57.64% of the identified NPOs. However, this was expected given the nature of the selected firms' sample, i.e., companies listed in the major Italian Stock Exchange indexes. Indeed, it is noticeable to observe how such firms undertook almost the half of their business-NPO collaborations with entities based in a different country than the one where they are listed.

The characterisation of involved NPOs must not prescind from the deepening of their sector of activities. This is very important as characterising the mission and the efforts of NPOs means to detail the impact that business firms are willing to have, from the sustainable development point of view, by undertaking such focal collaborations. As already discussed, the classification employed in this sense is the International Classification of Non Profit Organizations (ICNPO). It proposes 12 different categories of activities' sector for the

nonprofit organisations. It is important to remember how, in the assignment of each observed NPO to respective sector, this categorisation was not employed as made of mutually exclusive classes: it means that, if necessary, each single NPO could have been assigned to more than one activity sector. In Table 19 are reported all the categorisation proposed with a related brief description of activities embedded.

Category	Description	Embedded activities
ICNPO 1	Culture and recreation	Production and dissemination of information and communication; visual arts and architecture; historical and cultural artefacts; sports
ICNPO 2	Education and research	Education (from primary school to university formation); medical, engineering and social sciences' research
ICNPO 3	Health	Hospitals, rehabilitation centres, wellness
ICNPO 4	Social services	Child welfare; youth welfare; Services for the handicapped and for the elderly; post-emergency intervention; refugee and homeless assistance
ICNPO 5	Environment	Pollution abatement; natural capital restoration and control; environmental beautification; wildlife protection
ICNPO 6	Development and housing	Community and neighbourhood organizations; housing assistance; job training programs
ICNPO 7	Law, advocacy and politics	Advocacy, civil rights, ethnic associations; legal services; victims' support
ICNPO 8	Philanthropic intermediaries and voluntarism promotion	Grant-making foundations; Voluntarism promotion and support; fundraising organisations
ICNPO 9	International	Exchange and cultural programs; international human rights and peace organizations
ICNPO 10	Religion	Congregations, like churches, synagogues, temples, mosques; association promoting religions
ICNPO 11	Business and professional associations, unions	Business and professional associations; labor unions
ICNPO 12	Not elsewhere classified	---

Table 19. ICNPO classification.

The distribution of observed NPOs among the ICNPO classes above is presented in Fig. 38.

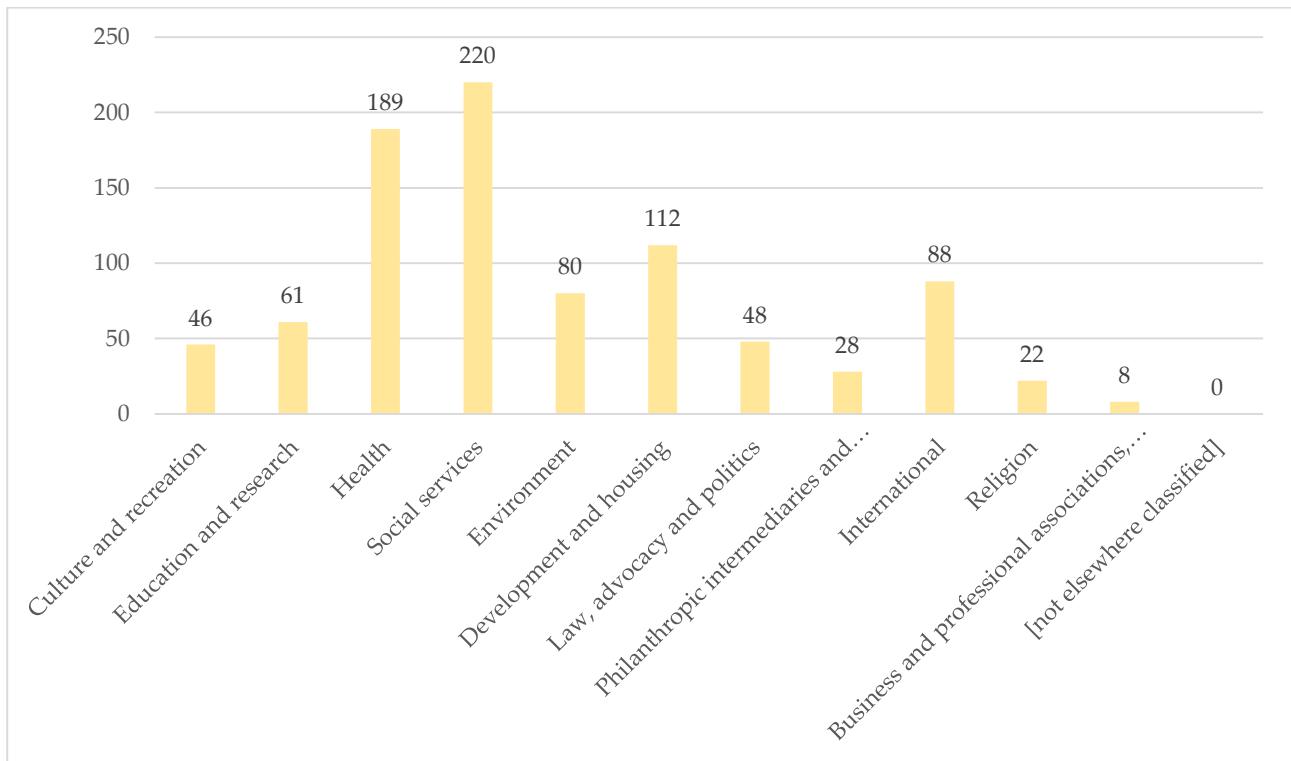


Figure 38. NPOs' breakdown: sector of activity (ICNPO).

What clearly emerges is the important weight of NPOs operating in the fields of health and social services; many entities pursue jointly related objectives. The reasoning that can be performed is that those areas are both the ones most cared by external stakeholders and the most difficult, from the firms' point of view, in which to have an impact. In fact, thinking to the performed sampling of the firm, the very large majority of them operates in manufacturing activities. For whichever company that has production processes, the environmental issue is not only a CSR area, but a business lever (think for example to carbon emissions offset). The market is way more mature than the one of social issues tackling, and solutions are various too. The clear prominence instead of NPOs in the social area signals a different phenomenon: their role as best-in-class solution for social-oriented efforts.

This is a possible lens through which read these numbers and so the drivers in the decision of nonprofit partners by firms. The choice of the NPOs to which collaborate with is a signal of the direction that the firm desires to take (den Hond et al., 2007).

Among all the other possibilities, it is noteworthy to compare results registered by health & social services NPOs with environmental ones (ICNPO 5). These latter alone cover one of the sustainability pillars, deeply investigated while discussing about collaborations themselves. The evidence that their numerosity is more than doubled by NPOs operating in the fields of health and social services strengthen the previous reasoning. In fact, the environmental topic is a crucial challenge for firms in this specific period; the observation

that business-NPO collaborations have a lower weight in this sense suggests that firms prefer to tackle internally and/or by other means this matter. Collaborations with NPOs have a crucial role more for social problems than for environmental ones.

As introduced, the last dimension of analysis concerned the size of focal NPOs. Several scholars agree upon considering volunteering work as one of the prominent dimensions for the whole non-profit sector (Anheier & Salamon, 1999; Jäger et al., 2009); the first dimensions to be monitored was so the number of volunteers employed. However, NPOs can employ also professional work, that is, regulated by a contract; contracted employees' number was so monitored too, when possible.

However, the lack of standardisation not only for what concerns disclosures, but also for norms and policies clearly defining size ranges, made it difficult to perform analyses as structured as the ones proposed for the business side.

An interesting solution appeared to be the comparison of the observed NPOs – for which information was available – with average values in terms of employees and/or volunteers reported by the ISTAT survey on Italian Non-profit Organizations (NPO) run in 2015 and 2019. Result provided average values of volunteers per NPO equal to 21 (ISTAT, 2015), while for employees is around 17 per NPO (ISTAT, 2019). Further insight regarded the proportion of NPOs employing contracted work, just the 14.6%.

Comparing such results with what emerges by the focal database of NPOs observed to collaborate with business firms, several edges can be observed. First of all, the large majority of observed NPOs for which information are available resulted to be above the average for what concerns volunteers' number (87.7%) and for employees' one (81.7%). Secondly, the 44.2% of the overall NPO sample resulted to employ contracted work.

Such results delineate a clear direction: business firms' largely prefer to collaborate with structured NPOs rather than with small ones. It actually makes sense: whatever is the rationale intended by firms, from philanthropy to more integrated and coordinated projects, the size is a proxy for the organisation and the recognition within the society of the focal NPO. The size is so another element that resulted to be empirically important for firms when evaluate the undertaking or not of a collaboration.

In conclusion, in this methodological chapter the attention was posed on the rationale and the procedures followed in the database construction. This will be one of the biggest contributions of the present work, representing it an absolute novelty in the current landscape, and so it had to be carefully described. As first, it could be employed to describe the Italian situation for what concerns business-NPO collaborations oriented to sustainability. This, as exposed in this section, allowed also to build and formulate first hypotheses and propositions, again driven by empirical evidence, i.e., data. On these preliminary insights, and on the information density contained in such database, the answers to focal research questions will be built. In particular, in the next chapter different clustering models and techniques will be discussed. The goal is to choose the method that best suits the nature of the focal database. The result of the application of the selected model

to the observations gathered will be an empirical-based the taxonomy of business-NPO collaborations.

5.6. Clustering methodology

The database built by observations gathered by the extraction of information from non-financial disclosures and/or a selected sample of Italian press is then employed as fundamental source to provide the results of the present dissertation, i.e., to answer to the research questions. One of such answers regards the proposition of a classification of business-NPO collaborations. The desired taxonomy, however, differentiates itself from the others present in literature for its empirical-based nature: classes embedded in it will be derived from data science algorithms.

In particular, this process will be carried on by means of appropriate clustering algorithms. The process of employment of such algorithms, of different nature, to derive a taxonomy is not a novelty in the academic research. For example, Franco & Haase (2015) employed a similar methodology to develop a taxonomy of interfirm alliances that SMEs may adopt. Their work was articulated in four main phases:

1. Selection of important, defining dimensions of the phenomenon;
2. Definition and description of an appropriate sample to collect observations;
3. Selection/construction of an appropriate database, that considers the selected dimensions;
4. Data analysis.

As clearly emerges, the first three steps were performed in this dissertation too. Nevertheless, consistent differences arise not only in terms of contents (e.g., the dimensions monitored are completely different as the focal topic differs) but also in terms of techniques employed in the collection of data (Franco & Haase employed surveys).

The data analysis step, for what concerns the present work, consists also of the descriptive statistics part described in the previous section. Moreover, similar analyses will be also run within the classes arising from clustering models, i.e., the object empirical-based taxonomy.

In general, the purpose of clustering models is to subdivide the records of a dataset into homogeneous groups of observations, called clusters, so that observations belonging to one group are similar to one another and dissimilar from observations included in other groups (Vercellis, 2011, pp. 293).

Applying such models is useful to provide meaningful interpretation of a given phenomenon; to highlight eventual outliers; as a preliminary ground upon which other types of analyses (e.g., data mining) can be performed (Vercellis, 2011, pp. 294).

In general clustering methods should be:

- i. *flexible*, in terms of typologies of variables they can leverage on (numerical, ordinal and, as in the case of the present dissertation, also categorical);
- ii. *robust*, i.e., stable with respect to small changes and/or variations in the data;
- iii. *efficient*, so being able to provide sufficiently satisfactory results in a reasonable time and/or working just on sub-samples.

For the sake of this work, the robustness property is particularly useful to be reminded, as it was impossible to eliminate every degree of discretion from the process of value assignment in the different cases. Assuming the stability resulting from this property, the robustness of the results increases too.

To understand how practically clustering models group observations resulting to be similar, it is needed to introduce the concept of affinity. It is intended as a “measure of similarity” (Vercellis, 2011, pp. 296) and therefore declined in a series of possible metrics.

The most important notion to be introduced in this sense is the one of distance between two observations. The idea is to understand the degree of similarity of two observations by measuring the distance between them in the n-dimensional space defined by clustering variables.

The simple example reported in Fig. 39 refers to the Euclidean distance notion. For only numerical attributes in the dataset, the distance between the vectors associated with the pair of observations $x_i = (x_{i1}, x_{i2}, \dots, x_{in})$ and $x_k = (x_{k1}, x_{k2}, \dots, x_{kn})$ in n-dimensional space, can be computed as reported in Fig. 40.

$$\begin{aligned} \text{dist}(x_i, x_k) &= \sum_{j=1}^n |x_{ij} - x_{kj}| \\ &= |x_{i1} - x_{k1}| + |x_{i2} - x_{k2}| + \dots + |x_{in} - x_{kn}|, \end{aligned}$$

Figure 39. Euclidean distance formula (Vercellis, 2011).

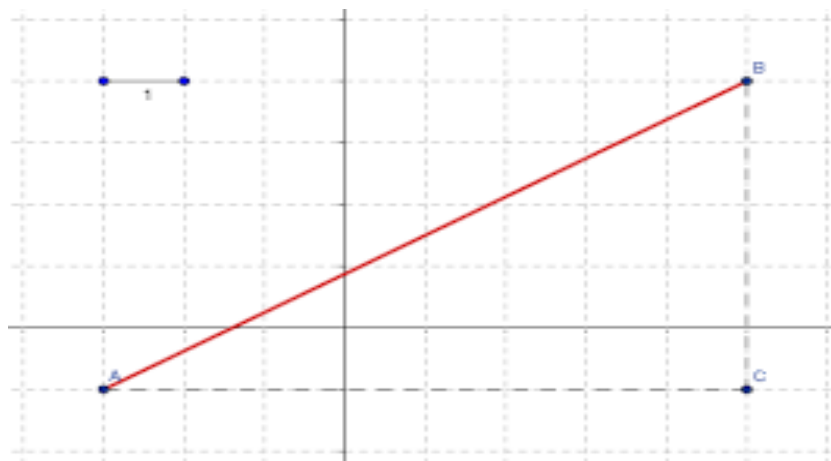


Figure 40. Graphical representation of Euclidean distance.

The metric to be computed to represent the distance concept varies according to the types of clustering variables (numerical, categorical, binary, etc.). However, the distance is the pivotal measure upon which clustering is performed.

In successive steps are needed concepts and metrics to evaluate the statistical quality of output clusters. *Silhouette* is a very synthetic measure of such aspect. It employs the concept of distance to evaluate the quality of output clusters by comparing the difference between the distance of the focal observation (x_i) from the centroid of the assigned cluster (v_i) and the average one from all the other observations (u_i); such delta is normalised over the minimum value among the two.

Such metric ranges in the [-1 ; +1] interval. Negative values signal that on average the focal observation is further from the assigned cluster than from the whole observations' sample; it is therefore undesirable since the membership of x_i in its cluster is not well characterized (Vercellis, 2011, pp. 295). Vice versa, the closer the result to +1, the higher the statistical quality of the clustering. As a synthetic measure, usually the average silhouette per each observation in the dataset is computed.

Those concepts hold for clustering methods in general. However, different ones exist, and they differ one from each other for the logic used in deriving the clusters. Namely, four main typologies of clusters are reported in the literature (Vercellis, 2011, pp. 295):

- Partition methods, consisting in a subdivision of the original sample in a predetermined number K of non-empty subsets, i.e., clusters;
- Hierarchical methods, where the subdivision is not based on predetermined number K of subsets, but on certain threshold values taken by appropriate metrics;
- Density-based methods, deriving clusters from the number of observations locally falling in a neighbourhood, of a given diameter, of each observation;
- Grid methods, where first the space of the observations is discretized, and secondly clusters are deriving by such schematisation.

The last two typologies were not considered as suitable to the present study. Density-based methods are suggested in case of the necessity of outliers' identification (Vercellis, 2011, pp. 295), something that does not seem to represent a problem, given the fact that the database was not retrieved by other scholars but built ad-hoc, aware of the research requirements. Grid methods, as introduced, are employed when discretization is needed: the present observations' space does not present this necessity, being exclusively made of binary and categorical variables, and so the lower accuracy descending from such methods (Vercellis, 2011, pp. 295) has not reason to be endured.

Partition and hierarchical models resulted so the most suitable solutions for the focal research problem. They will be both applied and then evaluated according to the previous metrics to understand which has the better fit. Nevertheless, whichever the model, an important antecedent is to determine which are the variables to be considered in the clustering.

Differently from the choice of the model, that will be driven by purely quantitative considerations (e.g., which model presents the highest value of silhouette), the choice of the variables has crucial implications in terms of meaningfulness of the results. In fact, selecting clustering variables means choosing the characteristics that can be significant in determining internal coherence and external heterogeneity among different clusters. In other words, selecting the dimensions equals to declare which variables are more relevant than others in business-NPO collaborations' discussion.

Following this reasoning, the procedure to perform such selection will be made of two cyclic steps. Firstly, considerations about variables from a research significance point of view will be brought up and will not be questionable anymore. Quantitative considerations will progressively work on the areas left untouched by such considerations, providing numeric instruments to proceed with the selection.

In an iterative process, other considerations related to the knowledge gathered by the review of reference literature will be made upon metric-based previous outcomes. This will continue up to the reaching of an acceptable solution to the trade-off about the level of detail of the analysis and mathematical quality of the clustering.

Abovementioned quantitative considerations can be performed only by running different algorithms with different inputs, again with an iterative fashion. It was so needed to code such clustering algorithms and to set some associate control and test procedures.

Whichever the dimensions that will be selected, the model to be employed must be chosen considering the fact that all the potential variables are binary. Thus, a K-modes algorithm was employed, as a partition models' representative. K-modes is a variant of the more general K-means algorithm that, employing as reference values modes instead of means, allows to have meaningful clustering results even employing only binary variables, as it is in the present case.

The computational logic of the K-means is the following: K observations, corresponding to the pre-determined number of clusters K, are arbitrarily selected as centroids for the upcoming clusters. Each observation is assigned to the cluster whose centroid is the closest, that is, which minimizes the distance from the observation among all centroids; such procedure is iterated, while adopting as new centroids the mean value of the attributes for the observations belonging to each cluster. It stops when no observation is reallocated.

The problem arising from binary variables – that represent a particular case of nominal variable, with just two modalities – is not the distance computation, that, as seen before, can be adapted to the single case, while the notion of mean. That is the reason why K-modes algorithm, and its employment of modes instead of means, was introduced, and applied in this dissertation.

The other question left open concerns the number K of clusters. From the literature review did not emerge any preferred number of clusters to be obtained, but more a range. We observed dichotomic proposals of classification (Lin & Darnall, 2015), triadic ones (Austin, 2000; Rondinelli & London, 2003; Kolk et. Al, 2008) up to the thesis of Wymer & Samu (2003)

theorizing 7 forms of business-NPO collaborations. However, the literature review itself highlighted how there is the need to achieve a better balance between generality and comprehensiveness.

The procedure to choose a numerosity of clusters within this pre-selected range was again an iterative one. The code was designed to repeat the clustering, K-modes model for each number present in the focal range, and to plot associated silhouette values. In particular, two representations are provided as outcomes. As first, one plot for each attempt (Fig. 41) to visualise the internal situation to each cluster, called silhouette diagram. The other representation (Fig. 42) has on the X axis the predetermined number K of clusters, while on the Y axis is present the average value of the silhouette, for that clusters' numerosity, on the different iterations.

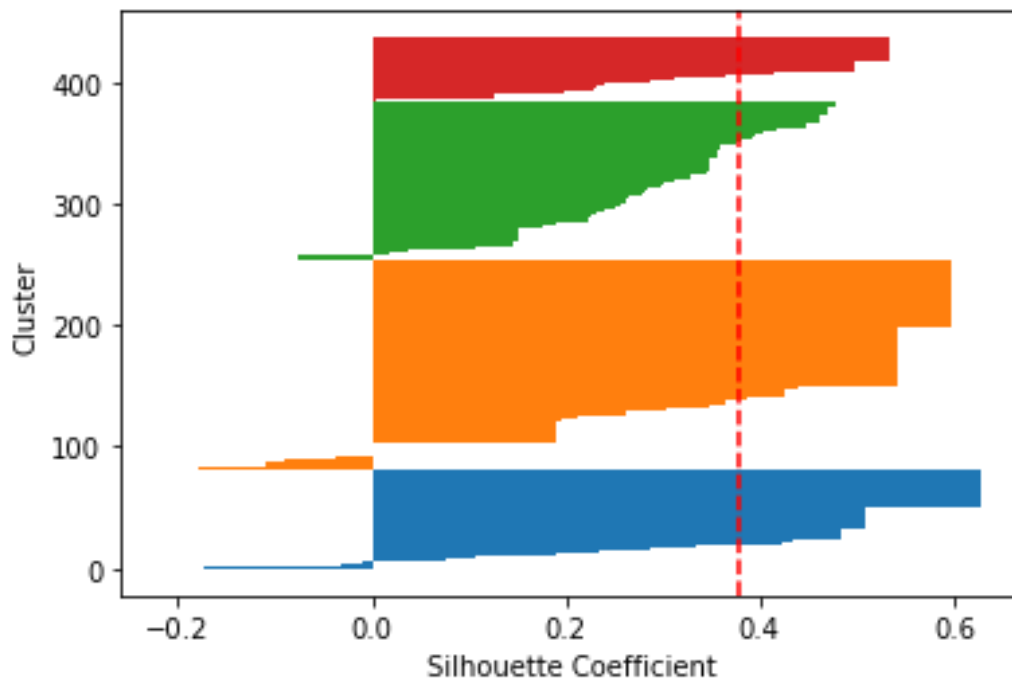


Figure 41. Output plot: silhouette diagram.

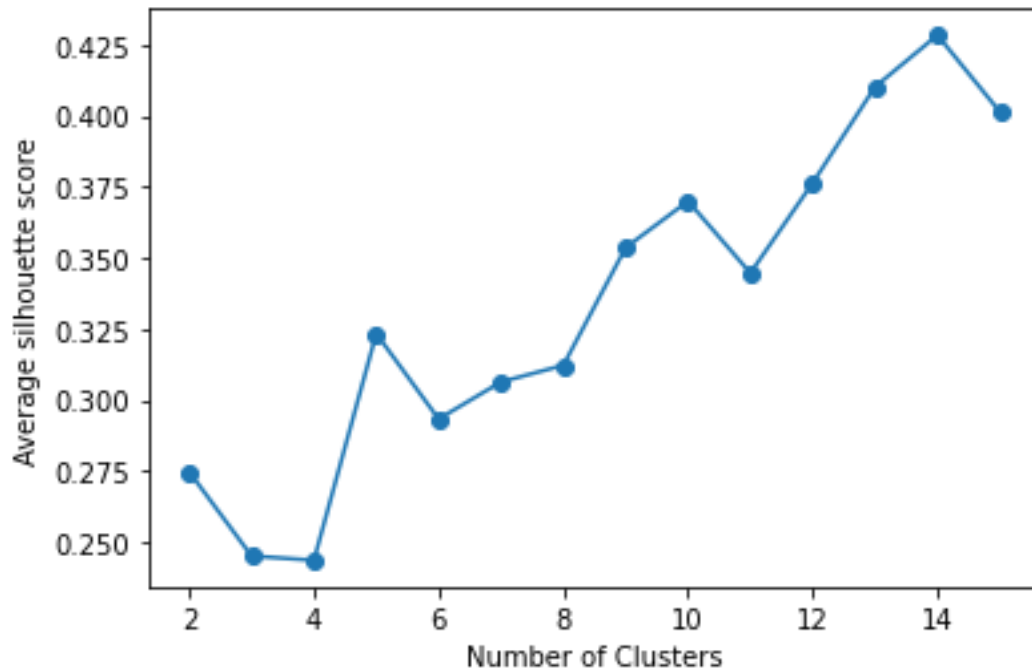


Figure 42. Output plot: average silhouette per clusters' numerosity.

The analysis of this plot is crucial for the progress of this work. Silhouette, as seen, is a fundamental metric to evaluate the goodness of a clustering model. However, it is, in general, a mathematical function which tends to increase with the number of clusters as observations become more and more separate from each other; thus, adopting it as sole metric, the risk is to be biased towards too high clusters' numerosity. Therefore, such consideration should be balanced by others related to the research objective. In fact, to provide a taxonomy means to reduce the variability present in the reality by identification of patterns and similarities: the lower the number of clusters, the better the simplification of the reality and its schematisation.

What results from the depicted situation is a trade-off between mathematical goodness of the clustering, represented by the silhouette and increasing with clusters' numerosity, and the meaningfulness of the same clusters. The proposed solution to this trade-off is to consider as the best numerosity the one presenting a positive answer to those two criteria:

- A silhouette higher than 0.4;
- Presenting the largest incremental increase of the silhouette value.

The first condition is set to ensure a certain mathematical fit of the model – and so verify if tried variables are ok or have to be further screened -, whilst the second one to ensure that the complexity arising from the increasing number of clusters effectively pays off in terms of such fit.

In parallel, also a hierarchical clustering code was run, as the preliminary theoretical analysis highlighted its potential suitability versus the research problem. Moreover, they present the advantage of not requiring the cluster numerosity to be defined a priori. In fact, in such algorithms the iteration is stopped when a reference metric assumes a certain threshold value, to be set by the programmer.

The designed hierarchical algorithm was an *agglomerative* one, employing as reference metric the *Jaccard distance*. Hierarchical agglomerative methods are bottom-up techniques, in the sense that they start in a situation such that in which each single observation represents a distinct cluster. These clusters are then aggregated, through iterations, deriving clusters of increasingly larger. The algorithm is stopped when a single cluster including all the observations has been reached (Vercellis, 2011, pp. 308).

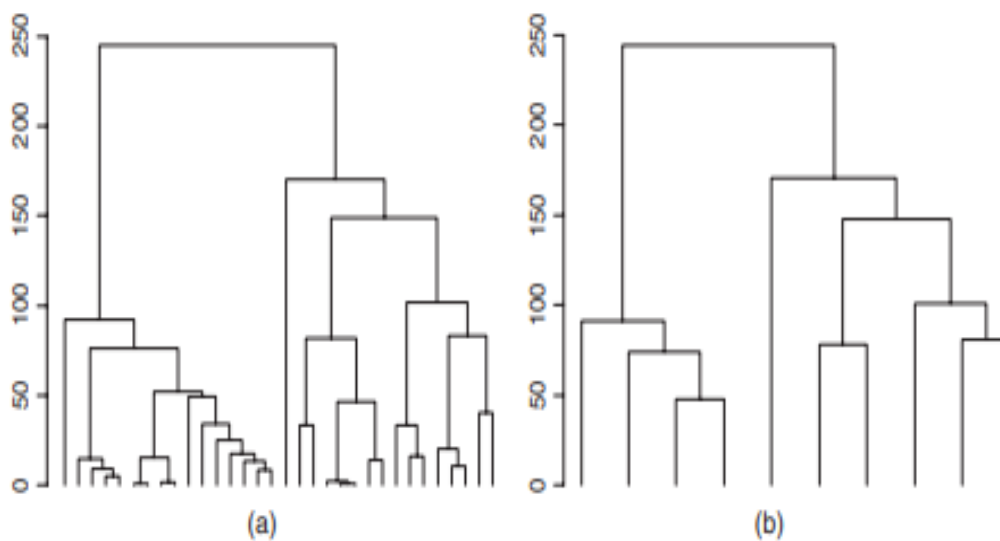


Figure 43. Dendrograms for agglomerative clustering models (Vercellis, 2011).

As depicted in Fig. 43, it is useful to imagine algorithm's logic as the building of a dendrogram. At the bottom we have the n observations composing the database, in the beginning constituting n clusters. Progressively, the observation closest to each other, i.e., the ones characterised by the lower value of distance – plotted on Y axis -, are merged together into a cluster. The aggregation moves the plot up along the vertical axis, that represents the distance among observations. Such procedure is iterated until reaching a unique cluster.

The resulting clustering depends on the chosen metric's threshold at which "cut" the dendrogram. As introduced, Jaccard distance was employed as a metric. The Jaccard distance is a metric to be used in cases of binary and asymmetrical variables (Vercellis, 2011, pp. 300), that is, the present case.

In order to be computed, contingency table has to be built. In particular, for each couple of observations x_i and x_k , the following measures must be defined (Vercellis, 2011, pp. 300):

- q is the number of attributes for which observation x_i takes the value 0 and observation x_k takes the value 1;
- u is the number of attributes for which x_i assumes the value 1 and x_k assumes the value 0;
- v is the number of attributes for which the value 1 is assumed by both observations.

Such distance is so computed by dividing the number of cases in which the observations present heterogeneity ($q + u$) by the total number of observations ($q + u + v$).

Jaccard distance is set to be the affinity measure to be employed. It can be also seen as, because of the threshold has to be set on Jaccard distances and not silhouette, an iterative procedure, similar to the one described for K-modes algorithm, was performed. A range of clusters' numerosity is given to the program, to be iteratively tried simply the algorithm stops the iteration at the distance value such that the number of clusters is the desired one. Again, the best numerosity within the range is evaluated by looking at the silhouette-numerosity plot, as was shown in Fig. 42.

Variables' selection, results of each clustering model, and the final decision among the two will be presented in the following sections of this Chapter. In both cases, the results are exported in .csv format, and inserted, as additional column, to the focal database, in the 'Collaborations' section. The latter is then converted into a pivot table, where clusters represent the rows, while on columns are plotted the variables upon which the clustering model was run. Also the selection of the relevant variables will be object of the next section, as it was iteratively connected to progressive results. Moreover, the number of observations within each cluster is reported in the pivot, to verify the absence of clusters with a size considered negligible. Namely, acceptance threshold in this sense was set at 15 observations, corresponding to the 3.5% of the observed business-NPO collaborations.

The selection of clustering variables and of the most suitable model will be based on these criteria, and exposed in the following Section.

5.6.1. Variables' selection

The choice of clustering variables is the first point to be cleared. Such prioritisation is needed as determining which variables are to be considered or not has not only mathematical implications (i.e., in terms of statistical significance of the clustering), but also in terms of research meaningfulness and results. In fact, the lower the number of variables considered, the lower the variability among observations, with potentially a consequent increase of the silhouette. On the other way round, the capacity of the resulting clustering to fully characterise the variety of observations decreases. Again, a trade-off between statistical quality – measured by silhouette – and significance is present. Implications of such choice over the final results are exactly what suggested to start from this point. All the trials were run employing a K-modes algorithm, to focus exclusively on the meaningfulness of the

results. The choice between K-modes and agglomerative models is so postponed to the selection of variables.

To find the desired balance in the abovementioned trade-off, the iterative approach – made of cyclical conceptual and numerical conditions and considerations - defined in the previous Section was adopted.

As introduced, selected variables must be significant from the research's point of view, i.e., being useful in classifying business-NPO collaborations. Two first, crucial dimensions in this sense were already mentioned to be the schematisation of the resource flow and of the activation of operational processes. They also constitute the axes of a matrix, labelled process-resources matrix (RPM), that was already employed as a preliminary instrument for the classification of observed collaborations. Conceptually, such matrix and the represented space can be schematised as a grid arising from the possible combinations of 4 binary variables. Namely, those are:

- *Res_BUS*, signalling the flow of resource from involved firm(s) to involved NPO(s);
- *Res_NPO*, signalling the flow of resource from involved NPO(s) to involved firm(s);
- *Process_BUS*, witnessing the activation or not of operational processes by the firm(s);
- *Process_NPO*, witnessing the activation or not of operational processes by the firm(s).

Given the importance of the abovementioned matrix, those variables must be mandatorily included in the clustering. However, the descriptive statistics part showed how the flow of resource from firms to NPOs is always present, i.e., *Res_BUS* assumes always value 1. Thus, it must be neglected in the clustering as it cannot represent any heterogeneity nor similarity condition.

Retrieving the section of the database part deputed to gather information about collaborations ('Variables' Section of this dissertation), variables describing the structure and the scope of the interactions are still missing. Moreover, it has to be remembered that resources were characterised in a deeper way than just flow's direction. While inserting in the clustering all the possible resources monitored seems very problematic given their specificity, the same cannot be said a priori for the binary variables considering their aggregation into tangible and intangible ones, retrieving the classification by Clarke & MacDonald (2019). Thus, also *Tang_BUS*, *Intang_BUS*, *Tang_NPO* and *Intang_NPO* are considered for the next screening.

A first consideration, this time based on statistical criteria, that can be performed is based on the average values shown by the variables themselves. In particular, the employed criterion is the reasonability in the assumption of symmetry or not. The symmetric nature or not is an attribute of binary variables, representing the fact that the presence of the value 0 is as interesting as the presence of the value 1 (Vercellis, 2011, pp. 299). Such assumption is reasonable if, in the considered sample of observations, both the possible values are found in significant - "not small" (Vercellis, 2011, pp. 299) – proportions. Both the employed clustering models work well if such nature is respected. Thus, the idea is, for each of the

variables' dimensions introduced (structure, scope, resource transfer), to neglect as first the ones whose average is way far from 0.5.

In Table 20 are reported, for each of the monitored variables in the collaborations' section of the database, their average values on the whole sample.

Analysis dimension	Variable	Average
Structure	<i>Other_NPO</i>	0.06
	<i>Other_Firm</i>	0.11
	<i>Bus_Assoc</i>	0.01
	<i>Public</i>	0.05
	<i>Academic_World</i>	0.04
	<i>Multi_Stake</i>	0.16
	<i>Membership</i>	0.08
Scope	<i>Env</i>	0.19
	<i>Soc</i>	0.90
	<i>Econ</i>	0.08
	<i>Central</i>	0.32
	<i>Multi_Year</i>	0.47
	<i>Global</i>	0.03
	<i>Italy</i>	0.62
	<i>Developed</i>	0.21
	<i>Developing</i>	0.14
	Resource transfer	<i>Tang_BUS</i>
<i>Intang_BUS</i>		0.17
<i>Intang_NPO</i>		0.15
<i>Tang_NPO</i>		0.34

Table 20. Evaluation symmetry hypothesis for potential clustering variables.

Variables' averages will be discussed following the same order in which they were introduced (structure, scope resource transfer and operational processes).

The variables describing the structure, considered singularly, present values very far from 0.5. This phenomenon signals a rare nature of the features represented by such values. However, the variable representing the presence of a structure more complex than the dyad, i.e., *Multi_Stake*, is preliminarily embedded in the clustering. Such decision is taken as it is derived from the combination of the other four variables representing the typologies of actors; thus, it represents in an aggregated way a considerable amount of information. It can be considered as summarising all the relevant information gathered on the collaborations' structure.

For what concerns variables describing the scope, values that are furthest from the symmetry condition are shown by *Global* and *Econ*, respectively signalling a geographical boundary of activities that is not a single country or region, and the reference to the

economic pillar of the sustainability conceptualisation. Thus, they are not considered for the clustering.

Discussing about the resources' characterisation, what raises concerns is the very high average value of *Tang_BUS*, i.e., the share very close to 100% of collaborations involving tangible resources provided by the business side. It will so not be considered in the first running of the model.

In Fig. 44 is plotted the diagram - already discussed in Chapter 5 – relative to the variables that passed the first screening. Those latter, for the sake of the exposition, are reported in the same figure. On the vertical axis is reported average value of silhouette shown along the iterations; on the horizontal one, the number of clusters object of the iterations. The range of clusters to be generated was set to go from 2 to 12.

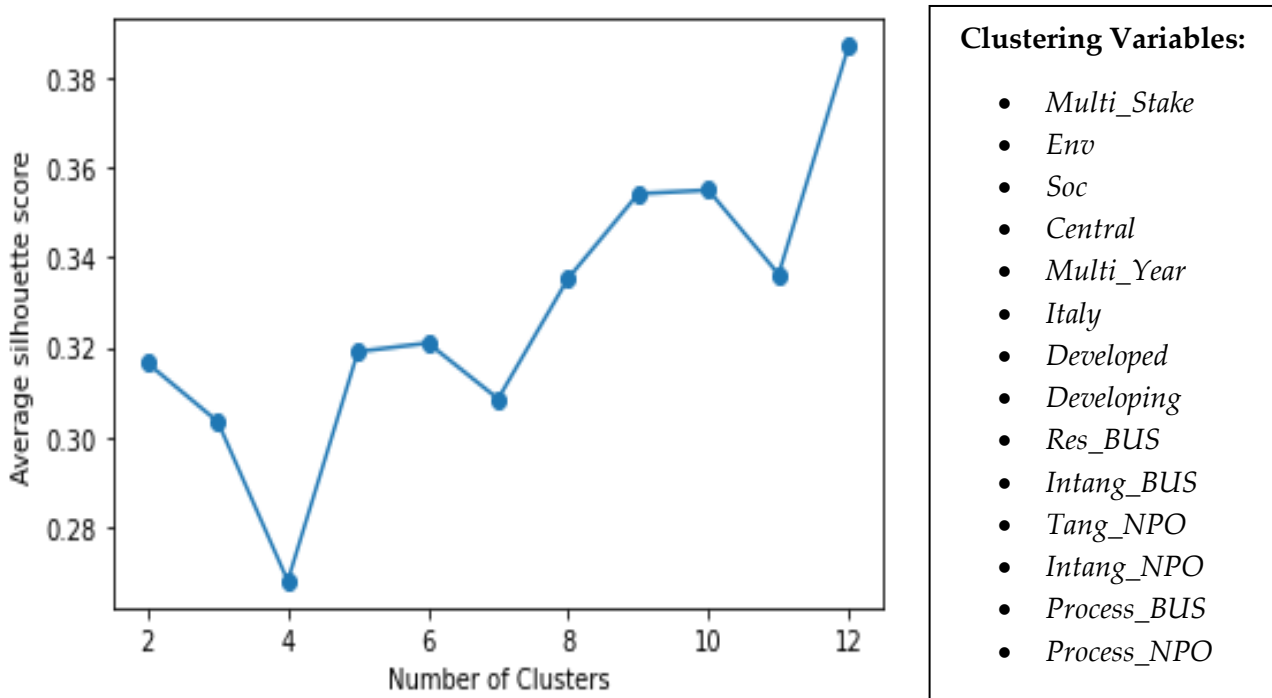


Figure 44. Average silhouette per each clusters' numerosity - 1st run.

The results shown are clearly not satisfactory. First of all, the maximum average silhouette reached is between 0.38 and 0.39, slightly below the minimum threshold set as acceptable while describing the methodology to be followed. Secondly, this value is reached with a very high numerosity of clusters, 12. It is the extreme value in the proposed range, also higher than anything observed in the reference literature; it seems reasonable to at least try to find a more central value in the defined range.

Thus, a reduction in the number of the considered variables should be implemented. Continuing with the same analysis on symmetry, the most indicted variables would be *Intang_NPO* and *Developing*. However, the research's meaningfulness must be always kept in mind: the classification of resources between tangible and intangible ones already observed not useful for what concerns the tangible resources involved by the business side.

Thus, considering the other three related variables was very likely to have introduced a certain unbalance in the results. It is reasonable to neglect all of them in this phase of the research, and eventually observe their distribution within the resulting clusters.

The same clustering algorithm was so run for the second time, now not considering the classification of resources among tangible and intangible. The same plot as before, now referred to this second iteration, is reported in Fig. 45.

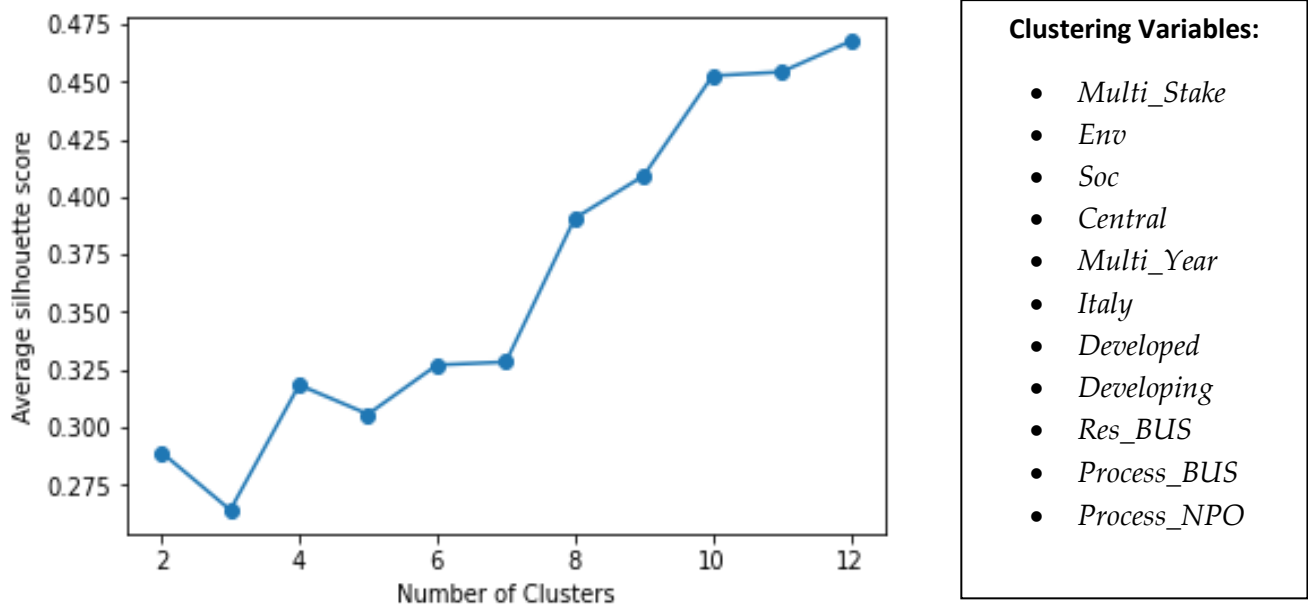


Figure 45. Average silhouette per each clusters' numerosity - 2nd run.

It is evident the higher statistical quality of the focal algorithm run. The acceptability threshold in terms of silhouette, 0.4, is already reached with 8 clusters. Moreover, 8 is also the numerosity that shows the largest increment in terms of silhouette (about +7.5 %). Also 10 as a numerosity shows promising relative increments. Nevertheless, eight clusters solution is preferred as smaller numbers in general ensures more populated – and so more scalable – classes of collaborations. The aim of the present dissertation of providing a business-NPO collaborations' taxonomy that can serve as a framework for reading the reality, suggesting to be more general in this phase, even if at the expenses of (a portion of) statistical quality.

The focal run confirmed that the proposed heuristic method works, i.e., progressively the statistical quality improves. Thus, another effort in that direction should be made, to verify if the trade-off between statistical and research significance can be further pushed. More refined considerations can be performed over the balancing of the analysis' dimensions – and so the related variables – in the model. With the composition proposed in run 2, the dimension with more associated variables is the geographical scope, with 3 (*Italy*, *Developed* and *Developing*). It seems to be overrepresented: considering the importance that the present dissertation wants to give to the involved resources flows and operational processes, such

unbalance seems even more to be avoided. Moreover, it has to be remembered that Developing was one of the variables for which the hypothesis of symmetry was weaker.

So, at least from a qualitative point of view, neglecting the variable seems to be able to improve the model from both the nodal points of view.

At this point, a further consideration should be added. At the current state of the art, we would have two binary variables describing the geographical scope of observed collaborations. However, they are not capable to cover all the possibilities, namely, there is an area, embedding both collaborations at a global level and those arising in developing economies, that is undetailed and that in the same time groups together concepts that are too different to be considered jointly, at the present level of detail. A possible solution can be properly to decrease such detail, that practically is, considering only *Italy* as variable describing the geographical scope. In fact, given the binary nature of such variable, zeros still allow to characterise collaborations that are not located in Italy, under a generic but coherent umbrella, that is, collaborations happening abroad. It is meaningful from the research point of view, because it allows to study the eventual presence of differences among business-NPO collaborations arising in the same country of listing of the focal firms or abroad, and in the same time is more reasonable from a statistical point of view.

The third run of the clustering algorithm sees so the further cut of *Developed* and *Developing* variables. Results are shown in Fig. 46.

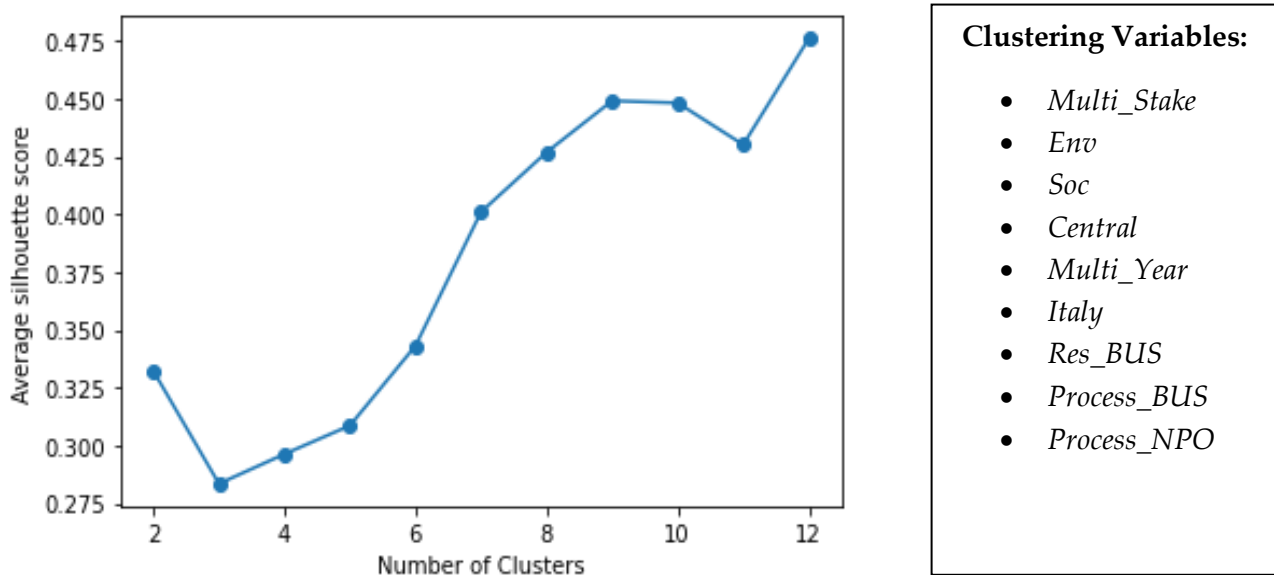


Figure 46. Average silhouette per each clusters' numerosity - 3rd run.

As expected, the statistical quality of the clustering model in general improves. Taking as reference a clusters' numerosity equal to 8, the increase is of about 2.5%. The resulting value allows also to respect the acceptability threshold, differently from what would have been in the previous case. This point is also crucial in preferring a numerosity of 8 rather than of 7 in the present case. In fact, despite of 7 is the value that presents – as shown in Fig. 46 – the largest increment, the choice was to keep the division in 8 clusters. Centroids' analysis will

follow: the goal will be to determine if 8 is actually the number that fits the best the observations, or it would need some corrections.

5.6.2. Model selection

Once identified clustering variables, i.e., those variables that allows contemporary to generate a clustering that is statistically and academically meaningful, the best model within the defined basket has to be decided. In Section 5 of the present dissertation it was discussed how the suitable alternatives are essentially two:

- A partition K-modes model;
- A hierarchical agglomerative model.

While selecting suitable clustering variables, progressive runs employed the K-modes alternative. Such decision was taken in order to determine a clusters' numerosity to be given as input to the second type of model. However, also for hierarchical model iterations over a range of possible clusters' numerosity were run, in order to verify the existence of eventual strong differentiation about results. Results respectively related to K-modes and agglomerative models are here reported in Fig. 47 and 48.

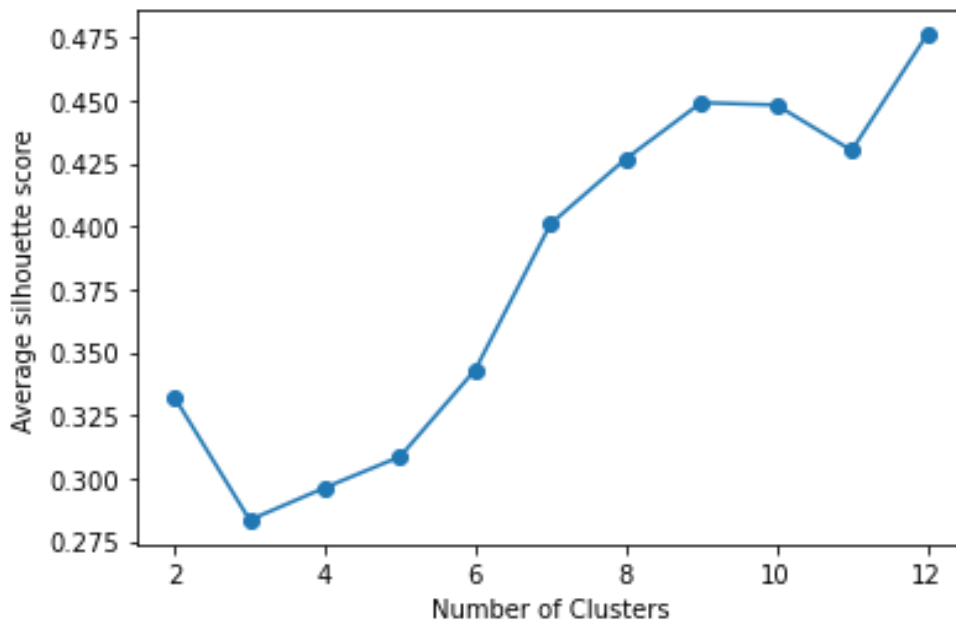


Figure 47. Average silhouette per each clusters' numerosity - K-modes model.

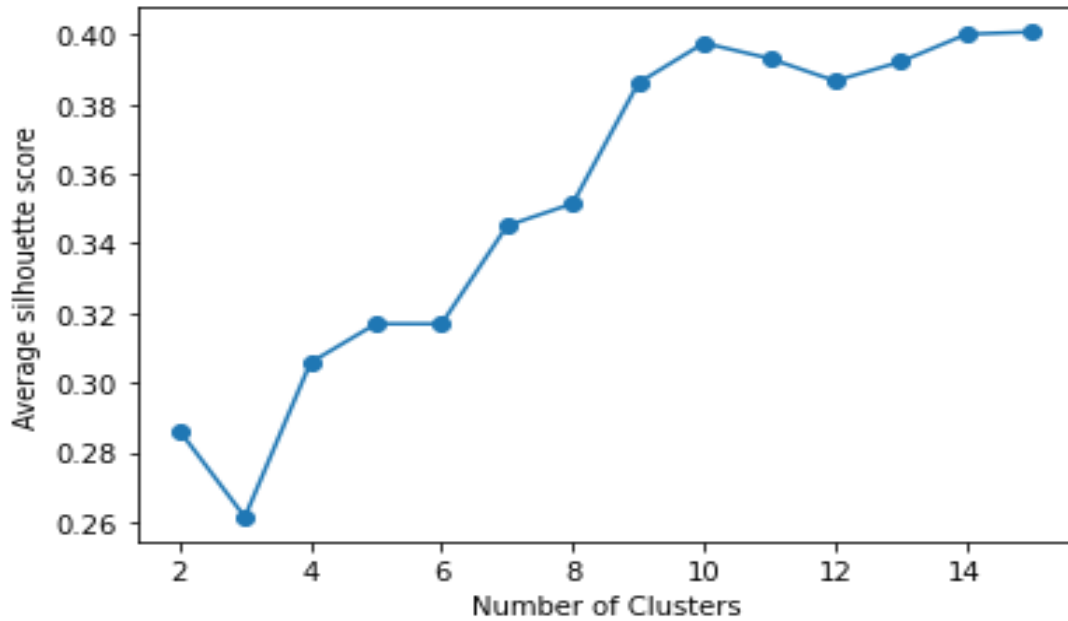


Figure 48. Average silhouette per each clusters' numerosity - hierarchical model.

Adopting the same decisional criteria as before, the model with the best fitting is clearly the K-modes one. In fact, by looking at values on the vertical axis, i.e., the silhouette, it can be noticed how the related curve of K-modes model shows, in each of its points, higher values than hierarchical one. At the reference numerosity, 8, the difference in terms of silhouette is higher than 7 percentage points.

The clustering model to be employed is so decided to be a K-modes, with 9 clustering variables. The graphical representation of the silhouette value for each of the 8 clusters – one of the outcomes of the employed algorithm, is reported in Fig. 49.

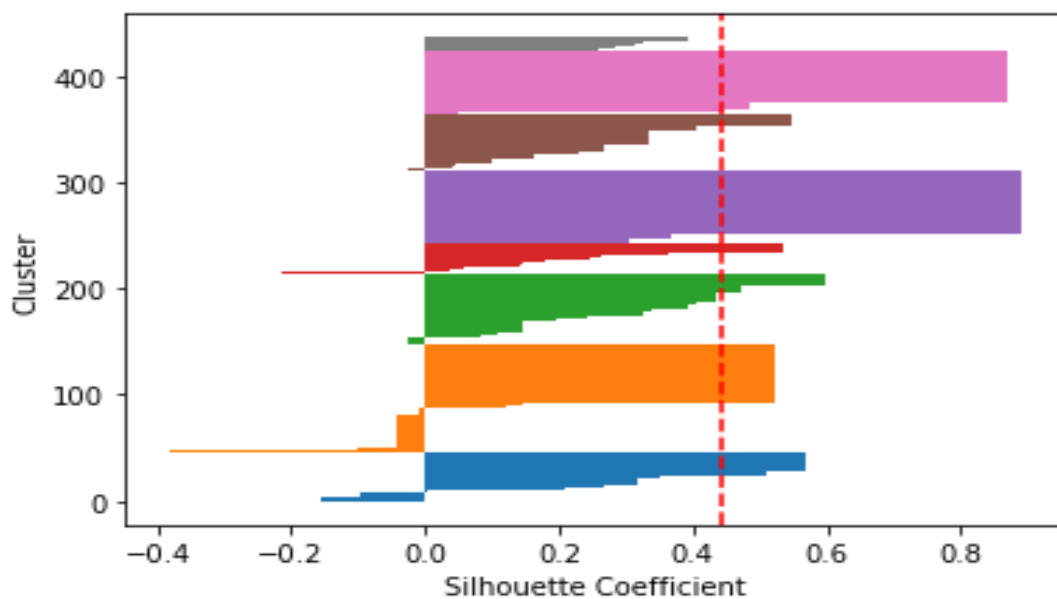


Figure 49. Silhouette diagram for definitive K-modes model, 8 clusters.

The resulting clusters, once applied to the database and leveraged on to build an apposite pivot table, are reported here in Table 21. Those results will be commented and eventually refined in the next sections of this work, starting with the centroids' analysis.

Cluster	Observations	<i>Process_</i> <i>BUS</i>	<i>Process_</i> <i>NPO</i>	<i>Res_NPO</i>	<i>Env</i>	<i>Soc</i>	<i>Central</i>	<i>Italy</i>	<i>Multi_</i> <i>Year</i>	<i>Multi_</i> <i>Stake</i>
0	69	0	0	0	0.09	0.97	0.10	0	0	0.04
1	52	0.79	0.94	1	0.04	0.98	0.94	0.79	0.81	0.25
2	151	0.12	0	0	0.11	0.95	0.13	1	0.40	0.05
3	20	1	0	0.10	0.30	0.90	1	0.35	0.75	0.05
4	42	0	0.10	0.10	0.12	0.88	0	0	1	0.10
5	24	0.17	1	0.96	1	0.08	0.83	0.21	0.71	0.25
6	57	0.09	1	1	0.14	0.98	0.16	0.86	0.33	0.28
7	22	1	1	1	0.86	0.86	0.95	0.73	0.41	0.95

Table 21. Clustering results in terms of population and average of selected variables.

Chapter 6

Results

6. Results

In the present section of this work, the results of the selected clustering model will be presented. Such clusters will be the foundation of the empirical-based taxonomy of business-NPO collaborations, that is the main contribution of the present dissertation. The goal is to derive from the information contained in the database a set of data-based characterizations of the collaborations able to respond in a significant way to the conceptual gaps present in the related literature.

6.1. Centroids' analysis

Clustering results reported in Table 21 should be reviewed from a research significance point of view. In fact, the algorithm on its own is not able to discern such angles: a detailed investigation by the analyst, in this case the author, is needed, to understand:

- i. If similar collaborations fall in the same cluster or are divided, witnessing some imprecision;
- ii. If clusters themselves define observations - business-NPO collaborations – that really are heterogeneous among each other, i.e., presents significant differences from the research point of view.

It is in general suggested (Vercellis, 2011; Hennig, 2010) to revise the clustering outcome, and to evaluate the merge and/or the separation of resulting clusters, as believed appropriate for their own research question.

In the present work, such control process will be implemented through an analysis of centroids. The centroid of a cluster is defined as the point z_h having coordinates equal to the mean value of each attribute for the observations belonging to that cluster (Vercellis, 2011, pp. 303). In more conceptual terms, such hypothetical observations, being made of the average values assumed by clustering variables, is the most representative and characteristic case for each group.

By reading Table 21, the hypothetical central business-NPO collaboration, is identified. All the observations in that given cluster are compared, for what concerns clustering variables, against that central one. Eventual differences are then deepened, and possible actions are:

- a) It is recognised that, during values' assignment to the variables, different considerations were applied to similar objects, and so one of them is corrected, making more reasonable the placing of that observation in that cluster;
- b) It is recognised that the focal observation perfectly fits, or it is very close to, the centroid of a different cluster. In that case, it is manually moved to the other group;
- c) Nor a) nor b) actions are undertaken, as such differences are recognised as reasonably belonging to a certain degree of internal heterogeneity that is not possible to be completely eliminated.

In case of clusters characterised by too many errors of such kinds, the clustering should be repeated, leveraging on the corrected database. In case of no or minor errors, the evaluated solution is considered definitive. The foundation of such manual corrections has to be found in one of the main properties of clustering techniques: the robustness. As previously defined, it means the stability with respect to small changes and/or variations in the data. Given that, not only it is possible to be confident about the validity of results even applying minor adjustments, but also the identification itself of such adjustments is enabled. In fact, especially in case a), the clustering model itself was capable to go over the differences in values arising from a certain degree of discretion in evaluating two observations and grouping them together. In this sense, applying such clustering methodologies and related control processes was also a way to improve and refine the database itself.

Starting from Table 21, presenting, for each cluster, the average values taken by the clustering variables, focal centroids are derived. Centroids are employed to indicate the collaboration arising from the combination of values assumed by the variables (representing different characteristics) that is the most representative of the cluster itself. From that, going back to the database, it is possible:

1. To go after all the observations grouped in that cluster, verifying the presence of eventual discrepancies from the expected values. Those can witness, as already depicted, errors in the categorisation due to author's discretion during data collection phase; the assignment of a given collaboration to the wrong cluster by the algorithm; simply, representing an acceptable degree of internal heterogeneity;
2. To practically characterise the resulting clusters, i.e., having empirical evidence of which collaborations, practically in place, fall into that group.

This last point is particularly important, in order to verify the significance of the present clustering algorithm. Identifying some representative collaborations for each cluster not only can help in characterising it, but also is needed to verify the meaningfulness of the distinction of that cluster from others, from a research point of view. Outcomes of these last analyses will be discussed in the 'Interpretation' section of this chapter.

Because of the goal is properly such characterisation of the clusters, centroids are derived as combinations of just zeros and ones. In case of values, in the Table 21, different from 0 or 1, two alternative procedures are implemented:

- Such values are rounded down to 0 or up to 1, respectively if they are originally lower or equal to 0.15 and higher or equal than 0.85;
- If the latter conditions are not fulfilled, it signals that, from the point of view of the focal variable, a certain degree of variability is present. In other words, it can be stated that such variable is not a characterising one for that cluster, and so is not considered in providing a centroid.

In Table 22 resulting centroids are presented, for each cluster. In the next paragraphs, each single cluster will be presented on its own, in a descending order of numerosity of observations within it, leveraging on the resulting centroids. Moreover, as introduced before, each single observation contained will be analysed, to verify if it is practically represented by the centroid or not. Aggregating such considerations, it will be possible to identify which are the main forms of such collaborations practically implemented in the empirical reality.

Cluster	<i>Process_BUS</i>	<i>Process_NPO</i>	<i>Res_NPO</i>	<i>Env</i>	<i>Soc</i>	<i>Central</i>	<i>Italy</i>	<i>Multi_Year</i>	<i>Multi_Stake</i>
0	0	0	0	0	1	0	0	0	0
1		1	1	0	1	1			
2	0	0	0	0	1	0	1		0
3	1	0	0		1	1			0
4	0	0	0	0	1	0	0	1	0
5	0	1	1	1	0				
6	0	1	1	0	1				
7	1	1	1	1	1	1			1

Table 22. Identified centroids' composition.

Cluster 2

Cluster	<i>Process_BUS</i>	<i>Process_NPO</i>	<i>Res_NPO</i>	<i>Env</i>	<i>Soc</i>	<i>Central</i>	<i>Italy</i>	<i>Multi_Year</i>	<i>Multi_Stake</i>
2	0	0	0	0	1	0	1	---	0

Table 23. Centroid of cluster 2.

In Table 23 is reported the identified centroid for the focal cluster. The first thing to be noticed is that all the clustering variables result to be characteristic, expect for *Multi_Year*, i.e., the variable describing the time duration of the collaboration. It means that this last aspect present a not negligible variability degree, thus, is not defining contained observations.

Business-NPO collaborations present in this cluster do not present any process activation nor bidirectionality in the resource flow. Related activities contribute to tackle social issues, not environmental ones; moreover, they are never linked with core business. They are located in Italy, and always present the dyad as structure.

The empirical forms of business-NPO collaborations resulting to characterise such cluster, as descending from the centroids analysis, are:

- Monetary donations in favour to local NPOs committed to tackle social problems, e.g., patients' hospitalisation, help to young, disadvantaged people in building a career;
- Corporate volunteering initiatives, where firms' personnel are engaged in first person in activities, having a social impact, directed by the NPO. Examples are participation of employees into charitable initiative such non-competitive runs or in helping the queue management at blood donations hotspots;
- Donation of material resources, not related to firms' characteristic activities, e.g., Avio donating food surpluses from their canteens to Caritas.

Cluster 0

Cluster	Process_BUS	Process_NPO	Res_NPO	Env	Soc	Central	Italy	Multi_Year	Multi_Stake
0	0	0	0	0	1	0	0	0	0

Table 24. Centroid of cluster 0.

In Table 24 is reported the variables' composition resulting into the centroid of the focal cluster. It resulted to be a very well characterised group, as all the average values of clustering variables were able to be rounded to 0 or 1. Collaborations composing this class do not present any process activation nor bidirectionality in the resource flow; the orientation of activities is exclusively towards social matters, and do not show any linkage with business characteristic activities, as witnessed by the centrality value. Those collaborations never regard the Italian soil, and are undertaken by just one firm and one NPO (dyad) and they last just one year.

The empirical forms of business-NPO collaborations resulting to characterise such cluster, as descending from the centroids analysis, are:

- Monetary donations in favour to international NPOs committed to tackle social problems, e.g., refugees hosting, road safety;
- Corporate volunteering initiatives, where firms' personnel are engaged in first person in activities, having a social impact, directed by the NPO. Examples are participation of employees into outdoor beautification programmes or into the restructuring of local schools;
- Donation of material resources, not related to firms' characteristic activities, e.g., Brembo donating a school bus to an Indian NPO to enable children to go to school.

Cluster 6

Cluster	Process_BUS	Process_NPO	Res_NPO	Env	Soc	Central	Italy	Multi_Year	Multi_Stake
6	0	1	1	0	1	---	---	---	---

Table 25. Centroid of cluster 6.

As presented in Table 25, characteristic variables of the focal cluster are, in addition to the ones related to the resource-process matrix, just the ones related to the reference sustainability pillar. In particular, the typical business-NPO collaboration depicted by the focal centroid is one presenting process activation exclusively on the NPO side; the resource flow is bidirectional, and the objectives are related only to social matters, not environmental ones.

The main empirical forms of business-NPO collaborations characterising such cluster are:

- Corporate welfare initiatives, such as free medical check-ups in headquarters, awareness campaigns for themes like diversity and inclusion, etc.;
- Sponsorships of projects and events moved by attention to social themes.

Cluster 1

Cluster	Process_BUS	Process_NPO	Res_NPO	Env	Soc	Central	Italy	Multi_Year	Multi_Stake
1	---	1	1	0	1	1	---	---	---

Table 26. Centroid of cluster 1.

The centroid composition, reported in Table 26, depicts the following scenario. Embedded business-NPO collaborations are characterised by resource flows' bidirectionality and process activation by the NPO side; they result in activities that are social-oriented and central with respect to firms' core business. The variable concerning the activation of specific processes by the business side presents a not negligible degree of heterogeneity, preventing it to be considered as a characteristic one. However, the fact that it is the only case, among the eight clusters, of a lack of complete characterisation from a RPM point of view, a careful review of the categorisation of observations within it is suggested.

In particular, keeping in mind the resource-process matrix, it is possible to understand how such collaborations are among the most complex ones. The value of the discussed variable is 0.79, suggesting a predominance of collaborations that present processes' activation from both sides. They can be so placed at the bottom-right angle of the resource-process matrix. In that matrix sector the complexity again rises: the resources' exchange and the contemporary need of activating process from both sides requires not only a considerable involvement, but also coordination among actors.

Keeping this in mind, the direction to be adopted while digging into the database is clear. It will allow understanding how in practice such activities, and related processes and resources, are carried on, and if eventual categorisation inconsistencies were made. Main subsets of business-NPO collaborations identified are:

- Joint activities, in the sense of projects with the shared patronage among involved firms and NPOs, awareness and learning campaigns;
- Participation to discussions and more in general to events where both parties take advantage of knowledge and network of the other involved one;
- Memberships in networks organised and led by an NPO, which also direct activities of the members.

As it can be seen, the variety of forms that focal collaborations can assume is considerable. In addition, especially deepening the analysis of joint activities, such variety increases. Within that label, can be marketing campaigns, events' organisation, dissemination campaigns, even special products realisation, e.g., tactile maps and guides for blind passengers, by the collaboration between Aeroporto Guglielmo Marconi di Bologna S.p.a. and UICI and Amnic. The presented clustering is so interesting as manages to significantly group such variability within a common framework, that is, the presented one of resource bidirectionality and processes activations.

Cluster 4

Cluster	<i>Process_BUS</i>	<i>Process_NPO</i>	<i>Res_NPO</i>	<i>Env</i>	<i>Soc</i>	<i>Central</i>	<i>Italy</i>	<i>Multi_Year</i>	<i>Multi_Stake</i>
4	0	0	0	0	1	0	0	1	0

Table 27. Centroid of cluster 4.

In Table 27 is reported the identified centroid for the focal cluster. Characteristic variables underlined how business-NPO collaborations present in this cluster do not present any process activation nor bidirectionality in the resource flow; activities, performed to tackle social issues by just one NPO and one firm, are not central from the latter; recipients are abroad, and they last for more than one year.

The empirical forms of business-NPO collaborations resulting to characterise such cluster, as descending from the centroids analysis, are:

- Monetary donations in favour to NPOs committed to tackle social problems, such as reconstruction after catastrophic events or research on children rare illnesses;
- Corporate volunteering initiatives, where firms' personnel are engaged in first person in activities, having a social impact, directed by the NPO. Those can be accompanied by economic donations by the firm, as it is for Brembo helping Cesvi and Swadhar in India.

Cluster 3

Cluster	Process_BUS	Process_NPO	Res_NPO	Env	Soc	Central	Italy	Multi_Year	Multi_Stake
3	1	0	0	---	1	1	---	---	0

Table 28. Centroid of cluster 3.

In Table 28 is reported the identified centroid for the focal cluster. The first important point to be touched is the presence of process activation by the involved firm. It means that the business side is not anymore just providing the focal resources to the NPO, without anything in change as results, but its involvement is increasing, involving also operative functions. Other characteristics defining such cluster are the social orientation, the centrality, and the dyadic structure.

It is so interesting to deepen which business-NPO collaborations empirically observed present such high business involvement still without any sort of exchange. Looking into the database, those resulted to be all belonging to a specific family: donations of materials, products, assets that are characteristic of the business itself. For example, Prysmian made available to MediCinema a certain number of cables to help them in building cinemas in hospitals; Cairo Communication donated publishing space to different NPOs during broadcasting. What emerges is that, donating such proprietary assets, the degree of involvement required to firms is unavoidably higher; however, it is a powerful mean to link corporate image to the general NPO cause.

Cluster 7

Cluster	Process_BUS	Process_NPO	Res_NPO	Env	Soc	Central	Italy	Multi_Year	Multi_Stake
7	1	1	1	1	1	1	---	---	1

Table 29. Centroid of cluster 7.

In Table 29 the identified centroid of the focal cluster is presented. Its composition is characterised by a set of peculiar combinations. Namely, they are:

- i. The activation of operational process from both sides and the bidirectionality of the resource flow
- ii. The contemporary presence of both social and environmental orientation of activities embedded in the collaborations
- iii. The emerging of a multi-actor structure as representative of this cluster.

What results is so a cluster whose centroid is a business-NPO collaboration that comes with bidirectionality in resources and process activation by both parties; associated activities cover both the environmental and the social pillar, are central for the business side, and performed through the involvement of a number of actors higher than two, possibly coming from different sectors.

The bidirectionality of resource flow and the activation, from both sides, of processes again signal an evolution in terms of required coordination and in general complexity. Such multi-stakeholder structure even increases such difficulties, thus representing a further step in that direction, and making observation here embedded very distinctive versus all the other ones, also in comparison with cluster 1, the only other cluster placed at the top-right corner of RPM matrix.

Looking into the database it is possible to understand which are practically such complex collaborations. Identified subsets are:

- Joint ventures or similar initiatives, oriented to environmental matters such as recycling;
- Multi-stakeholder forums and associations;
- Joint formation of local people about environmental issues.

Cluster 5

Cluster	Process_BUS	Process_NPO	Res_NPO	Env	Soc	Central	Italy	Multi_Year	Multi_Stake
5	0	1	1	1	0	---	---	---	---

Table 30. Centroid of cluster 5.

In Table 30 is reported the identified centroid for the focal cluster. As emerges, characteristic variables are just the ones concerning the resource-process matrix and the ones about reference sustainability pillar. The representative business-NPO collaboration of this cluster results to be an interaction characterised by bidirectionality in the resource flow and process activation exclusively on the NPO side, and oriented to have a positive impact towards environment-related topics.

Here the highest degree of involvement is required to the NPOs, not only in terms of exchanged resources but also in terms of processes. Looking into the database should clarify which forms are practically taken by such collaborations.

For the largest share, the database presents environmental certifications of processes and/or policies proposed and implemented by the firms. The NPO is here the informed part, i.e., the one trusted by consumers suffering of information asymmetry; to being recognised, the firm asks to be certified by such NPOs. At the same time, the NPO manages to foster the advancement in its focal mission, that in this case is the protection of the environment. Other combinations, present in a minor share, refer to sponsorships to projects devoted to environmental protection and the employment, by the business side, of tools and suggestions by the NPO. Such variegated forms of collaborations have still a common nature: the business side goes to and involves NPOs are recognised to be more informed, more prepared - and so more trusted - in certain. The NPO side is so required the largest effort; in exchange, they can obtain different assets, but mostly important foster the accomplishment of its mission.

6.2. Discussion upon centroids' analysis

The previous analysis on centroids, as introduced, has multiple interesting applications. It enabled an objective description of the clusters. Then, the database allowed also to detail such information by associating to those centroids collaborations effectively in place in the considered sample.

Another important result was, leveraging on such characterisation, to refine both the values assignment within the database and eventually the placement of certain observations into more appropriate clusters. The possibility of errors in the positioning of observations into clusters has actually to be taken into account as associated to such algorithms (Vercellis, 2011), given their heuristic nature. Control and refining techniques are so needed, and centroids analysis lent itself to the purpose.

In the end, after those two-sided refinements, the situation about clusters and related variables is the one presented in Table 31. As it can be seen, such adjustments were minor, making more than reasonable to not run again the chosen clustering algorithm.

Cluster	Observations	Process_ BUS	Process_ NPO	Res_NPO	Env	Soc	Central	Italy	Multi_ Year	Multi_ Stake
0	69	0	0	0	0.06	0.97	0.09	0	0.00	0.04
1	48	0.96	0.94	1	0.04	0.98	0.92	0.77	0.75	0.27
2	133	0	0	0	0.12	0.95	0.01	1	0.46	0.06
3	38	1	0	0.05	0.18	0.92	1	0.66	0.39	0.03
4	38	0	0	0	0.13	0.87	0	0	1	0.11
5	21	0	1	1	1	0.10	0.81	0.29	0.67	0.19
6	65	0.05	1	1	0.09	1	0.20	0.82	0.45	0.25
7	25	1	1	1	0.92	0.72	0.92	0.60	0.48	0.92

Table 31. Clustering results in terms of population and variables' average - refined.

Furthermore, the determination of the characteristic variables for each cluster enables a first comparative discussion among them. In particular, it is possible to understand if the differences in terms of characteristic variables, and so the degree of heterogeneity among clusters, is significant enough to justify the creation of two distinct clusters. On the contrary, another possibility is the need of further dividing a cluster into two different ones. For example, it can happen in case of a variable, considered very important in the characterisation of such types of collaboration, presents value close to 0.5, or when the individuated collaboration forms seem to be too different to be grouped together.

Again, the *a posteriori* correction of clusters' numerosity is a possibility whose validity and robustness is recognised in literature (Vercellis, 2011).

For the sake of the exposition, in Table 32 are again reported the centroids for each cluster, after the corrections operated on the database. Differently from before, resulting clusters are now ordered not as the models returned them, but on the basis of their positioning on the

resource-process matrix. In other words, they are ordered in the discussion according to the values presented by *Process_BUS*, *Process_NPO* and *Res_NPO* variables.

Cluster	<i>Process_BUS</i>	<i>Process_NPO</i>	<i>Res_NPO</i>	<i>Env</i>	<i>Soc</i>	<i>Central</i>	<i>Italy</i>	<i>Multi_Year</i>	<i>Multi_Stake</i>
0	0	0	0	0	1	0	0	0	0
2	0	0	0	0	1	0	1		0
4	0	0	0	0	1	0	0	1	0
3	1	0	0		1	1			0
5	0	1	1	1	0				
6	0	1	1	0	1				
1	1	1	1	0	1	1			
7	1	1	1	1		1			1

Table 32. Centroids of efined clusters.

Given the importance associated to this matrix, clusters presenting centroids having different combinations of the three abovementioned variables are already considered as significantly different one from each other. The analysis will be so focused on the ones presenting the same combinations of values for the focal dimensions.

Firstly, it can be seen as the absence of activation of processes from both sides (*Process_BUS* = 0 AND *Process_NPO* = 0) and jointly the unidirectionality of resource flow (*Res_NPO* = 0) is shared by three clusters, namely the number 0, 2 and 4. Restricting the analysis to just those three clusters, it is possible to observe also that the centrality of the collaboration is always absent (*Central* = 0) too.

Comparing pairs of clusters, it can be noticed how clusters 0 and 2 have in common the largest number of variables with the same value (6 out of 9). Moreover, the only clustering variable presenting a clear opposition is the one related to the geographical scope (*Italy*). Clusters 2 and 4 share the values of 4 variables, while their only clear dichotomy is again about their geographical scope. Lastly, clusters 0 and 4 share the values of 5 variables; their heterogeneity is caused by difference concerning time duration (*Multi_Year*).

Clustering variables suggest so a high degree of overlapping of such clusters. Deeper analysis is so needed; it can be performed by considering the forms that practically embedded observations take.

	Cluster 2	Cluster 0	Cluster 4
	Monetary donations	Monetary donations	Monetary donations
Observed forms of collaborations	Corporate volunteering initiatives	Corporate volunteering initiatives	Corporate volunteering initiatives
	Donation of material resources, not related to firms' characteristic activities.	Donation of material resources, not related to firms' characteristic activities.	

Table 33. Most recurrent collaborations' forms in clusters 0, 2 and 4.

The preliminary guess from centroids compositions is confirmed by the observed forms, as reported in Table 33. Three clusters of business-NPO collaboration are so too many, as they are not catching particularly significant empirical differences.

The positioning in the resource-process matrix suggests a conceptual overlapping of such clusters, and contained observations, with the notion of philanthropic collaborations theorised by Austin (2000). Such definition clearly recalls as necessary condition the mono-directionality of resource transfers. Moreover, Selsky & Parker (2005) pointed out how this kind of collaborations do not present any specific process activation; identified centroids respect also this constraint. Moreover, the collaborations' forms identified in the database are actually characterised by an altruistic nature, in the sense that are charitable donations - of money and in-kind resources, such as the volunteering time of employees or physical ones -, not expecting or requiring anything quantifiable in change.

Determinants for the division, in the present model, for such similar collaborations were identified to be:

- The geographical scope, i.e., if their related activities are performed in Italy or abroad;
- The duration, i.e., if they last more than one single year or not.

While the development of business-NPO collaborations' activities over multiple years can be reasonably believed a potential more impacting factor on the activities themselves, the same does not hold for the geographical boundaries of them. For example, establishing a long-lasting and stable relation made of economic donations between a firm and an NPO, can help the latter in better planning its activities, and so increasing their impacts. At the same time, the business can increasingly associate its name to the recipient NPO, tightening such relationship and open it to developments and benefits different from traditional donor-recipient relationships.

Moreover, the longer period of prosecution of such philanthropic collaborations is a crucial point in the reference literature. Austin (2000), despite of bringing examples like the one between Timberland and City Life, that were maintained over years, on the other hand, in its Collaboration Continuum, i.e., the framework in which collaborations' classification is inserted, talked about stages. This concept is referred to a time evolution, seen as the only possibility for the relationship except for the cease. The presented model seems to suggest the existence of a third way: a pure philanthropic collaboration that, maintaining its characteristics of resources' unidirectionality, infrequency of interactions among actors, etc., lasts over years, that is, satisfying both the involved parties. Rondinelli & London (2003) stated too that the frequency and the level of interaction are main discriminants among philanthropic-like collaborations and more complex ones. Instead, as presented, the clustering model, leveraging on data collected empirically, identified such determinant as relevant. Thus, dividing such philanthropic business-NPO collaborations into two distinct cluster, on the presented basis, can help in filling a gap of this literature branch.

A reasonable tactic seems so to be the dismantling of cluster 2, the one containing only philanthropic business-NPO collaborations based in Italy, into the other two. This can be performed on the basis of the assumed value of the variable *Multi_Year*, i.e., of the lasting period showed by contained observations.

The resulting new clustering and associated values is presented in Table 34. The updated clusters are highlighted, for the clarity of the exposition.

Cluster	Observations	<i>Process_BUS</i>	<i>Process_NPO</i>	<i>Res_NPO</i>	<i>Env</i>	<i>Soc</i>	<i>Central</i>	<i>Italy</i>	<i>Multi_Year</i>	<i>Multi_Stake</i>
0	141	0	0	0	0.08	0.96	0.04	0.51	0	0.06
1	48	0.96	0.94	1	0.04	0.98	0.92	0.77	0.75	0.27
3	38	1	0	0	0.18	0.92	1	0.66	0.39	0.03
4	99	0	0	0	0.14	0.92	0.01	0.62	1	0.06
5	21	0	1	1	1	0.10	0.81	0.29	0.67	0.19
6	65	0.05	1	1	0.09	1	0.20	0.82	0.45	0.25
7	25	1	1	1	0.92	0.72	0.92	0.60	0.48	0.92

Table 34. Clustering model and variables' average – refined (2).

Continuing with a similar process, based on the resource-process matrix, other two clusters presenting the same combination of centroids are the number 5 and 6. Namely, they are characterised in that sense by bidirectionality of resource flows (*Res_NPO* = 1) and activation of operational processes exclusively by the NPO side (*Process_NPO* = 1 AND *Process_BUS* = 0). Whilst having 4 variables out of the 9 considered for the clustering that are not characteristic, their overlapping in the abovementioned matrix is total: their strong distinction is about the orientation of the activities. In fact, Cluster 5 embeds only environmental-oriented collaborations (*Env* = 1 AND *Soc* = 0), while cluster 6 the exact opposite (*Env* = 0 AND *Soc* = 1). To understand if this difference is enough to justify two distinct clusters, it is useful to have again a look on the observed forms of business-NPO collaborations there identified.

	Cluster 5	Cluster 6
Observed forms of collaboration	Environmental certifications of processes and/or policies	Corporate welfare initiatives Sponsorships of projects/ events

Table 35. Most recurrent collaborations' forms in clusters 5 and 6.

As emerges from the schematisation reported in Table 35, the two focal clusters, despite of arising from similar combinations of variables, are then declined into completely different typologies of forms of interactions. This provides robustness not only to the results arising

from the clustering model, but also on the relevance of the reference sustainability pillar as characteristic dimension for business-NPO collaborations.

Indeed, the reasoning to be performed is the opposite one: cluster 6 contains two families of business-NPO collaborations' forms that can appear to be too different one from each other, suggesting their splitting. Welfare initiatives are directed inside the firm, sponsorship and events outside; the first brings to the focal company services, and in particular the provision of knowledge and learning occasions, that miss internally, while the latter public recognition and image improvement. However, a fil rouge can be identified. The involved firms pay, i.e., provides monetary resources, NPOs to being helped in achieving milestones in their CSR efforts. Such objectives can be then very different, like the awareness-raising of managerial figures to the topic of human rights (e.g., Telecom Italia S.p.a with Amnesty International Italy) or the economic support to campaign and researches for the breast cancer (e.g., F.I.L.A S.p.a with Fundación Azteca). The decomposition of collaborations' forms was so able to group observations that at a first glance could seem diametrically opposed, but that revealed themselves as two different solutions to achieve the same goal sharing the same structural pattern. Cluster 6 is so maintained, as thought to be very relevant.

The last two clusters positioned in the same area of the resource-process matrix are the number 1 and 7. They present bidirectionality in the resource flow and the process activation from both sides ($Res_NPO = 1$ AND $Process_NPO = 1$ AND $Process_BUS = 1$). They are the most complex collaborations in that sense, as the managerial complexity in terms of coordination, implementation and design is the highest observed. Focal clusters differ one with the other again for the reference sustainability pillar, but also for the structure. In fact, cluster 7 is exclusively composed of multi-stakeholder collaborations ($Multi_Stake = 1$), while the other presents a certain variability. Moreover, by looking at Table 34, it can be seen how multi-stakeholder collaborations in cluster 1 represent a minority; thus, the distinction is even more significant. Two characteristic variables differing represent a clear index of the meaningfulness of the presented separation.

6.3. Interpretation and discussion of results

In the previous section there were described the successive heuristic steps to arrive to a final clustering proposal for what concerns business-NPO collaborations having an impact on sustainability matters.

The meaningfulness of the clusters from the research point of view was one of the lines followed in order to refine such results. Now, the interpretation of such groups will be deepened and deployed in a more organic way: the goal is to insert all the clusters in more organised and comprehensive framework, to finally result in the object taxonomy of business-NPO collaborations.

Again, the first criterion employed to assess the results provided by the algorithm is to refer to the resource-process matrix (RPM). The statistic descriptive part highlighted how only some quadrants of this matrix are practically interesting, that is, have empirical observations within them. The centroids analysis leveraged on this notion of sectors, to understand if resulting clusters, further characterising such matrix areas, are actually significant or not.

In the next sections, the matrix and related sectors will be analysed as a space, so considering it in its entirety. It will be the bi-dimensional space working as foundation for the upcoming taxonomy. The features that make those subsets significantly different each one from another, within and outside the considered area, will represent the characteristic of the different classes.

The empirical evidence, arising by the statistical description of observed collaborations employing the lenses of the present matrix, highlighted a clear pattern. In fact, as showed in Fig. 50, the sections, that are, the variables' combinations, empirically resulting to be populated are disposed on a diagonal pattern.

		Process			
Resource – Process Matrix	JOINT ENGAGEMENT (Process_BUS = 1 AND Process_NPO = 1)		5 2 « <i>Integrative</i> » clusters (number 1 and 7)	Resource	
	NPO-ENGAGED (Process_BUS = 0 AND Process_NPO = 1)		4 2 « <i>Transactional</i> » clusters (number 5 and 6)		
	BUSINESS-ENGAGED (Process_BUS = 1 AND Process_NPO = 0)	2	<i>Business-engaged collaborations' cluster</i>		3
	NO ACTIVATION (Process_BUS = 0 AND Process_NPO = 0)	1	2 « <i>Philanthropic</i> » clusters (number 0 and 4)		
		UNIDIRECTIONAL RESOURCE FLOW (Res_BUS = 1 AND Res_NPO = 0)	BIDIRECTIONAL RESOURCE FLOW (Res_BUS = 1 AND Res_NPO = 1)		

Figure 50. Clusters' population of RPM matrix.

This diagonal can be read, in its direction starting from the origin of the axes, as representative of the increasing complexity of the business-NPO collaborations. The first section (area 1) is characterised by the monodirectionality of resource flow and by the complete absence of activation of any specific process, by both sides. While discussing centroids, it resulted to be populated by two distinct clusters, labelled as philanthropic because of their characteristic variables' combination and its similarity with Austin (2000) theorisation. Then, areas 2 and 4, presenting process activation from one of the involved sides and, eventually, bidirectionality of the resource flow resulted to present 3 distinct clusters. Their positioning on the RPM matrix clearly represents an increase in the complexity, in terms of evaluation, involvement, organisation, coordination of the various activities.

In this climax, the top is represented by those collaborations that not only are bidirectional in terms of resource flows, but also shows the contemporary activation of processes by both sides (area 5). Observations embedded in clusters 1 and 7 fall there.

An important final remark on this characterisation must be made. Sector 3 of the RPM resulted, by the statistical description of the database results, to be populated too. However, the associated numerosity was very low (only 5 business-NPO collaborations were there observed), and the situation did not change with the adjustments performed by centroids' analysis. Going in depth in the analysis of those 5 cases, it can be seen that they were divided among cluster 3 and cluster 1, so relocated from the matrix point of view. It will be interesting to see if the clustering outcome, from this re-location point of view, will demonstrate to be meaningful. In the affirmative case, another area of the focal matrix will effectively result to be empirically unimplemented, with considerable consequences for what concerns patterns' identification.

The interpretation of the resulting clusters will move from the hypothesis that the clustering model is right in neglecting the importance of that matrix area, and so will be illustrated precisely following such diagonal, starting from the origin. The focus will be put on the similarities between the areas identified by the empirical data analyses, and the conceptual proposals of the reference literature. In particular, as already mentioned, the Collaboration Continuum (CC) proposed by Austin (2000) and related three stages (philanthropic, transactional, integrative) demonstrated itself as fitting quite well the abovementioned diagonal characterisation. At the same time, particular attention will be put in this discussion on the differences among the classes proposed by the present dissertation and the ones by the literature. Those will be very interesting as arising from data-based evidence and analyses.

6.3.1. Philanthropic clusters

Clusters not presenting any operational engagement from both sides nor direct resource flow from NPO side to the business one were referred to as “philanthropic”. This is coherent with the terminology employed by Austin (2000). An extract of the definition present in that work of such business-NPO collaborations is here reported, to confirm the robustness of the abovementioned hypothesis: “[those collaborations] characterised by a one-way resource flow from the business players to NPOs; those resources are largely economic ones”. Significant is also the contribution by Rondinelli & London (2003), that, labelling such collaborations as “arm’s length” ones, further contribute to define their functioning: “[...] requirements are only that a corporation be willing to contribute to, or [...] and that an NPO be willing to accept support from that corporation.”

Such cession of monetary resources and the absence of any task-specificity, i.e., of any link with a specific project within the various NPO’s activities - another discriminant with respect to other, more complex collaborations (Gray & Stites, 2013; Lin & Darnall, 2015; Seitanidi & Ryan, 2007; Wymer & Samu, 2003, Wassmer et al., 2014) -, perfectly suits the lack of process activation by any side. The placement of focal clusters in the resource-process matrix is highlighted in Fig. 51.

		Process		
Resource – Process Matrix	JOINT ENGAGEMENT (Process_BUS = 1 AND Process_NPO = 1)		5 2 « <i>Integrative</i> » clusters (number 1 and 7)	
	NPO-ENGAGED (Process_BUS = 0 AND Process_NPO = 1)		4 2 « <i>Transactional</i> » clusters (number 5 and 6)	
	BUSINESS-ENGAGED (Process_BUS = 1 AND Process_NPO = 0)	2	<i>Business-engaged collaborations’ cluster</i>	3
	NO ACTIVATION (Process_BUS = 0 AND Process_NPO = 0)	1	2 « <i>Philanthropic</i> » clusters (number 0 and 4)	
		UNIDIRECTIONAL RESOURCE FLOW (Res_BUS = 1 AND Res_NPO = 0)	BIDIRECTIONAL RESOURCE FLOW (Res_BUS = 1 AND Res_NPO = 1)	Resource

Figure 51. Philanthropic clusters in the RPM matrix.

The original and important difference between the results of the present clustering and what found in literature, is the decomposition of this collaborations into two distinct subsets (namely, clusters 0 and 4), and the dimensions along which this granularization is carried on.

The only attempts to subdivisions of the philanthropic blocks present in literature were the ones by Seitanidi & Ryan (2007), that distinguished between “charitable donations” and “patronage” according to the supposed indirect benefits’ seeking attitude, and by Wymer & Samu (2003). They in turn divided them by means of the promoting actors of such contribution. What results is a differentiation between “corporate philanthropy” and “corporate foundations”.

In the following clustering proposal instead, the discriminants will be characteristics that are more objective. In particular, as deepened during the discussion around centroids, the main variable resulted to be the time duration. This highlights the importance of such dimensions in the characterisation of business-NPO collaborations, as already suggested by several scholars (Dahan et al., 2010; den Hond et al., 2015; King, 2007; Ordonez-Ponce et al., 2021).

Resulting clusters are so:

- **Cluster 0:** non-continuative philanthropic collaborations;
- **Cluster 4:** continuative philanthropic collaborations.

Cluster	<i>Process_</i> <i>BUS</i>	<i>Process_</i> <i>NPO</i>	<i>Res_NPO</i>	<i>Env</i>	<i>Soc</i>	<i>Central</i>	<i>Italy</i>	<i>Multi_Year</i>	<i>Multi_</i> <i>Stake</i>
0	0	0	0	0.08	0.96	0.04	0.51	0	0.06
4	0	0	0	0.14	0.92	0.01	0.62	1	0.06

Table 36. Average composition of collaborations in philanthropic clusters.

As clearly emerges by Table 36, the time duration is the pivotal discriminant between the other two clusters, the factor determining the internal homogeneity and especially the external heterogeneity. It is now interesting to underline and analyse the differences, in any, of the non-characteristic variables; this will strengthen the meaning of the proposed classification that, as said, represents a novelty in the literature landscape.

Continuative philanthropic collaborations are for a larger extent presenting an environmental orientation (14% vs 8%). The associated t-test in this sense provided a p-value equal to 0.0572, so at the border of the usual acceptance threshold of the 5%. Despite of still being a minority, this is an interesting phenomenon given the ramping importance and the interest of the community in such aspects. In this sense, the possibility of creating tighter bonds with an NPO and its environmental effort, even if still based just on a donor-recipient relationship, to be maintained over years, is crucial. This can increasingly have strategic implications, especially in terms of corporate image, potentially opening a new way in the evaluation and the implementation of philanthropic collaborations.

The variables related to centrality, social orientation and structure present very similar values. Instead, continuative philanthropic collaborations are, for a larger share, based in Italy (62% vs 51%). Such geographical indication is suggested also by a t-test, showing a p-value of 0.0532, again at the border of the usual 5% acceptability threshold.

Such clustering outcomes now are deepened also adopting a Resource-based point of view (RBV). This is a theoretical lens shared in the economics and management literature to analyse the firm context; it was also applied recently to the business-NPO collaborations field, by Clarke & MacDonald (2019). Resources involved in the focal collaborations, as already discussed in the section dedicated to the database construction, were monitored while studying the reference information sources. However, their considerable variety suggested to adopt a criterion that allows to group them, while maintaining associated insights. Clarke & MacDonald, among the others, suggested to distinguish among tangible and intangible resources.

The authors, retrieving the RBV theory's definition of a firm as "made up of a mix of tangible and intangible resources" (Prahalad & Hamel, 1990; Wernerfelt, 1984), reflect on the concept of competitive advantage. Competitive advantage is possible "when organizations have a mix of valuable, rare, and costly to imitate resources that they are organized to capture value from" (Barney, 1991). Those resources are mostly the intangible ones. In the literature review it was analysed how, moving towards more complex relationships, one of the most important benefits sought (especially by the business side) is knowledge, learning from the other party. Network is another important intangible resource: having access to a customer base or to an association or just to people assisted by a given NPO can be a strategic goal, whilst difficult to measure.

In Table 37 is reported the composition of the two focal clusters according to the abovementioned characterisation of involved resources played by each actor.

Cluster	<i>Tang_BUS</i>	<i>Intang_BUS</i>	<i>Intang_NPO</i>	<i>Tang_NPO</i>
0	1	0	0	0
4	1	0.01	0	0

Table 37. Characterisation of resources involved in philanthropic clusters.

It is so not surprising to notice how philanthropic collaborations involve:

1. No resource exchange from NPO side to the business one;
2. Only tangible resources are transferred, from business side to NPO one.

Recalling again Austin's definition of philanthropic collaborations, money is expected to be the prominent resource exchanged. This is confirmed by data, as showed in Table 38: non continuative collaborations involve money in the 70% of the cases; share that rises up to 80% for continuative one. In parallel, even if with lower intensity, a decrease in the presence of in-kind resources (33% for non-continuative vs 27% for continuative ones) is observed.

Cluster	<i>Money</i>	<i>In-kind</i>
0	0.70	0.33
4	0.80	0.27

Table 38. Resources transferred by the firms in philanthropic clusters.

Processing those last insights with the previous ones, and in particular the fact that here the discriminant is the time duration of such philanthropic collaborations, it is so possible to preliminarily derive some conclusions about the influence of such factor. While the difference witnessed in terms of in-kind resources showed, by an apposite t-test, a p-value of 0.1886, and so can be reasonably considered not statistically significant, the same does not hold for money. Here the same test provided a p-value of 0.0375, enabling some reasoning on more robust statistical basis.

In particular, it can be guessed that both parties prefer to involve money: the business as it reduces the complexity, especially when in-kind resources mean volunteering time of employees; the NPO as they constitute an important cash in-flow, and their recurrence over time can allow a better planning of future activities.

Nevertheless, it is important to remember that, given the original nature of the present work, the previous ones are just hypotheses, to be tested in particular against different contexts and/or largest samples. The employment of relative metrics, such as percentages, and not absolute ones in part mitigate such biases, but still further developments are expected.

6.3.2. Business-engaged collaborations' clusters

		Process		
Resource – Process Matrix	JOINT ENGAGEMENT (<i>Process_BUS</i> = 1 AND <i>Process_NPO</i> = 1)		5 2 « <i>Integrative</i> » clusters (number 1 and 7)	Resource
	NPO-ENGAGED (<i>Process_BUS</i> = 0 AND <i>Process_NPO</i> = 1)		4 2 « <i>Transactional</i> » clusters (number 5 and 6)	
	BUSINESS-ENGAGED (<i>Process_BUS</i> = 1 AND <i>Process_NPO</i> = 0)	2 <i>Business-engaged collaborations' cluster</i>	3	
	NO ACTIVATION (<i>Process_BUS</i> = 0 AND <i>Process_NPO</i> = 0)	1 2 « <i>Philanthropic</i> » clusters (number 0 and 4)		
	UNIDIRECTIONAL RESOURCE FLOW (<i>Res_BUS</i> = 1 AND <i>Res_NPO</i> = 0)	BIDIRECTIONAL RESOURCE FLOW (<i>Res_BUS</i> = 1 AND <i>Res_NPO</i> = 1)		

Figure 52. Business-engaged collaborations in the RPM matrix.

The present area of the resource-process matrix, signalled in Fig. 52, is populated by only one cluster, the number 3. This, from now on referred to as the one embedding business-engaged collaborations, represents probably the least discussed realm of business-NPO collaborations. In fact, it signals the existence of a certain subsets of relationships where the business involvement is brought to another, more complex level, i.e., the activation of operational processes (*Process_BUS* = 1). At the same time, the absence of direct giveback by the NPO side remains (*Res_NPO* = 0), as in the philanthropic ones.

Cluster	<i>Env</i>	<i>Soc</i>	<i>Central</i>	<i>Italy</i>	<i>Multi_Year</i>	<i>Multi_Stake</i>
3	0.18	0.92	1	0.66	0.39	0.03

Table 39. Average composition of collaborations in business-engaged cluster.

The monodirectionality of the resource flow places this typology of collaborations conceptually close to the philanthropic ones. Observing the average values of the other clustering variables, reported in Table 39, it is possible to focus on the points of difference, that are essentially two:

- The already mentioned process activation by the business side;
- The fact that all grouped collaborations are “central”, i.e., are related with the core business of the involved firm (Husted, 2003).

Looking into the detail of the collaborations involved, what results is that those two points are related one with the other. In fact, what is inside this cluster are collaborations whose altruistic nature is clear, as neither resources nor processes are returned in exchange, but the link with the core business of the firm is very tight. Namely, donations do not involve anymore generic resources such as money, employees time or primary goods, but specific, tangible supplies. For example, Prysmian donated cables to the NPO “Electricians without borders” to build the solar grid that will power a paediatric hospital in Africa; Cairo Communication S.P.A. has promoted Emergency activities and fundraising, for free, during its Italian broadcasting.

It is properly the peculiarity of the donated – in the sense that is given for free, without no direct benefit – resource that marks the difference between the focal interactions and the previous, “philanthropic” ones. Here the specificity of the involved parties is crucial for the success and the continuation of the relationship. It is so not surprising to observe, as reported in Table 40, how money and has a minor role in such collaborations; in-kind resources are always present as tangible resources, this time characterised by the fact of being the core product (or one of the core ones) of the involved company.

Cluster	Money	In-kind
3	0.13	1

Table 40. Resources transferred by the firms in business-engaged collaborations.

On the other hand, it is this tight link with firms’ core business that generates the increased complexity. To continue with the media example presented above, the focal Company had to activate some operational process, namely, to change its scheduling, to ensure the correct broadcasting, etc., to perform its part in the relationship.

The present edge of process activation within philanthropic-like collaborations is something not found in the reference literature. Introducing in the analysis as variables the process activation and the centrality, this emerged. Moreover, it has been analysed how in general the concept of “specificity” comes with more “transactional” relationships, where the business side enters in such interactions seeking for something direct in return. The task specificity was often (Rondinelli & London, 2003; Clarke & MacDonald, 2019; Dahan et al., 2010) the factor moving a collaboration out of the philanthropic realm or not. Here empirical evidence shows another important edge in the broad philanthropic realm, in particular concerning the possibility of having a higher complexity, from the business point of view. Moreover, Selsky & Parker (2005) explicitly excluded philanthropic collaborations from their work, as not presenting any process activation. Again, empirical evidence showed that exceptions to this general statement exist, and are quite numerous too.

Once analysed the business-NPO collaborations falling in the focal cluster, it is possible to analyse why the clustering model itself grouped there some of the observations having a different variables’ composition, for what concerns resource flow and processes’ activation. In particular, from the RPM sector number 3, i.e., the one characterised by the sole activation of operational processes by the business side ($Process_BUS = 0$ 1 AND $Process_NPO = 0$) and

the joint resources' unidirectionality ($Res_NPO = 0$). Two of the five collaborations resulting to populate such space were incorporated here in cluster 3. Namely, they consist in:

- A collaboration between Amplifon S.p.a and Les Enfants Sourds du Cambodge, consisting not only in monetary donations by the firm, but also in the activation, in several firm's points of sales, of a series of touchpoints where customers can bring in their used hearing devices. Amplifon will recondition them, and donate to the NPO, who will distribute to their recipients;
- An example of Cause-related Marketing proposed by Cairo Communication S.p.a and Asociación Española Contra el Cáncer. The firm proposed a special edition of their products (magazines, for the sake of the focal interaction), whose part of the revenues is expressly declared to be devolved to the NPO.

They are both very interesting cases, for different reasons. The first one is a perfect example of what we described as a business-engaged collaboration. The philanthropic relation, i.e., donor-recipient, is brought here to another level. The resource is not anymore generically monetary, but it is the core product of the firm; moreover, to be donated has also to be processed, i.e., reconditioned, exploiting the unique know-how of the company in this sense. The bidirectionality in resource flow that distinguishes this collaboration from the other in the cluster is due to the fact that the NPO too brings something fundamental to the collaboration: its network and presence on a foreign territory like Cambodge. Without an NPO, Amplifon would not have been able to have such an impact. Anyway, as said, this interaction suits very well the present cluster, making reasonable the clustering outcome.

This does not hold anymore for the second case. A necessary condition for the implementation, and the success, of Cause-related marketing activities, is the involvement of NPO's name and brand in the setting up and in particular in the communication towards potential customers. In this sense, despite of still the absence, by NPO side, of any specific operational process, the bidirectionality of resources is much more present, under the conceptual umbrella that was defined as '*Advertising*'. Moreover, looking into the database, it can be seen as the other 3 collaborations falling in the sector 3 of RPM, are CRM-like and were located into cluster 1. It is at the top of the matrix diagonal, and signals way more complex and interactive collaborations. To be coherent, it seems reasonable to relocate also the focal business-NPO collaboration to that cluster.

6.3.3. Transactional clusters

We referred to the clusters containing business-NPO collaborations that present bidirectionality of resource flow and operational engagement exclusively from the nonprofit side as “transactional”. This label is employed in literature by Austin (2000) and other several works (Chatain & Plaksenkova, 2019; Kolk et al., 2008), in general to signal the exchange nature of related collaborations. For Austin, it is in particular the reciprocity in the exchange that determines the evolution, along the CC, from the philanthropic ones. Chatain & Plaksenkova (2019) posed their attention on the mutual benefits arising from the resource exchange, being that the main driver for the business side. Kolk et al. (2008) instead link the transaction concept to a specific object, i.e., a single project. This concept is retrieved by Seitanidi & Ryan (2007) and Wymer & Samu (2003), that identify as main forms for such collaborations different kinds of sponsorships, so the “form of marketing in which a company pays for the right to be associated with a project or program” (Investopedia, 2021).

It is so interesting to test the outcome of the clustering model against those different literature contributions. First of all, it clearly emerges that resource bidirectionality is not a sufficient condition for defining such collaborations. Or better, as Austin suggested, it signs the turning point from philanthropic ones; nevertheless, other dimensions are needed to distinguish “transactional” collaborations for even more complex kinds.

		Process	
Resource – Process Matrix	JOINT ENGAGEMENT (Process_BUS = 1 AND Process_NPO = 1)		5 2 «Integrative» clusters (number 1 and 7)
	NPO-ENGAGED (Process_BUS = 0 AND Process_NPO = 1)		4 2 «Transactional» clusters (number 5 and 6)
	BUSINESS-ENGAGED (Process_BUS = 1 AND Process_NPO = 0)	2 <i>Business-engaged collaborations' cluster</i>	3
	NO ACTIVATION (Process_BUS = 0 AND Process_NPO = 0)	1 2 «Philanthropic» clusters (number 0 and 4)	
	UNIDIRECTIONAL RESOURCE FLOW (Res_BUS = 1 AND Res_NPO = 0)	BIDIRECTIONAL RESOURCE FLOW (Res_BUS = 1 AND Res_NPO = 1)	
		Resource	

Figure 53. Transactional clusters in the RPM matrix.

In fact, it is possible to employ as a proxy for the complexity of a business-NPO collaboration not only the description of the resource flows involved, but also the presence or not of process activation. Looking at the resource-process matrix employed so far, a macro-cluster distinct by the philanthropic one, but also by the top-right angle of the space, i.e., area 5, populated by the most complex relationships, emerges, as highlighted in Fig. 53.

Namely, the focal area is the one composed by clusters 5 and 6, as presenting process activation just on the NPO side. Those clusters will be firstly analysed jointly, i.e., highlighting their similarities against the remaining space; then the inner distinctions will be deepened.

To delineate the nature of such collaborations it is appropriate to start from the analysis of involved resources. First of all, again it is useful to consider the grouping of the resources between tangible and intangible (Clarke & MacDonald, 2019). In Table 41 are reported the results related to the single clusters, and their average.

Cluster	<i>Tang_BUS</i>	<i>Intang_BUS</i>	<i>Tang_NPO</i>	<i>Intang_NPO</i>
5	0.43	0.67	1	0.48
6	0.91	0.09	1	0.22
Average	0.79	0.23	1	0.28

Table 41. Characterisation of resources involved in transactional clusters.

Keeping in mind the fact that each single considered collaboration is characterised by bi-directionality of resource flow, several interesting aspects emerge. Considering the average on the two focal clusters (line “Average”), first of all it is highlighted how, from the NPO side, the resources involved are always tangible ones. Intangible ones represent an eventual addition, in the 27.9% of the cases.

This witnesses the principal expectation by the business side: a quantifiable, unique contribution to their activities, in the case of the present work in sustainability-related efforts. For example, collaborations consisting in the certification, by the NPO, of the environmental-friendly nature of certain practices on the business side, fall into those clusters, namely in the number 5; the sponsorship, by the firm, of specific projects by NPO, in order to get back a visibility and reputational benefit (i.e., positive advertising), quantifiable by the expected reach of the focal activity, too. These two examples, despite of way different among each other, shed light on one important aspect. The business is transferring resource to the NPO side expecting something in return; the return is something connected to the NPO characteristic activity, and so requires, from that side, the activation of operative processes.

In this sense, from the business point of view, the decision to turning to NPOs is the result of a decisional process. Main alternatives to undertaking such collaborations with NPOs consist in speaking to business third parties (e.g., advertising agencies) or to internalise the same function, i.e., a process (Chatain & Plaksenkova, 2019). The determinants of such choice are to be searched among the peculiarities of the NPOs, both as sector (trust of the citizens, etc.) and as individual (reputation, reach, etc.). The NPO is selected as thought to be capable of offer a certain service, and some resources are transferred to them in exchange of it.

Reference aggregation	Resource	Average
Tang_BUS	Money	0.77
	In-kind	0.08
Tang_NPO	Certification	0.19
	Advertising	0.47
	Service	0.34
	Personnel	0.01
	Knowledge_NPO	0.27
Intang_NPO	Network_NPO	0.01

Table 42. Detailed resources' characterisation in transactional collaborations.

In Table 42 is reported the involved resources' share. From NPO side, as tangible resources, are mainly expected a reputational and/or visibility benefit (*Advertising*, 46.5%) or a service (*Service*, 33.7%). Also, certifications have a considerable weight (*Certification*, 18.6%), while human capital (*Personnel*) to be employed represents still a narrow segment (1%). Intangible resources can also come with those tangible resources, in particular knowledge (26.7%). The main resource played in return by the business side is the economic one (76.7%).

The previous analysis defined characteristics and boundaries of a precise set of collaborations. In particular, the transaction label demonstrated to fit well those, as characterised by the fact that the business transfer resources (prominently economic ones) to the NPO side, expecting in exchange other, valuable resources and/or services. Those require the NPO to activate an operational process, to be compliant with the role requested by the interaction. The latter is an aspect not caught in the reference literature, despite of the great attention given to the managerial complexity as one of the crucial defining dimensions.

Once clarified the external boundaries of the focal matrix sector, internal heterogeneity conditions are to be identified and discussed. In Table 43 the dimensions considered in the clustering model, and related average values, are reported.

Cluster	Size	Env	Soc	Central	Italy	Multi_Year	Multi_Stake
5	21	1	0.10	0.81	0.29	0.67	0.19
6	65	0.09	1	0.20	0.82	0.45	0.25

Table 43. Average composition of collaborations in transactional clusters.

As already emerged by centroids analysis, the pivotal discriminant appears to be the orientation. Cluster 5 results to contain exclusively environment-oriented business-NPO collaborations, while 6 purely social-oriented ones. Focal clusters can be so identified in the following way:

- **Cluster 5:** Environmental-oriented transactional business-NPO collaborations;
- **Cluster 6:** Social-oriented transactional business-NPO collaborations.

The importance of the sustainability pillar reference of business-NPO collaborations is an aspect recognised also in literature. Scholars like Rondinelli & London (2003), Lin & Darnall (2015), Wassmer et al. (2014) considered in their taxonomy proposals just environmental collaborations, suggesting so different characteristics with respect to “conventional”, broader ones with social orientation. Data evidence allow identifying which can be those differences.

The first aspect that stands out is again the lower numerosity of environmental-oriented collaborations rather than social ones. However, the trend related to this clusters in line with the overall sample (a share equal to 24.4% of transactional collaborations vs the 16% overall). The negative aspect that remains consists in the very small size of cluster 5, representing just the 4.8% of the total observations.

Despite of the small volumes of observations, some considerable differences still emerge. First of all, the geographical scope: environmental collaborations resulted to be based in Italy just for about 1 case every four (28.6%). This value is in net contrast with social ones, where the 81.5% of the observations has place in Italy. The presented difference can be traced back to a series of potential causes: a cultural delay; a difference in the priorities for Italian divisions of considered firms, that tend to direct their budget more on generic, broad social problems than on more focused environmental ones; or maybe just the preference of tackling such areas without the help of NPOs. In fact, the other variable showing a very large differential, even not being a characteristic one, is the centrality. The 81% of environmental collaborations is aligned with business activities and mission, against the 17.4% of the social ones. This can constitute a further confirmation to the previous hypothesis about business' priorities.

No significant differences, among the two focal clusters, are signalled by data for what concerns the governance structure and the temporal scope. Multi-stakeholder collaborations represent the 19% of observations in cluster 5, against the 24.6% for cluster 6; multi-year ones are respectively the 66.7% and the 44.8% of the contained observation. The latter difference is not negligible per se (p -value = 0.0403), but the very narrow size of cluster #5 suggests prudence – and a future sample expansions - in deriving strong conclusions.

6.3.4. Integrative clusters

The remaining two clusters of business-NPO collaborations refers to the most complex interactions possible, among the observed ones. In fact, as showed in Fig.54, they position themselves in the top-right corner of the resource-process matrix. It is the section connected to collaborations characterised by bidirectionality in the resource flow AND process activation from both sides.

		Process	
Resource – Process Matrix	JOINT ENGAGEMENT (Process_BUS = 1 AND Process_NPO = 1)		5 2 « <i>Integrative</i> » clusters (number 1 and 7)
	NPO-ENGAGED (Process_BUS = 0 AND Process_NPO = 1)		4 2 « <i>Transactional</i> » clusters (number 5 and 6)
	BUSINESS-ENGAGED (Process_BUS = 1 AND Process_NPO = 0)	2	3 <i>Business-engaged collaborations' cluster</i>
	NO ACTIVATION (Process_BUS = 0 AND Process_NPO = 0)	1	2 « <i>Philanthropic</i> » clusters (number 0 and 4)
	UNIDIRECTIONAL RESOURCE FLOW (Res_BUS = 1 AND Res_NPO = 0)	BIDIRECTIONAL RESOURCE FLOW (Res_BUS = 1 AND Res_NPO = 1)	
		Resource	

Figure 54. Integrative clusters in the RPM matrix.

As preliminary guess, they can be assimilated to the integrative collaborations proposed by Austin (2000). In that work, the author identified the following defining points:

- highest *strategic level* of collaboration possible;
- “*boundarylessness*”, i.e., the releasing of the boundaries among entities to favour the execution of focal activities;
- Efforts’ *coordination* to realize the identified consistent common, strategic value to be extracted.

In particular, the efforts’ coordination can be translated into the terminology of the present work as process activation and resource involvement by both sides; that is the reason why the label “*integrative*” is borrowed from that seminal work to the present, preliminary classification. Of course, the increased complexity is faced because of the higher benefit possible, i.e., the strategic value.

As highlighted in the literature review section, collaborations of this kind, despite of being the most interesting from the business side given their possible benefit associated, are the ones studied least in-depth. This is due to three principal motives:

- Their rarity. Austin (2000) itself theorized, within his Collaboration portfolio, integrative collaborations are constituting the top of the pyramid. So, they are the ones expected to be in the lowest number;
- Their variety. Given their strategic importance and the coordination requirements, this kind of collaboration is very likely to be dependant on the peculiar natures of parties involved. It is so difficult to identify pattern, in turn able to favour a further detailing of this group of collaborations;
- Their strategic importance. Their relevance and the magnitude of possible associated benefits probably slows down firms in publicizing so much this kind of interactions.

The research methodology adopted in this dissertation, so to rely mainly on official disclosures by companies themselves and not on interviews and case studies, tend to amplify the previous points. In particular, the abovementioned high strategic importance is very likely to have prevented some firms to disclose some collaboration of this kind. The variety of incorporated collaborations was another point confirmed by the empirical reality, as discussed during related centroids' analysis.

However, not only the monitored numerosity is narrow but not negligible (75 collaborations, the 17,16% of the total), a very similar value to "transactional" ones (84 collaborations); but also, the clustering model was able to further divide them into two groups, characterised, by definition, of a certain degree of external heterogeneity.

As performed for the previous conceptual area of the matrix, in a first moment the heterogeneity conditions of the two clusters with respect to the other ones will be deepened. In particular, as the closest from a conceptual point of view, they will be juxtaposed to transactional ones. The similar number of observations contained should make this comparison very significant and robust. Then, internal discriminants will be analysed.

It was already discussed about the bilaterality of process activations in this kind of collaborations as the brightest point of characterisation versus the remaining space of business-NPO collaborations. However, the resource bidirectionality, present also in "transactional" clusters, here assumes a different meaning.

Cluster	<i>Tang_BUS</i>	<i>Intang_BUS</i>	<i>Tang_NPO</i>	<i>Intang_NPO</i>
5	0.43	0.67	1	0.48
6	0.91	0.09	1	0.22
Average	0.79	0.23	1	0.28

Table 44. Characterisation of resources involved in transactional clusters.

Cluster	<i>Tang_BUS</i>	<i>Intang_BUS</i>	<i>Tang_NPO</i>	<i>Intang_NPO</i>
1	0.63	0.73	0.83	0.54
7	0.80	0.76	0.80	0.60
Average	0.68	0.74	0.82	0.56

Table 45. Characterisation of resources involved in integrative clusters.

Table 44 and 45 are reported as a comparison of the resources' breakdown among tangible and intangible ones. The most evident result is the net increase of the share of involvement of intangible resources, from both sides. In transactional clusters the proportion of intangible resource was similar for business and NPO sides, oscillating around the 25%. Such values double for what concern the nonprofit side, and it is even more than three times higher for the business one (74% of the collaborations). To understand those magnitudes and their defining importance, it is useful to keep in mind the characterisation of intangible resources reported by Clarke & MacDonald (2019), as "valuable, rare, and costly to imitate resources organised to capture value". Data demonstrated the trend, theorized in literature, about the involvement of more strategic and key resources, from both sides, justifying the higher complexity needed to achieve the larger benefits. From this point of view, "integrative" macro-cluster shows itself as strongly different from the other ones also from a purely Resource-based theory's point of view.

It is now interesting to verify if there are any other significant difference for what concern our clustering dimensions. In Table 46 and 47 are reported the values respectively for transactional and integrative clusters.

Cluster	<i>Env</i>	<i>Soc</i>	<i>Central</i>	<i>Italy</i>	<i>Multi_Year</i>	<i>Multi_Stake</i>
5	1	0.10	0.81	0.29	0.67	0.19
6	0.09	1	0.20	0.82	0.45	0.25

Table 46. Average composition of collaborations in transactional clusters.

Cluster	<i>Env</i>	<i>Soc</i>	<i>Central</i>	<i>Italy</i>	<i>Multi_Year</i>	<i>Multi_Stake</i>
1	0.04	0.98	0.92	0.77	0.75	0.27
7	0.92	0.72	0.92	0.60	0.48	0.92

Table 47. Average composition of collaborations in integrative clusters.

As it could be expected by what seen in literature and discussed beforehand, the dimensions that varies the most are the centrality and the multi-stakeholder structure of the collaboration itself.

The centrality, that shows an average value almost three-times higher, and so close to the 100%, represent the proximity of the collaboration's scope to business objectives. As said, such complex interactions are undertaken seeking a clear set of benefits strongly related to the business core activities. The logic behind more simple collaborations, transactional ones in this case, is different, as analysed in the previous sections.

The other variable showing a very important relative difference is the one related to the multi-stakeholder vs dyad structures of collaborations. In fact, the percentage of multi-actor collaborations more than doubles (49.3% against 23.3%); the associated t-test showed a p-value of 0.000, signalling the statistical robustness of such identified difference.

This is not just an adding complexity for its own sake: again, it is the magnitude of the seeking benefits, and their nature, that brings involved actors, and in particular the business

side, to enlarge the network. It is a concept linked to an RBV point of view: intangible resources, frequent objects of such collaborations as seen before, are very often represented by knowledge, networks, etc. These are clearly positively correlated to the net of actors (and sectors) that are involved, in turn requiring a coordination effort not negligible.

Not surprisingly, the other variable showing a difference, even if lower in magnitude (from 50% to 65.8%) is the time duration of the collaboration. This is confirmed by a very low p-value (0.0104) resulting from associated t-test. Also recalling Austin's words, such complex collaborations are very likely to be the culmination of an evolution and development process of a relationship. For example, it is possible to imagine the progressive involvement of more actors, from more sectors, by time. Moreover, the effort required to set all the system pushes the involved actors to do their best to endure such relationship. Instead, geographical (Italy vs rest of the world) and activities' (environmental vs social orientation) scopes do not present any significant difference between these two macro-clusters.

It is now possible to discuss the heterogeneity internal to the focal macro-cluster, i.e., the determinants of the differentiation among cluster 1 and cluster 7.

In Table 47 are reported the values associated to characteristic dimensions of the two clusters. The parameters presenting the clearest differences are the reference sustainability pillar and the governance structure. Cluster 7 results to be dominated by environment-oriented, multistakeholder collaborations, whilst 1 presents largely dyadic, social interactions. This pattern is similar to the one observed in the differentiation among "transactional" clusters, suggesting:

1. The importance of those two dimensions in differentiating, and so classifying, business-NPO collaborations;
2. The correlation between those two dimensions. Environmental collaborations, despite representing a minority in the observation sample, result to be on average the ones involving more actors and sector, i.e., presenting higher managerial complexity.

This last point is noteworthy to be deepened. The type of sustainability-related problem to be tackled demonstrated to be a powerful differentiator for what concerns arising collaborations. This happens as what varies according to the pillar targeted is the contribution expected by each single actor. Throughout all the analysis it was observed how the business very often needs, and even delegates, NPOs to direct and focus their efforts on social issues. Apparently, for environmental problems it does not work in the same way. Statistical description of the observed samples highlighted how environmental NPOs are a minority in the focal landscape. It suggests a lower development of the nonprofit sphere for what concern the planet preservation. This, together with the observation of the general higher number and variety of actors involved in such projects, signals a higher complexity for what concerns environmental-oriented collaborations. To be fruitful, they require different actors to bring in different contributions, to be managed and coordinated to get the expected, often strategic, result.

Combining all the previous observations, the following classification of business-NPO collaborations is proposed.

- **Cluster 1:** Social-oriented, integrative business-NPO collaborations;
- **Cluster 7:** Environmental-oriented, multi-stakeholder integrative business-NPO collaborations.

This further deepening of more complex collaborations represents something absent in literature, as highlighted in the literature review. What resulted is a bigger cluster of pure-social, complex collaborations, pursuing objectives central for the business and foremostly within Italian boundaries by a dyadic structure. In turn, environmental-oriented business-NPO collaboration require in their totality a bilateral process activation, and a broader involvement of actors on average. Quite surprisingly, data shows how the first cluster, simpler from a managerial point of view, it is by the way characterised by a longer time duration on average. This phenomenon can be read, as a preliminary guess, as a higher rate of failure in the architecture of such complex interactions, pushing the actors to quit the collaboration (Dentoni et al., 2018).

6.4. Intra-cluster descriptive statistics

The clustering model and successive related analyses defined seven different classes of business-NPO collaborations. Those were interpreted firstly through the resource-process matrix (RPM). In particular, the diagonal of such matrix, and the distance from the origin along it, was employed as a significant proxy for the complexity of the different classes of collaborations identified. A parallelism with the Collaboration Continuum (CC) theorised by Austin (2000) and related collaboration stages (philanthropic, transactional and integrative) was identified and retrieved to firstly differentiate groups of clusters from the others. Then, each single group was analysed as standalone.

Clusters and embedded collaborations were described by means of the characteristic variables, i.e., by centroids. Moreover, in the deputed sections, also other measures and variables collected during information gathering phase were employed in the characterisation of the single clusters.

Instead, the goal of the present section is to describe the overall business-NPO observed landscape, that is, collaborations and involved firms and NPOs, this time at the light of resulting clusters.

The first aspect that can be deepened by employing the presented collaborations' classification is the capability of sample firms to cover all the different identified aspects. The construction of a portfolio of collaborations was a concept introduced again by Austin (2000): it was theorised that a firms, exactly in the same way as it does for the brand portfolio, so a set of products and services sold under the same brand, has to build a portfolio of collaborations. In this sense, covering all the identified clusters can be thought as a signal not only of the attention to the focal theme, but also of a certain maturity in facing it. The more the clusters covered, the larger the variety of the benefits that the focal firm can extract by the interactions with the nonprofit side. In other words, the maximum value can be extracted. In Fig. 55 is reported the frequency analysis of clusters' coverage by the firms.

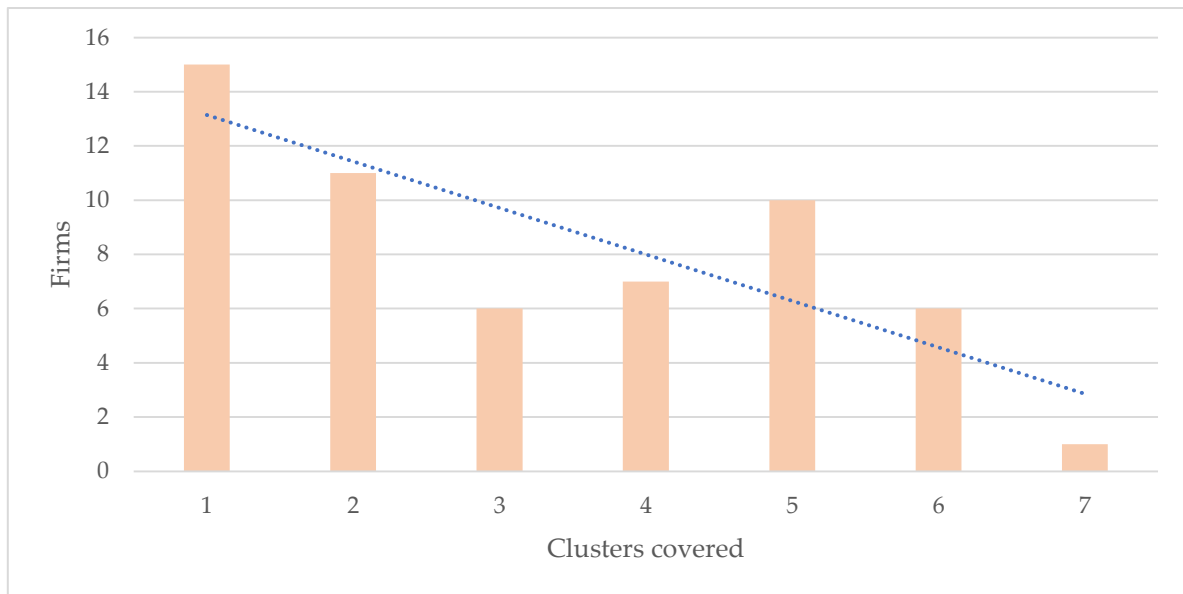


Figure 55. Coverage of identified clusters by sample firms.

Several insights emerge by this plot. First of all, the construction of complete portfolios is an absolute minority. Only one firm (Moncler S.p.a) resulted to have undertaken at least one collaboration belonging to each identified cluster. In general, as shown by the trendline, the observed pattern has a decreasing fashion: the majority of firms cover only a very limited number of clusters, just 1 or 2.

However, the trend is not monotonic. As results by the figure, there is a relative minimum for 3-clusters' coverage and a relative maximum for 5. Such empirical evidence suggests the existence of an undergoing phenomenon at a more aggregated level. The resulting guess is that once the awareness and the maturity in relation to the nonprofit sectors by the firms overcomes a given threshold - in this case represented by undertaking a sufficiently variegated number of collaborations -, more relationships and in general characterised by a higher complexity are established, again to extract the maximum value possible. In terms of business-NPO collaborations, those observe a boost, except then to decrease again when coming to the broadest coverage possible.

To verify the existence of such undergoing trend, the same analysis can be run employing identified clusters, not anymore as individual but aggregating them into the discussed RPM sectors. Namely, those were philanthropic clusters (clusters 0, 3 and 4), transactional (5 and 6) and integrative (1 and 7) ones. Results are shown in Fig. 56.

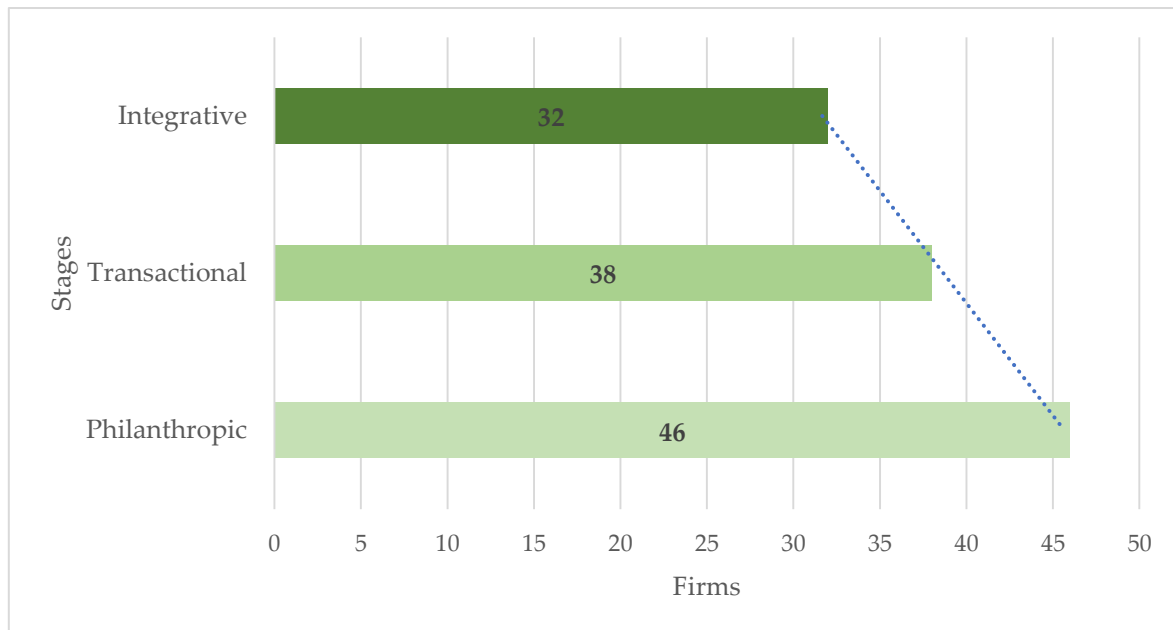


Figure 56. Coverage of identified stages by sample firms.

It is reported the number of firms resulting to undertake at least one collaboration for each of the identified macro clusters. The decreasing numerosity at the increasing of the complexity, and the trendline itself suggest a truncated pyramid shape. The reference to Austin (2000) is wanted. He exactly theorised the three stages as progressively more demanding, and so funnelling the relationships between focal firm and collaborating NPOs, resulting exactly in a pyramidal conceptualisation. The empirical reality observed confirmed such theorisation. As a trend, not all the philanthropic relations, that is, for this research, not all the firms undertaking philanthropic relationships, are then able or willing to transform them into more structured ones. There are firms that prefer to limit their interaction with the nonprofit world to simple, donor-recipient relationships (the 82.1%). Other companies (the 67.86%) evidently recognised the unique peculiarities of NPOs and the comparative advantage in outsourcing them some particular service or process. A furtherly narrower firms' subsample (57.14%) embraced itself in undertaking even more complex, coordinated, and participating interactions. The proposed lens of progressive awareness of potentialities and possibilities can explain that not-monotonic trend discussed in Fig. 55. The clustering revealed, differently from what Austin did, a certain variety in the system and within macro categorisations too. A firm can leverage on such heterogeneity, once recognised the potential value, and so cover more different nuances.

Another interesting aspect, in comparison with Austin's work, is the observation that not only the collaborating firms have been undertaking, in the 2017-19 period, a philanthropic collaboration. Austin's Continuum (CC) proposed those as a necessary presence, a first step in the constitution of more intense relations. The presented empirical evidence seems to confirm a prominence of philanthropic collaborations, but not their necessity. Ten of the firms resulting to be collaborating (17.85%), do not undertake – or, at least, do not report – any donation; they directly present more structured and complex typologies of business-NPO collaborations.

Therefore, the progressive funnel in terms of macro clusters coverage cannot be given for granted. In Fig. 57 the hypothesis is confirmed: the shown trend not only is not monotonically decreasing, but also the firms covering all the three areas are more than the ones exclusively focused on one of those.

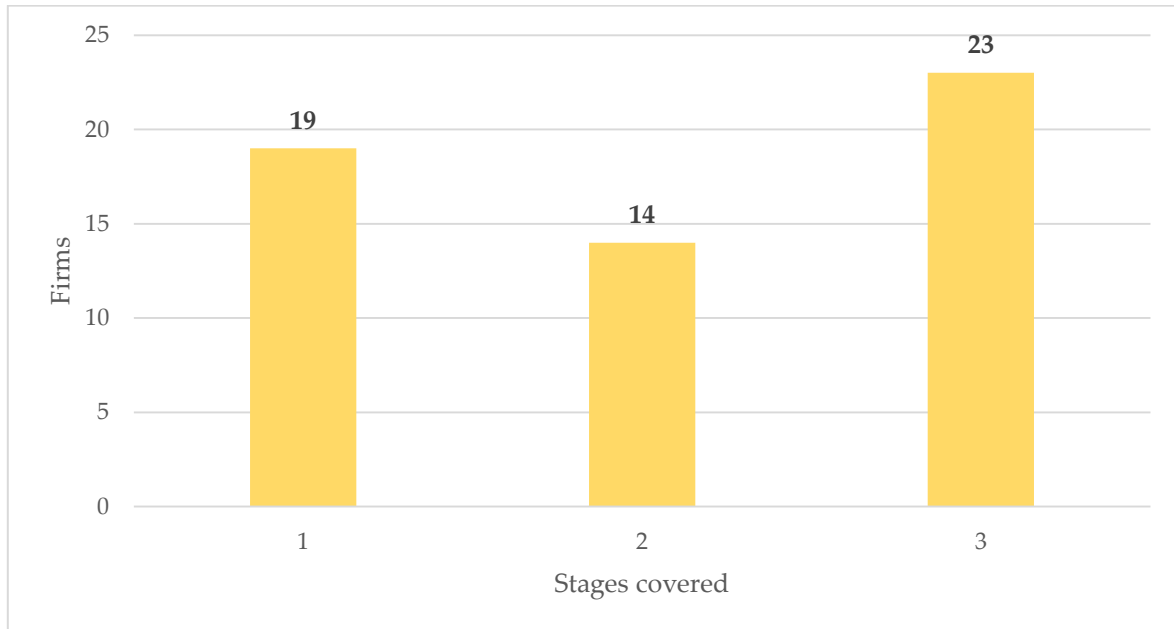


Figure 57. Frequency analysis on number of stages covered by sample firms.

This last observation signs a crucial point. The selected sample of firms shows a high degree of maturity in relation itself with the nonprofit world; this is witnessed exactly by the fact that more firms, by their collaborations with NPOs, exploits the three main macro typologies of collaborations than the ones limiting themselves to just a portion of them.

It is interesting to compare this subset of firms that are complete in terms of coverage with the overall firms' sample and also with the collaborating subset.

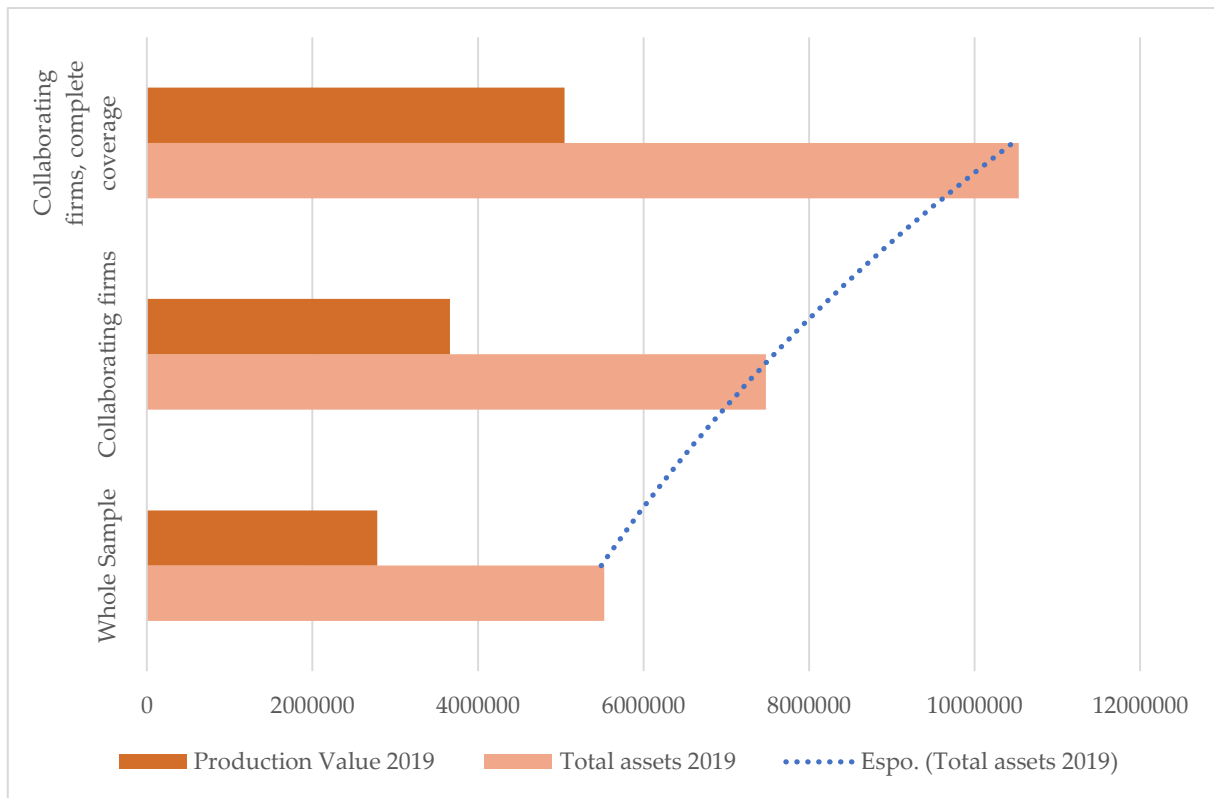


Figure 58. Variation of reference economic dimensions in different firms' subsets.

In Fig. 58 results of such comparison are plotted. The first insight provided concern the confirmation of the tendency identified in the 'Descriptive Statistics' Section: firms witnessing an attention towards the nonprofit world show in general higher results in terms of economic dimensions, and vice versa.

Now, such statement can be corrected in: firms witnessing a more *intense* and *structured* attention towards the nonprofit world show in general higher results in terms of size, and viceversa. The trendline is plotted to signal such non-linear fashion.

The capability of firms to cover all the possible typologies, and related benefits, of identified business-NPO collaborations was analysed from a holistic point of view. In the next Section, the adopted point of view will be more granular, going in depth into each single cluster and describing it through a series of statistics.

6.4.1. Philanthropic clusters

Clusters 0 and 4, so the ones populating the bottom-left corner of RPM matrix, were labelled as philanthropic. The choice was taken as the characteristic monodirectionality of resource flow and the absence of specific process activation combine with the definitions proposed in particular by Austin (2000) and Selsky & Parker (2005). About the last contribution quoted, the clustering model revealed another group of observations. In those, the relationship is still donor-recipient like, but an operational process activation is present,

from the business side. They were defined as business-engaged collaborations (cluster 3) and represent an interesting aspect of the philanthropic realm: a tighter bond, with more strategic implications.

Now, descriptive statistic analyses will be employed to actually describe their composition, in terms of involved actors, arising collaborations and their evolution. Results were shown, witnessing that 46 over the 56 identified collaborating firms have been undertaken at least one collaboration belonging to such 3 clusters.

In the Appendix B the distribution of focal sample firms, resulted to be covering the philanthropic macro area, is presented for each of the possible combinations. Synthetic results are summarised in Fig. 59. What clearly emerges is the prominence of the joint undertaking of philanthropic business-NPO collaborations belonging to clusters 0 and 4. This combination alone accounts for the 45.65% of the cases; this value rises to 63.04% considering also the casuistry of the coverage of all the three focal clusters. It is noteworthy to be reminded that the heterogeneity condition between clusters 0 and 4, the ones embedding the most linear and common philanthropic relations, consists in difference in time duration, modelled by *Multi_Year* variable.

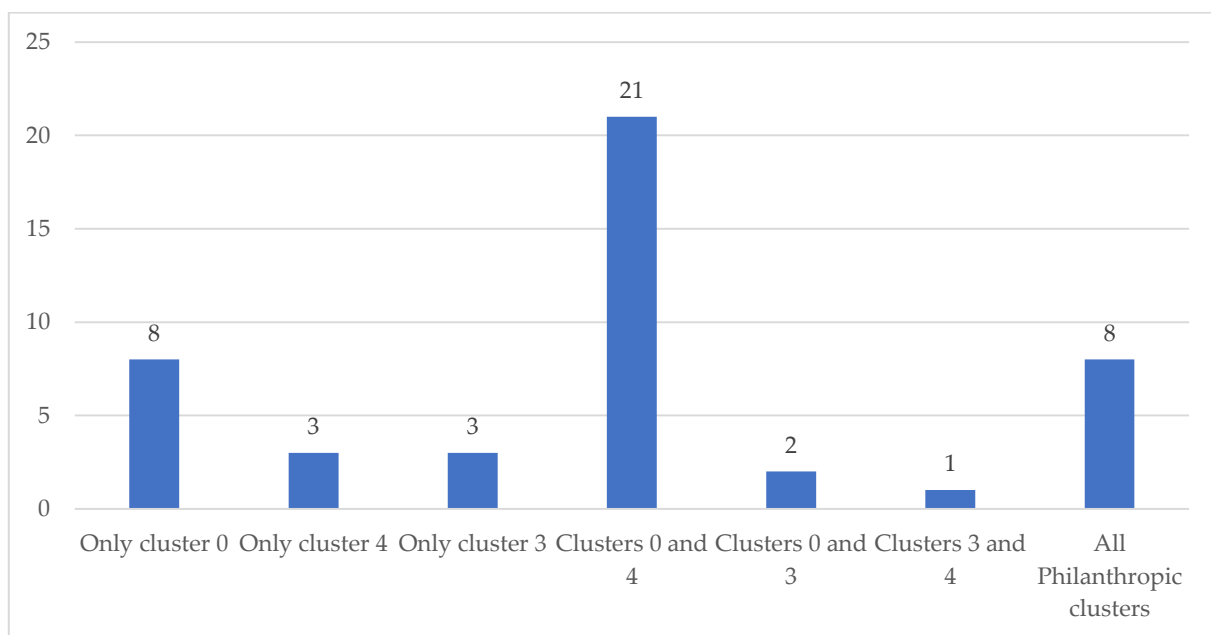


Figure 59. Philanthropic clusters' coverage by sample firms.

The contemporaneity of both these types of collaborations signals a high degree of compatibility among them. Adopting again a collaborations' portfolio point of view, empirical results show how firms tend to undertake both spot and continuative charitable relationships, evolving and developing their network over years but at the same time strengthening the link between their brand and certain NPOs ones.

Business-engaged collaborations, i.e., collaborations belonging to cluster 3, resulted instead to represent more a niche in the focal realm. Just 14 firms over the 46 engaged in

philanthropic-like relationships (30.43%) account for the 38 collaborations within the focal cluster. Moreover, 8 of them are the firms resulting to cover all the considered realm, and so can be reasonably considered as the ones more mature in approaching such shade of the business-NPO collaborations realm.

Business-engaged collaborations, as expected, shows themselves as an evolution of the traditional donor-recipient relationship. Being in general the result of a tight link among firms and NPOs, cases in which they are present as the only philanthropic relationships undertaken by focal firms are very rare (6.5%). The eventuality that such collaborations are undertaken in absence of one of the other two kinds of philanthropic relationships happens very seldom too (overall, 6.5% of the cases).

Once defined the relative distributions within the philanthropic realm, the evolution over time of such collaborations should be deepened. In Fig. 60 the progression related to each single focal cluster, and of their overall numerosity is plotted.

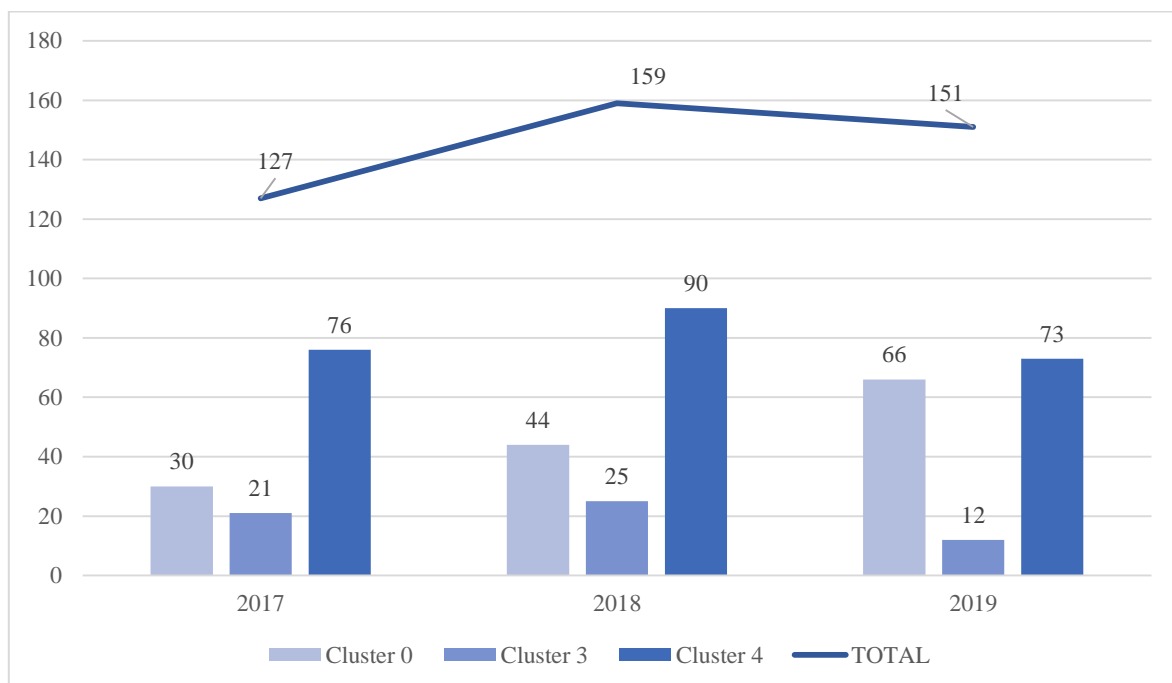


Figure 60. 2017-2019 evolution of philanthropic collaborations.

Starting from the last aspect, the overall number of philanthropic collaborations presented a growth of 18.9%. This value is lower in comparison to the overall growth of business-NPO collaborations in the 3-year period (40%).

Moreover, the growth of philanthropic relations was evidently driven exclusively by collaborations embedded in cluster 0, that are, spot philanthropic collaborations, so lasting just one year. In fact, it is the only cluster witnessing a growth trend, more than doubling in the considered three years. Vice versa, cluster 3 witnessed an important drop (- 42.81%), confirming its positioning as less populated group; cluster 4 remained almost stable, showing just a very slight decrease (- 3.95%).

Evidence goes so all towards a clear direction: firms resulted to prefer, in last years, to undertake more donor-recipient relationships, at the expenses of the complexity and the lasting of them. In particular, the idea of involving themselves in a more structured and organic way, as done for collaborations embedded in cluster 3, seems to be not so attractive, or at least less than it was at the beginning of the period. It is interesting to better detail the different clusters and the different evolution trends. In order to do so, the division of the embedded collaborations in the most recurrent forms, presented in the 'Centroids' analysis' Section will be retrieved, as proposed in Table 48.

	Cluster 0	Cluster 4	Cluster 3
	Monetary donations	Monetary donations	Donations of materials, products and assets characteristic of the business itself.
Observed forms of collaborations	Corporate volunteering initiatives Donation of material resources not related to firms' characteristic activities.	Corporate volunteering initiatives	

Table 48. Most recurrent collaborations' forms within philanthropic clusters.

The cluster resulted to embed the largest variety of business-NPO recurrent collaboration forms is the cluster 0. The breakdown of presented forms (economic donations, material resources' donations and corporate volunteering) is presented in Fig. 61.

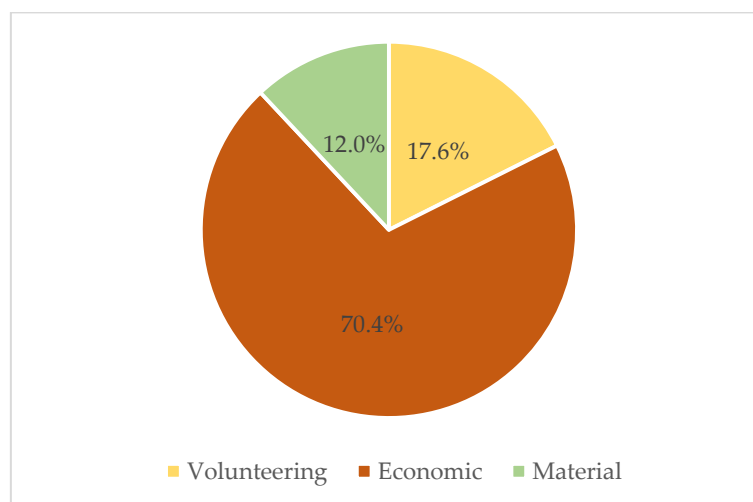


Figure 61. Collaborations forms' breakdown within cluster 0.

Monetary donations are largely dominant, accounting for the 70.4% of the cluster population. This is not surprising, as the object of the discussion is the cluster containing observations that are philanthropic in nature, and not lasting over years. Economic transfers

from a donor firm to a recipient NPO represent the simplest possible resource transfers, and so suit very well the sporadic nature characterising the focal cluster. Repeating the same analysis upon cluster 4 will allow to verify if this power balance among monetary donations and other philanthropic forms changes or not, and for which extent. Results are shown in Fig. 62.

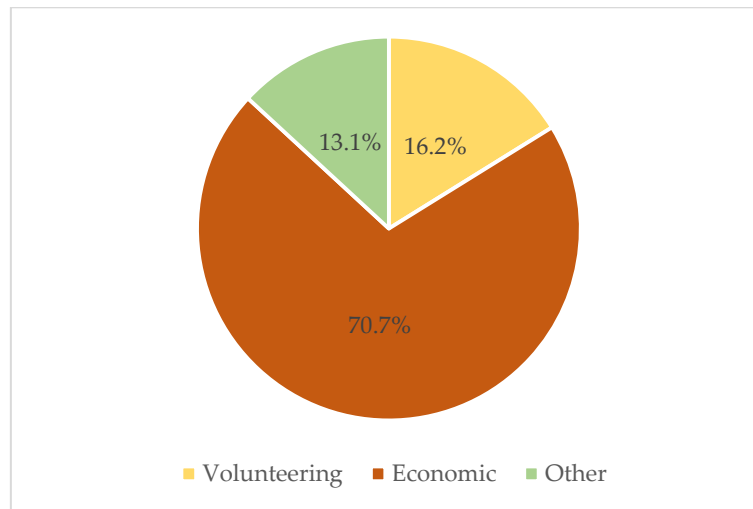


Figure 62. Collaborations forms' breakdown within cluster 4.

Money remains the largely dominant resource transferred (70.7%). Voluntary time of firms' employees loses some percentage points, in favour of the "other" segment, that encompass a series of philanthropic collaborations that are neither economic donations nor corporate volunteering. Examples are space given for free in point of sales or the collection and successive donation of food surpluses from companies' cafeterias. This variety, and also the intangible implications in linking the focal brands to NPOs activities, are so the main differences among this clusters, made of philanthropic, multi-year collaborations, and the previous one.

6.4.2. Transactional clusters

Clusters 5 and 6 were labelled as transactional. The decision was taken as their positioning in the resource-process matrix, characterised by the bidirectionality of resources and the activation of operational processes by the NPO side fitted well with the homonymous definition by Austin (2000). While analysing such clusters, it was also deepened how the prominent resource played by involved firms is the monetary one. In this sense, labelling them as transactional collaborations acquires even more sense: firms are paying NPOs for their characteristic activities, that can be different.

One of the main possible differences in terms of NPOs' activities resulted to be their activities' scope itself. It constituted also the main distinction among the two identified clusters: cluster 5 refers to environmental-oriented business-NPO collaborations, while number 6 to social-oriented ones. Again, descriptive statistic analyses will be employed to better detail such groups, in terms of involved firms, their evolution over time and recurrent

forms. In Appendix C, the distribution of the 38 sample firms resulted to have covered the transactional subset is presented for each of the possible combinations. Results are summarised in Fig. 63.

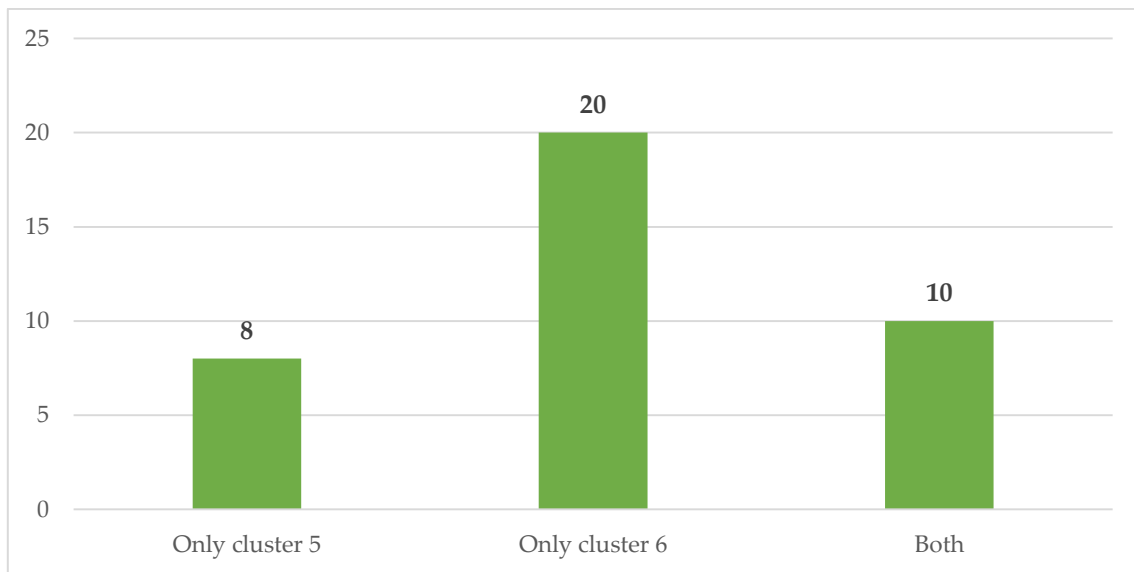


Figure 63. Transactional clusters' coverage by sample firms.

First of all, it has to be observed the undertaking, by firms, of collaborations embedded in one cluster or another. Social-oriented collaborations, i.e., ones populating cluster 6, are undertaken by 30 firms overall, representing the 53.57% of overall collaborating firms and the 78.95% of those involved in transactional-like relationships. As expectable also by the way lower numerosity of observations in the focal clusters, numbers for what concern environmental-oriented group are lower: 18 firms in the total, 32.1% on the overall collaborating sample and 47.37% within transactional subset. Such subsets have an intersection, made of 10 firms undertaking collaborations of both types. It is interesting to notice that all those 10 firms have undertaken also at least one philanthropic collaboration, witnessing a considerable maturity and awareness in dealing with business-NPO collaborations and several of its facets.

What is confirmed by this statistical analysis is the prominent role of collaboration with NPOs for what concern the tackling of social problems. While for environmental issues firms evidently have more variegated instruments, it is difficult to prescind from nonprofit world in the focal area.

Leveraging on the variables related to the year in which the observation is registered from the employed information sources, it is possible to describe the evolution of such collaborations, comparing the two different sustainability pillars. Moreover, the evolution of transactional business-NPO collaboration as a whole subset is investigated too.

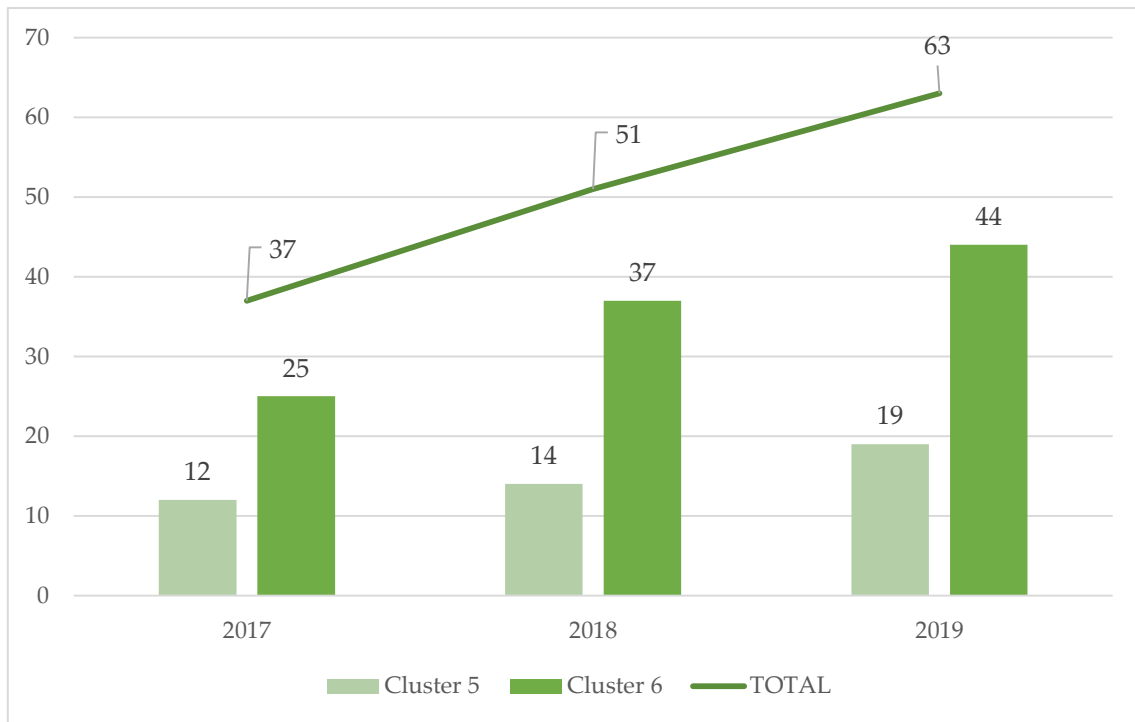


Figure 64. 2017-2019 evolution of transactional collaborations.

Starting from the discussion of the transactional macro area in its entirety, a considerable growth is observed. From the 37 collaborations of such type active in 2017 it was observed a dramatic rise up to 63 in 2019 (+70.27%). This result is even more important considering what observed for philanthropic collaborations, increasing by 18.9%. The comparison highlights how more complex collaborations, but associated to more structured potential benefits, are year by year diffusing in the Italian firms' landscape.

Another point of difference from the evolution over time of philanthropic clusters is represented by the fact that here both composing groups witnessed a growth. In particular, environmental-oriented transactional collaborations grew by 58.33% (but with a very small absolute numerosity), while social-oriented ones by 43.19%. So not only the growth rate interest both the clusters, but it is also quite uniform among them, differently from what observed before for philanthropic ones.

Transactional business-NPO collaborations are so considerably increasing their considerations within firms. In particular, cluster 6 resulted to be very interesting, as it encompasses different forms of collaborations, but united by the commonality of representing an outsourcing of social-oriented efforts, by firms to NPOs, that in turn have an important support in accomplishing their missions.

It was observed that most recurrent forms of collaborations embedded in cluster 6 are corporate welfare initiatives and sponsorships of projects and events organised by NPOs. In Fig. 65 is shown the distributions of those within the focal cluster.

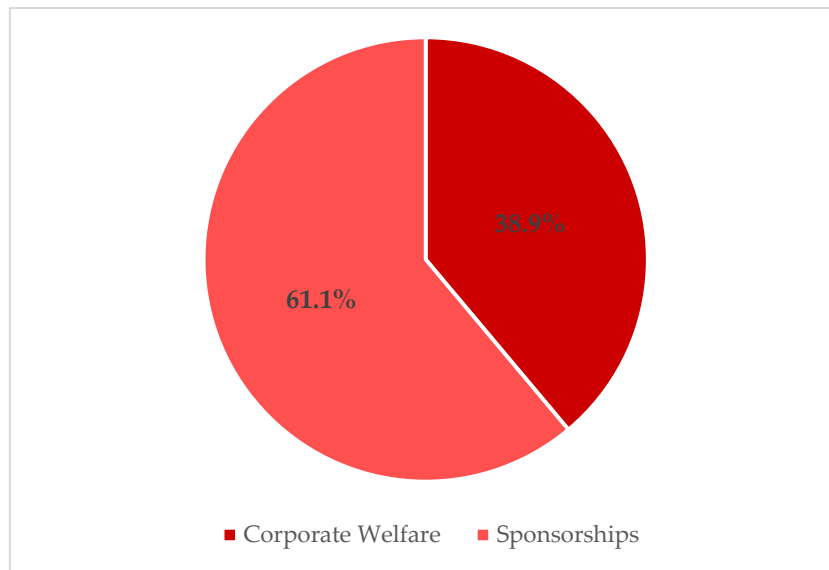


Figure 65. Collaborations forms' breakdown within cluster 6.

It was possible to trace it back 54 of the 65 observations populating cluster 6 to the abovementioned forms. What can be so observed is a certain balance among those two different cases. Such result confirmed what theorised in the previous sections of these work: more than firms, it is important to focus on the structure of a business-NPO collaboration. This in sense of breaking them down into fundamental constituent, to really be able to identify patterns; focusing exclusively on forms brings the risk of being not so holistic in the discussion of the topic.

In this case, the cluster highlighted how a subset of collaborations were undertaken by focal firms as a way to have an impact on social-related matters. Prominent forms in this sense, despite of being different one from each other, represent just alternatives to reach a similar result.

6.4.3. Integrative clusters

The two remaining clusters of business-NPO collaborations refer to the most complex cases observable in the reality. The label integrative was again retrieved by Austin (2000), given the observed positioning of such collaborations at the top-right corner of the RPM matrix. The joint presence of operational process activation by both sides and the bidirectionality of resources make these collaborations very demanding to be designed and implemented. They require a high degree of coordination, trust and dedicated resources to be really effective. In addition to external heterogeneity, clustering model was able to distinguish among two distinct groups of such integrative collaborations. In fact, cluster 1 refer to dyad, social-oriented collaborations, while number 7 resulted to be made of multi-stakeholder ones targeting environmental topics.

As performed before, it is interesting to study how the firms undertaking such complex collaborations decided to practically cover the identified facets. In Appendix D the distribution of the 32 sample companies resulted to have covered the focal subset is presented, for each of the possible combinations. Results are summarised in Fig. 66.

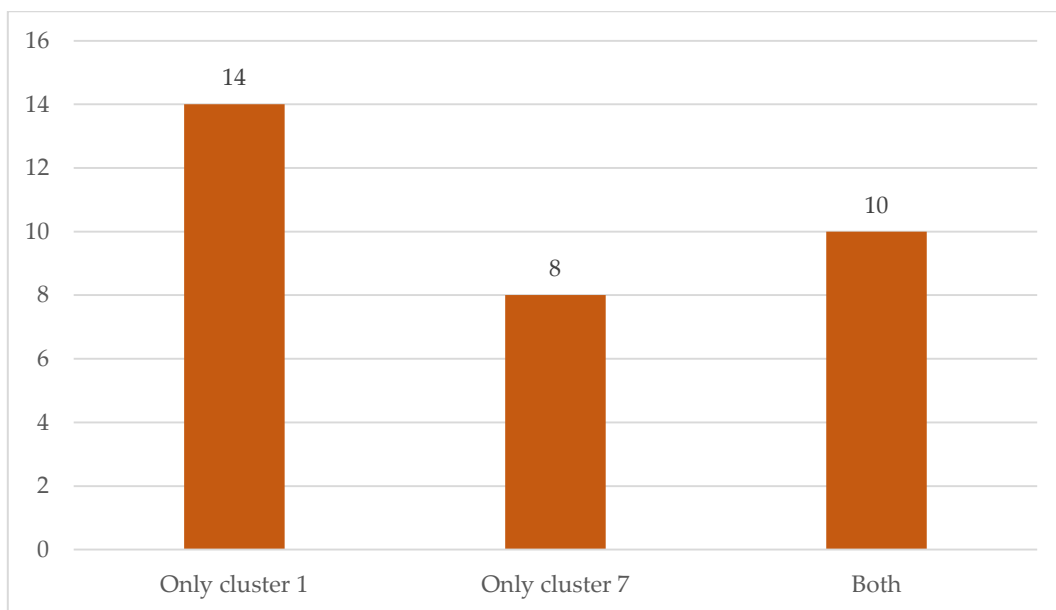


Figure 66. Integrative clusters' coverage by sample firms.

The depicted landscape of firms covering such complex set of collaborations is the most balanced subset seen so far. The percentage difference among the most recurrent combination and the least one is lower than 20 percentage points (43.75% vs 25%). It signals that there is not a dominant trend in this sense, but that firms adapt the collaborations to be undertaken to their necessities. This is not surprising: both clusters are characterised by very average values of centrality, that means, present a significant relatedness with firms' missions and strategic priorities. Such collaborations, as emerges also in the centroids' analysis, are more variegate for what concerns the forms, precisely because they are sort of customised. They are the unique result of *that* firm collaborating with *that* NPO.

Focusing now on the evolution over the 3-year period of such complex collaborations - probably the most interesting and characteristics of the whole discussion - it is possible to derive further insights on them.

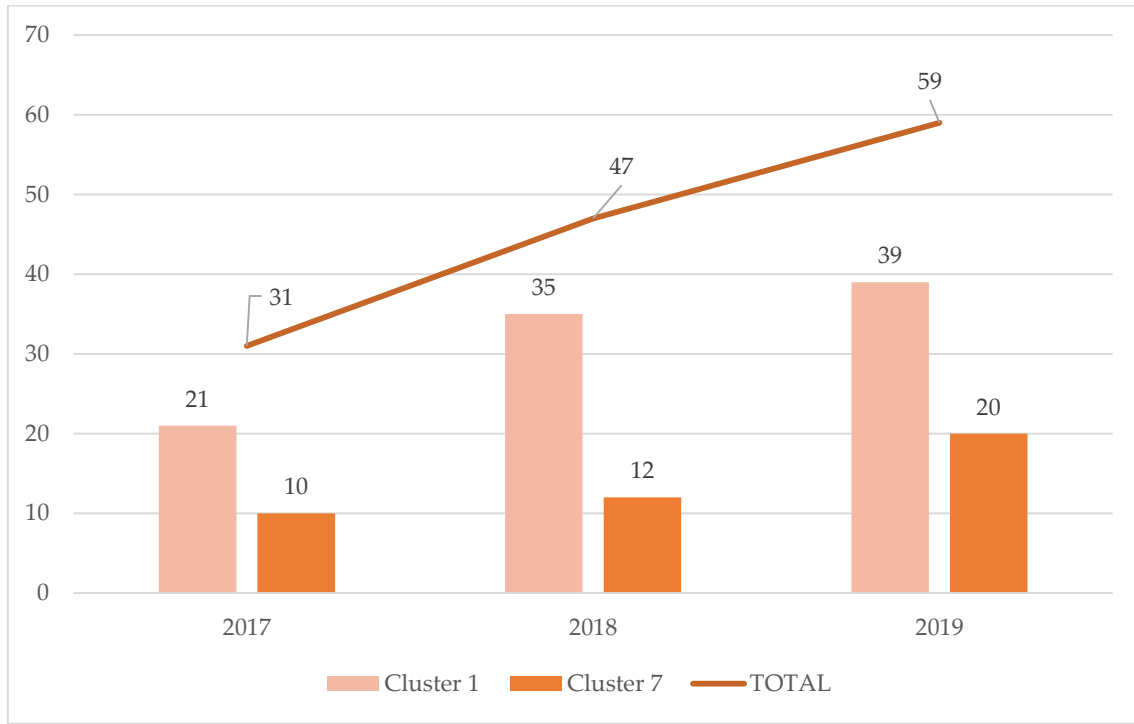


Figure 67. 2017-2019 evolution of integrative collaborations.

In Fig. 67 the variation of the number of observations in the integrative area and within composing clusters is shown. Absolute values plotted are similar to the ones observed for transactional collaborations. At the same time, also inner and overall trends resulted largely overlapping. The growth over the reference period of integrative collaborations as a whole was of 90.32%, vs the 70.27% showed by the previous subset. Such rise is impressive: in just three years the numerosity of the most complex collaborations almost doubled. Such growth is very significant to describe not only the phenomenon of business-NPO collaborations in Italy, but in particular the awareness of the involved actors about the potentialities of more structured interactions. The more the collaborations are complex, the more the growth rate interesting their undertaking was considerable (such values are reported here in Table 49 for the sake of the comparison).

	Philanthropic	Transactional	Integrative
Growth rate (2017-2019)	18.9%	70.27%	90.32%

Table 49. Growth rate of observed collaborations per area (2017-2019).

Tabled results allow in the end to detail the general growth of collaborations' numerosity already discussed in the 'Descriptive Statistics' Section of this work.

Integrative clusters, as what observed for transactional ones, contribute each to the overall growth, that is, their numerosity rose also within single clusters. Despite of the different starting values (cluster 7 is the narrowest among the identified groups), both of the focal clusters witnessed growth rates close to 100 % (85.71% for cluster 1, 100% for number 7). The increase in this sense of the latter group, the one embedding the most complex collaborations of the sample, in the last observed year is the clearest signal of the evolution of the business-NPO collaborations' realm as a whole.

6.5. Taxonomy

The clustering model and related results were presented along the whole 'Results' Section of this work. To conclude it, they will be led back to an organic classification, i.e., a taxonomy.

The dominant dimensions in this categorisation effort are for sure the modelling of constituting resource flows and of operational processes involved. The resource-process matrix (RPM) worked as the fil rouge of the whole discussion, being not only the conceptual starting point in the analysis, but also the practical tool by means of which interpreting the results.

Firstly, the analysis of the population, by the empirical observations, of the conceptual matrix allowed to distinguish from the theory the reality of the phenomenon. Then, clustering results, read with RPM lenses, confirmed the validity of Austin (2000) categorisation of business-NPO collaboration in three main blocks.

Such classes and related positioning in the matrix are presented in Fig. 68. Philanthropic clusters resulted to be those clusters showing mono-directionality in the resource flow, exclusively from business to NPO side, and the absence of any specific operational process activation by involved nonprofit actors. Transactional clusters contain observations bidirectional for what concerns resource flows and characterised by operational process activation by NPOs. Finally, integrative clusters are those populated by the most complex collaborations over the spectrum; in fact, they are at the same time bidirectional in resources' flows and showing process activation by both involved side.

		Process		
Resource – Process Matrix	JOINT ENGAGEMENT (<i>Process_BUS</i> = 1 AND <i>Process_NPO</i> = 1)		Integrative clusters	
	NPO-ENGAGED (<i>Process_BUS</i> = 0 AND <i>Process_NPO</i> = 1)		Transactional clusters	
	BUSINESS- ENGAGED (<i>Process_BUS</i> = 1 AND <i>Process_NPO</i> = 0)	Philanthropic clusters		
	NO ACTIVATION (<i>Process_BUS</i> = 0 AND <i>Process_NPO</i> = 0)			
		UNIDIRECTIONAL RESOURCE FLOW (<i>Res_BUS</i> = 1 AND <i>Res_NPO</i> = 0)	BIDIRECTIONAL RESOURCE FLOW (<i>Res_BUS</i> = 1 AND <i>Res_NPO</i> = 1)	Resource

Figure 68. Austin (2000) stages in RPM conceptualisation.

It is noteworthy to remember that those classes resulted to be positioned in order of complexity in the matrix. In particular, going along the principal diagonal of the matrix

itself, the degree of coordination, interaction, and strategic implications rises, along with expected and potential benefits for both parties and recipients.

The presented tri-partite classification leaves unsolved the necessity of granularization in the analysis of the focal phenomenon. Some studies analysed in the presented literature review (Seitanidi & Ryan, 2007; Wymer & Samu, 2003) focused on forms to deal with the need of adherence to reality; others, like Gray & Stites (2013), built on Austin triad, adding an additional stage, as the original proposal seemed them to be incomplete. In general, the review highlighted how the discussion, before than on classes, must be focused on relevant dimensions.

The clustering model presented in this work precisely enabled to better and deeper characterise the pivotal Austin classification. This is done not only by means of the two pivotal dimensions listed so far (resources and operational processes), but also by other characteristics that demonstrated, through apposite, analytical, and heuristic analyses on clustering models themselves, to be relevant in distinguish among collaborations. Such dimensions concerned the temporal scope, by means of *Multi_Year* variable, the geographical one (*Italy*), the reference sustainability pillar (*Soc; Env*), the degree of overlapping with business' characteristic activities (*Central*) and the governance structure (*Multi_Stake*).

Such variables characterised those that were called centroids, so collaborations – intended as variables' combinations, that are representative of the whole clusters. The difference between the centroid of one cluster and another determined what is the heterogeneity among the focal clusters themselves; if it seemed significant, their separation was confirmed.

What resulted is the landscape depicted in Fig. 69. From the three monolithic stages as presented by Austin (2000), the presented clustering model and successive analyses identified 7 significant classes of business-NPO collaborations. In particular three of them detailed the philanthropic block (clusters number 0, 3 and 4); two detailed the transactional one (clusters 5 and 6) and the remaining two the integrative block (clusters 1 and 7).

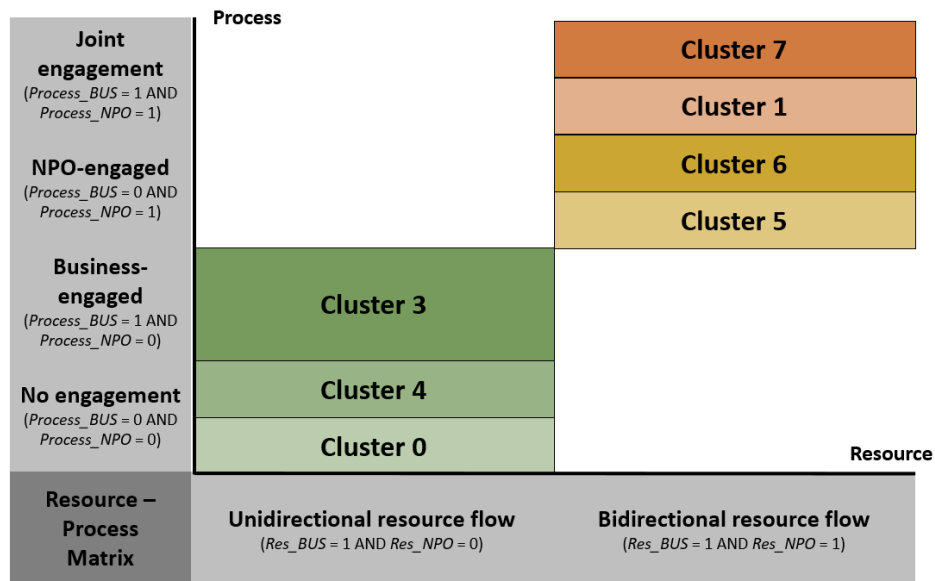


Figure 69. Clusters in the RPM conceptualisation.

The ‘Interpretation and Discussion’ Section allowed to go in depth with the identified classes constituting the focal taxonomy. In particular, the analysis of most recurrent forms allowed to better characterise what practically lays within them, and so to ensure their adherence to reality. Here a synthetic label for each identified cluster is so presented, with the attempt of finally, meaningfully characterise represented clusters.

Philanthropic clusters are characterised as:

- **Cluster 0:** Spot philanthropic collaborations;
- **Cluster 4:** Continuative philanthropic collaborations;
- **Cluster 3:** Core business related philanthropic collaborations.

The pivotal difference among the first two subsets of philanthropic stage is the time duration. In particular, while spot collaborations resulted to be generic donations lasting one single year, in continuative ones the relationship, despite of maintaining its simple donor-recipient structure, resulted to be iterated and renewed for more years.

The cluster 3 instead has an even more marked heterogeneity from the previous two. In fact, the donation very often regarded core products and or activities of the business, that in order to be able to fulfil its duties in the designed relationship has so to activate also specific operational processes. It was analysed how such collaborations represented a step forward in terms of required complexity, and also an eventuality not registered by different scholars discussing about the philanthropic topic, for example by Selsky & Parker (2005), that missed exactly this process activation theme.

Following the principal diagonal, clusters are met characterised by the activation of processes, by the NPOs, of operational processes. Moreover, resource flows bi-directionality signs another marked difference with the philanthropic area. Retrieving again Austin’s

work (2000), the first clusters met progressing on the diagonal, that are, clusters characterised by the operational processes activation by NPOs and the abovementioned resource bidirectionality, were defined as transactional.

Such clusters are presented in the following way:

- **Cluster 5:** Outsourcing of environmental-related efforts;
- **Cluster 6:** Outsourcing of social-related efforts.

The labelling of the focal groups is quite self-explicative for what concerns the pivotal discriminant: the reference sustainability pillar. It is a relevant aspect not only for the strategic implications that has for business CSR efforts; in fact, the analyses on recurrent forms of embedded collaborations highlighted how collaborations targeting one or another area then assume way different forms. For example, certifications of the attention to certain topics, a way diffused practice for what concern environmental-oriented collaborations, have a minor share in the cluster referred to social-oriented ones. In turn, it is dominated by sponsorships and corporate welfare initiatives.

The last granularization resulting from the implemented clustering model regards the integrative collaborations. Located at the top-right corner of the RPM matrix, and so characterised by bidirectionality of resources and at the same time operational process activation by both sides, such collaborations are the least deepened in the literature. Their very high complexity and also the lower numerosity of practical examples present in reality, made difficult for analysed scholar to propose further differentiation, i.e., find inner heterogeneity conditions. Actually, the present empirical research showed how the maturity of business firms in dealing with nonprofit actors and with related possibilities reached such a level that integrative examples rose up, being almost even to transactional ones. Moreover, clustering model was able to provide the needed lecture key in order to differentiate some patterns within this very variegate environment. In particular:

- **Cluster 1:** Joint design and implementation of activities having a social impact;
- **Cluster 7:** Multi-stakeholder environmental projects favouring sustainable development.

The pivotal dimension is so here the governance structure. In fact, the cluster 7 embeds the large majority of collaborations requiring not only a significant effort by business and NPO side, following the simplest dyad structure, but also the coordination of different actors. There were observed projects involving a variegate nature of players, from the public sector to the academic world. Usually this was needed as the sought impact is huge and so demanding capabilities that exceeds the ones owned by the two usual sides. Of course, such additional complexity represents a further step in terms of management difficulties and implications. In other words, it can be said that such multi-stakeholder projects are the culmination of the progression along the diagonal that accompanied the discussion characterising the present work.

In Table 50 the proposed taxonomy, constituting the answer to the presented research question, is summarised and presented as organic framework.

Collaborations' macro area	Classification	Cluster	Brief description
Philanthropic	Spot philanthropic collaborations	Cluster 0	Donor-recipient relationships, characterised by the simple, one-time transfer of generic resources from business side to NPO one
	Continuative philanthropic collaborations	Cluster 4	Donor-recipient relationships, characterised by the simple transfer of generic resources from business side to NPO one; such interactions are repeated over years
	Core business related philanthropic collaborations	Cluster 3	More complex donor-recipient relationships, in which the transfer of resources involves core products and/or capabilities of the involved firm(s), and the consequent activation of operational processes from that side
Transactional	Outsourcing of environmental-related efforts	Cluster 5	Firms bringing some of their environmental CSR efforts to completion by establishing a transactional relation with NPOs
	Outsourcing of social-related efforts	Cluster 6	Firms bringing some of their social CSR efforts to completion by establishing a transactional relation with NPOs
Integrative	Joint design and implementation of activities having a social impact	Cluster 1	A balanced in power relationship in which efforts are coordinated and directed to the design and implementation of socially impacting projects
	Multi-stakeholder environmental projects favouring sustainable development	Cluster 7	Projects arising from an ecosystem of different actors, coordinating themselves to design solutions fostering the general sustainable development goals, with particular attention to environmental sustainability

Table 50. Proposed business-NPO collaborations' taxonomy.

The positioning of identified groups in terms of resource-process matrix is then shown in Fig. 70.

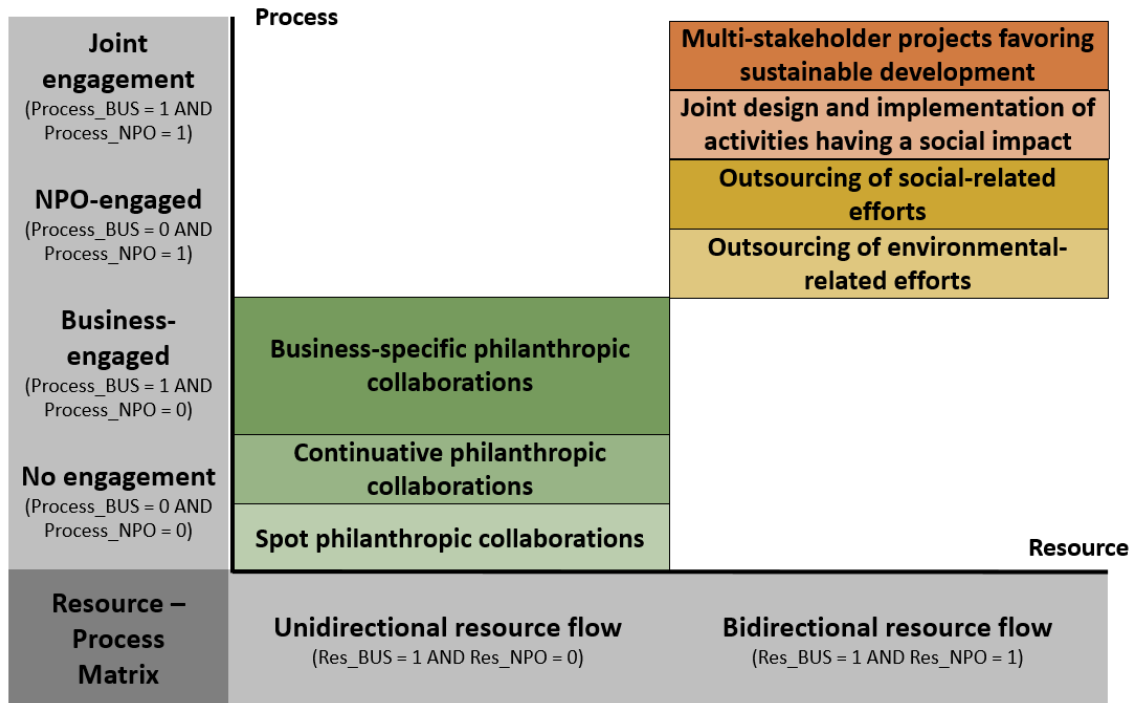


Figure 70. Proposed business-NPO collaborations' taxonomy within RPM framework.

Chapter 7

Conclusions

7. Conclusions

The research object of the present dissertation, articulated in two specific questions, regarded the understanding of the relevant dimensions in the analysis of business-NPO collaborations oriented to sustainable development, and the successive classification of empirically observable cases. In order to answer, an ad-hoc database was built, gathering information about the Italian landscape in terms of business-NPO collaborations, over the 2017-2019 period. This allowed to answer to a further research question, namely concerning the state-of-the art and the recent evolution lived by such phenomenon in the considered geographical boundaries.

In the following section, the answers provided throughout the presented discussion are summarised, also at the light of the limitations and barriers experienced during the different analyses. Finally, such lessons learnt are declined to be specifically oriented to the three main audience areas of this dissertation – managers, policy makers and scholars.

7.1. Summary of the results

The construction of the database, needed to have a broader empirical base rather than case studies, referred to a specific sample of firms. The starting point for the information-gathering phase was a subset of Italian listed sample, namely the ones listed in FTSE MIB and/or FTSE STAR indexes, not operating in regulated sectors nor in the financial one. Nevertheless, the variety of sectors covered by analysed firms and the importance of the considered indexes in the national landscape, suggested as reasonable to derive conclusions that can be representative of the evolution of the business-NPO collaborations phenomenon for what concerns the whole country.

Descriptive statistics analyses proposed allowed to answer to the following research question:

RQ3. What is the current landscape of business-NPO collaboration in the empirical context of Italian large, listed firms, in terms of size and distribution of the phenomenon?

The depicted scenario is a fast-growing one, interesting the majority of the sample firms. In fact, 56 firms out of the total 81 (69.1%) resulted to have undertaken in-scope collaborations with nonprofit actors, for a total of 437 observations over the 2017-19 period. The percentage of collaborating firms is similar to other studies reported in literature (Den Hond et al., 2015).

The temporal line was the dimension enabling the first characterisation of the national landscape. The growth rate shown by such collaborations is impressive, around +20% yearly. Overall, business-NPO collaborations resulted to be a phenomenon almost equally divided among long-lasting interactions (46.91%) and short-term ones (53.09%). This last resulted to be a very lively area, characterised by a considerable turnover. Such rates were

of 79.64% between 2017-2018 and 88.3% between 2018-2019. This latter aspect, together with the general growth of observations, depicts an incredibly dynamic scenario, in which firms are expected to strengthen and enlarge their collaborations' portfolio, or to build from scratch one in case of the did not before.

The adopted point of view is business-centred; therefore, some characteristics of those resulted to be collaborating were plotted against the whole sample, to verify the existence of some relation. The main trend identified in this sense regarded a positive correlation between the size of the firm and of its economic indicators and the tendency to the collaborations with NPOs. Collaborating firms showed on average higher metrics (the 31.5% higher production value, the 35.3% higher total assets and 34.9% higher for what concerns employees).

The analysis of such evolution over time was then refined: in particular, temporal basis was integrated with the geographical one and the one referred to the associated sustainability target. Collaborations whose activities are located in Italy showed the most important (+50% from 2017 to 2019) and monotonic growth among the different possibilities; developed economies and developing ones-based collaborations instead showed an overall – even if limited – growth; however, it was characterised by a non-monotonic fashion.

For what concerns the sustainability pillar of reference, a clear prominence of collaborations (77% of the total) targeting social issues and inequalities was identified; environmental-related (16%) and economic-related ones (7%) are minor in this sense. Such insight could be deepened by extending the analysis to involved NPOs too. Employing ICNPO classification, for each nonprofit actor one or more sectors of activities was identified. This allowed to better detail such social orientation prominence: in particular, health, social services and housing resulted to be the most targeted areas.

The employment of statistical description of the built database was not limited to the characterisation of the phenomenon in Italy. In fact, the analysis of the empirically observed combinations of relevant variables – namely, the transfer of resource and the activation of specific operational processes by each side – enabled to limit the 16 conceptually possible typologies of collaborations to just 5. The resulting resource-process matrix (RPM) was the foundation of the successive taxonomy development. In fact, the matrix is the framework within which the classification was developed, by adding to such variables other ones, that quantitative metrics related to clustering models determined to be pivotal.

This last statistical procedure allowed to answer to a further research question, namely:

RQ1. Which are the most relevant constructs in characterising business-NPO collaborations?

After several attempts progressively screening the variables' numerosity, according to meaningfulness and statistical quality criteria, the selected additional constructs were:

- The reference sustainability pillar, among social and environmental one;
- The centrality, so the measure of the closeness of fit between the collaboration and the firm's mission and objectives (Husted, 2003);

- The geographical scope of the collaborations' activities, if they are based in the reference country (Italy) or abroad;
- The temporal continuity, in terms of renewal of the interactions over years;
- The governance structure, distinguishing among collaborations undertaken by a single firm and a single NPO (dyad structure) and ones resulting from the interaction between a higher numerosity and variety of actors (multi-stakeholder structure).

As said, these dimensions constitute the answer to the first research question, about the relevant determinants in analysing business-NPO collaborations. More than the single variables, that as reported in Table 51 were for a considerable extent already proposed by other scholars, the original point of the present work is exactly such synthesis between different contributions.

Operative variable	Construct	Literature reference
<i>Process_BUS</i>	Operational processes	Selsky & Parker, 2005;
<i>Process_NPO</i>		Rondinelli & London, 2003
<i>Res_NPO</i>	Resource transfer	Austin (2000); Chatain & Plaksenkova (2019); Gray & Stites (2013)
<i>Soc</i>	Sustainability pillar	Selsky & Parker (2005),
<i>Env</i>		Rondinelli & London (2003); Wassmer et al. (2014); Lin & Darnall (2015)
<i>Central</i>	Strategic value	Husted (2003); Austin (2000)
<i>Italy</i>	Geographical scope	Selsky & Parker (2005); Kolk et al. (2008); Jamali & Keshishian (2009)
<i>Multi_Year</i>	Temporal scope	Dahan et al. (2010); den Hond et al. (2015); King (2007); Ordonez-Ponce et al. (2021)
<i>Multi_Stake</i>	Governance structure	Perez-Aleman & Sandilands (2008); Dahan et al. (2010); Selsky & Parker (2005)

Table 51. Adopted clustering variables and related literature references.

Moreover, as introduced, such choice is intrinsically bound up with the clustering model, and so the taxonomy development. The following research question can be so answered:

RQ2. Which are the empirically observable typologies of business-NPO collaboration, oriented to sustainable development, arising from the interaction of relevant characteristics?

Selected variables allowed the detailing of the space conceptualised by the RPM matrix, that just on its own was not capable of providing insights different from ones already observed in the literature.

In fact, the sectors of the RPM effectively resulting to be populated by empirical observations showed a very high degree of overlapping with Austin's (2000) three stages: philanthropic, transactional, and integrative. RPM sectors witnessing unidirectional resource flow, from business side to nonprofit one, were labelled as philanthropic; the one showing bidirectionality in resources but operational process activation exclusively by NPOs, transactional; finally, the one bidirectional in resource flow and also balanced in terms of process activation was defined as the integrative one. The set of relevant dimensions introduced before was needed to go beyond Austin's work, in terms of level of detail and granularization of such monolithic blocks.

Philanthropic stage resulted decoupled in three classes of business-NPO collaborations, namely spot philanthropic relations, continuative philanthropic relations and business-specific philanthropic relations. The first two clusters signal the relevance of the time duration in the analysis of traditional donor-recipient relationships, an aspect neglected in the reference literature. The third instead introduces a completely new realm of such interactions: collaborations where the donated resource is not generic, such as money or volunteering time of employees, but very specific and tailored according to the core business of the involved firms. Possibilities opened by such relationships are astonishing: NPOs can access very valuable resources, usually characterised by proprietary knowledge of the firms; in turn, they can strongly link their brand and their activity to NPO's mission, increasing the image return and the resonance of the collaboration. These aspects are neglected by the traditional discussion on philanthropic relationships, together with another one: the fact that, in order to be involved in such interactions, business side needs to activate specific operational processes. This is in contrast with the large majority of focused studies, affirming that philanthropic relationships do not require any process activation or involvement (Selsky & Parker, 2005, Austin, 2000).

Two transactional clusters were then identified: the one referred to the outsourcing of environmental-related efforts and the other to social-related ones. The discriminant was there clearly the reference to one sustainability pillar rather than another. However, a detailed analysis showed how much implication of the chosen target are important, especially in terms of forms then assumed by the collaborations. While environmental-oriented ones are mainly certification, by trusted NPOs, of the attention posed by the firms while designing and running their activities to environmental aspects, this does not happen for social-oriented ones. In these latter cases, what is outsourced is a service, i.e., an activity having a social impact that the business side is not able to run on its own. They range from

sponsorships of particular projects organised by NPOs to corporate welfare initiatives, designed to benefit firms' employees by means of courses, activities and services specifically oriented to them.

Integrative clusters represent probably the most original contribution of the presented work. In fact, being them the most complex interactions in the considered landscape, they are the least widespread and analysed literature. Moreover, the present research, and in particular the focus on the collaborations' forms embedded in such area, showed how, being them central – that is, again, very overlapped and linked to firms' missions -, the variety of assumed forms and identified targets is huge. The identification of patterns resulted so difficult for precedent scholars, which preferred so to focus on single case studies (Austin, 2000; Gray & Stites, 2013).

The proposed clustering model, by leveraging on selected dimensions, was instead able to identify some pivotal variable and so distinguish collaborations within the focal block. Namely, a cluster referring to the joint design and implementation of activities having a social impact and one to multi-stakeholder projects favouring in general sustainable development were proposed. Pivotal dimensions in the granularization resulted so to be again the reference sustainability pillar but also the governance structure. It was also interesting to discuss the correlation between those two aspects: environmental projects resulted to be for a very large extent multi-stakeholder ones as the related issues are more likely to require contributions at different level, by different forces.

The proposed taxonomy of business-NPO collaborations targeting sustainable development objectives, and so answering to the main research question of the present work, is so made of seven classes of interactions, three detailing the philanthropic realm, two the transactional one and finally two the integrative one. Table 52 summarizes such classification effort and related outcomes; in Fig. 71 the graphical representation of such clusters within the resource-process matrix is proposed.

Collaborations' macro area	Classification	Cluster	Brief description
Philanthropic	Spot philanthropic collaborations	Cluster 0	Donor-recipient relationships, characterised by the simple, one-time transfer of generic resources from business side to NPO one
	Continuative philanthropic collaborations	Cluster 4	Donor-recipient relationships, characterised by the simple transfer of generic resources from business side to NPO one; such interactions are repeated over years
	Business-specific philanthropic collaborations	Cluster 3	More complex donor-recipient relationships, in which the transfer of resources involves core products and/or capabilities of the involved firm(s), and the consequent activation of operational processes from that side
Transactional	Outsourcing of environmental-related efforts	Cluster 5	Firms bringing some of their environmental CSR efforts to completion by establishing a transactional relation with NPOs
	Outsourcing of social-related efforts	Cluster 6	Firms bringing some of their social CSR efforts to completion by establishing a transactional relation with NPOs
Integrative	Joint design and implementation of activities having a social impact	Cluster 1	A balanced in power relationship in which efforts are coordinated and directed to the design and implementation of socially impacting projects
	Multi-stakeholder projects favouring sustainable development	Cluster 7	Projects arising from an ecosystem of different actors, coordinating themselves to design solutions fostering the general sustainable development goals

Table 52. Taxonomy of empirically observable collaborations.

Joint engagement (Process_BUS = 1 AND Process_NPO = 1) NPO-engaged (Process_BUS = 0 AND Process_NPO = 1) Business-engaged (Process_BUS = 1 AND Process_NPO = 0) No engagement (Process_BUS = 0 AND Process_NPO = 0)	Process	
		Multi-stakeholder projects favoring sustainable development Joint design and implementation of activities having a social impact Outsourcing of social-related efforts Outsourcing of environmental-related efforts
	Business-specific philanthropic collaborations Continuative philanthropic collaborations Spot philanthropic collaborations	
		Resource
Resource – Process Matrix	Unidirectional resource flow (Res_BUS = 1 AND Res_NPO = 0)	Bidirectional resource flow (Res_BUS = 1 AND Res_NPO = 1)

Figure 71. Proposed taxonomy within RPM framework.

7.2. Managerial, academic and policy implications

Results have considerable implications for managers, policymakers and academic research. The importance of business-NPO collaborations was framed since the beginning, adopting the firms' point of view, within the boundaries of the broad concept of Corporate Social Responsibility (CSR) and business transformation. Business-NPO collaborations are emerging as a powerful strategic option within that umbrella. By descriptive statistics' results, at least Italian managers can be aware of the diffusion and growth of the phenomenon in Italian business enterprises. The taxonomy of business-NPO collaborations is a practical instrument to guide committed management boards in the construction of a complete collaboration portfolio. Such concept, firstly theorised by Austin (2000), retrieves the idea of brand portfolio, in the sense that its construction, balanced among "roles" and not interested by cannibalisation or conflicts among composing entities. To maximise the benefits from such interactions with nonprofit, deputed managers should be careful in covering the aspects and targets that are relevant to them. However, only one firm in the database covered the entire spectrum of collaborations.

In this sense, the framework proposed by this dissertation is an evolution of the Collaboration Portfolio by Austin (2000). It details – as it was its precise research direction – the stages (and so the typologies) previously identified and shared by almost all the reference literature. Managers' awareness is raised, both in terms of relevant dimensions in

assessing a collaboration with an NPO, and of expectations in terms of complexity and requirements for each typology of them. The taxonomy can be employed as an instrument to approach collaboration as well as, for firms that are already accustomed to it, a checklist to identify possible ways to improve. Understanding which areas of the RPM framework – and associated clusters - are not covered can be the trigger for directing additional collaborations to be undertaken.

The academic world and interested scholars are challenged by the present work. Identified gaps in the focal literature are clear and consistent, in particular the lack of studies based on large empirical samples. A possible direction in filling such missing knowledge is traced too: employ statistical techniques to process gathered information, to strengthen resulting proposals. The society is living the era of data: it is advisable to attempt to provide instruments to firms to foster the diffusion of such collaborations, providing consistent evidence at their support. During the discussion, it was mentioned several times the lack of similar studies to which compare what obtained for the Italian situation: the only similar paper was the one by den Hond et al. (2015), referred to Dutch case. The desirable spreading of such empirical studies would not only allow to better tune and compare approaches and results, but also to enable to extend derived conclusions out of national boundaries. A first ambitious goal can be to develop and compare a consistent number of studies referred to European Union, to be then compared with US situation, where the focal literature, despite of being exclusively based on case studies, has surely a stronger tradition.

On a policy level, the contact area is more subtle. The needed passage is way precedent to business-NPO collaborations and has its roots on the foundation of nonprofit sector itself. The public sector needs to recognise that exist a specific set of problems that it is not able to solve on its own (Defourny & Nyssens, 2010). Presented results highlighted how there is a clear predominance of social-oriented activities within the considered landscape; moreover, areas like health and social services resulted to be majoritarian in this sense.

Recognising the fundamental contribution that such interactions between the other two societal spheres can have on these areas, will hopefully push institutional actors to infuse all the possible efforts in creating the better conditions possible to make them thrive. Such conditions should be created by means of increasingly stringent general regulations in terms of environmental and social themes, that can push managers and firms to increase their CSR efforts. Another, more specific, lever that can be adopted is the increasing participation of the State in such interactions (multi-stakeholder ones). This can be useful not only in terms of more unique capabilities available for the success of the collaboration, but also in economic terms. In fact, the presented research showed how multi-stakeholder collaborations are often the interactions characterised by the highest rewards, but also risks: contributing to the economic efforts needed for their implementation, can contribute to increase the reward-risk ratio, making firms more confident in undertaking them.

7.3. Limitations to the present work

The results of the present work, although very interesting and contributing to fill not only some major literature gaps, but also to practically help managers in moving in the focal realm, are still not exempt to limitations.

The first one is the tight bounding to the limited sample. The complexity of the information gathering process, together with the a priori conceptual exclusion of some economic sector, did not enable the consideration broader firms' sample. What resulted are conclusions and descriptive insights based on the analysis of 81 firms tightly linked to a single country, Italy. It should be kept in mind while evaluating, for the moment, the direct extensions of provided instruments to other contexts.

In this sense, interesting future developments must take into account the extension of such numbers. Possibilities are wide in this sense. Future research can perform such expansions, i.e., considering the same 3-year period but analysing more and/or different firms, in terms of nations or sectors, or maintaining the same firms' sample but lengthening the considered time basis, or in both directions. In any case, the expansion of the database would come with the enlargement of the observations' sample, enabling a series of further statistical analyses, e.g., regression ones, that can open astonishing possibilities to the research.

Another desirable upgrade of the present research, strictly related to what discussed above, regards the information gathering process. The attention that the whole society is directing towards sustainable development matters (Linnenberg & Thorup-Jensen, 2014; Olanipekun et al., 2021; Albuquerque et al., 2019) makes the author confident in believing that the quality and the level of detail of future non-financial disclosures is going to continuously improve. However, what is left open is the question about the approach to be adopted towards firms not presenting such reporting. Top-5 national newspapers' archives were employed to fill such gaps, but it would be interesting to extend its exploitation to all sample firms, also in a sort of double-checking verification and possible deepening of such secondary sources. Again, the trade-off to be considered is the one about coverage, in terms of firms and/or years, and quality and completeness of the analysis. The hope is that the present work can open a methodological path that can be followed by more scholars, whose sum of original contributions can provide a more than satisfactory solution to that trade-off.

As discussed also in the previous Section, another limitation is the geographical bounding. Cooperation and discussion among interested scholars are crucial in creating instruments, like the presented database, progressively more complete and vaster. They can contribute to reduce the time of information gathering phase, and so to increase the one to dedicate to more and more complex and original analyses on such volumes of data.

Presented limitations and related next steps regard in particular the research phases that preliminary to the analyses. The literature review highlighted how the crucial gap is properly the foundation of analyses exclusively on case studies and not on more quantitative arguments on empirical, broader samples. However, case studies maintained their usefulness in obtaining more in-depth insights. They embed the unique possibility of

really assume the firms' and managers points of view, not only going in depth with the observations, but also behind them, to the reasons that led to the undertaking of that business-NPO collaboration. An interesting complement that can be brought to the presented taxonomy could be the further detailing of resulting clusters exactly by means of case studies. Possibilities are various also in this direction: cases of firms undertaking collaborations conceptual placed only in few, determined clusters can be studied, as well as those of firms instead presenting a more complete portfolio; multinational firms can be punctually analysed to investigate if and how the approach to the collaboration with nonprofit sector changes among countries.

The interest that the topic is arousing in different societal spheres should be directed towards more and more extensive and quantitative contributions. In this way, results will be progressively refined and broadened, contributing to fully realise the potentialities of business-NPO collaborations in the world we live in.

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Appendix A

In this Appendix are presented summary statistics for the employed economic and productive measures, for each of three considered years. In the first Table, values referred to non-collaborating firms (*Collab* = 0) are reported; the second Table is instead referred to collaborating firms (*Collab* = 1).

Tabled results work as foundation for the statement (Section 5.5.1.) about the better economic and production results shown by collaborating subsample rather than non-collaborating one.

	Average	Median	Minimum	Maximum	Std. Deviation
Production value @2019 [.000 USD]	2783944	648874.63	26051.64	28257323.63	5826897.2
Production value @2018 [.000 USD]	2746351	613518.54	22325.22	31824833.04	6096768.2
Production value @2017 [.000 USD]	2697053	638248.94	39088.77	35238542.06	6202077.7
Total assets @2019 [.000 USD]	5526156	903897.63	49663.26	91689649.26	15437594
Total assets @2018 [.000 USD]	5272021	900776.43	45536.67	91226296.21	15118910
Total assets @2017 [.000 USD]	4789954	754977.76	43396.65	82491422.59	13056133
Nr. of employees @2019	7267.635	1776	51	63499	14091.82
Nr. of employees @2018	7239.603	1744	49	64625	14226.86
Nr. of employees @2017	6806.079	1473	31	63356	13877.82

	Average	Median	Minimum	Maximum	Std. Deviation
Production value @2019 [.000 USD]	3660591	818851.77	66382.82	28257323.63	6721524.8
Production value @2018 [.000 USD]	3623549	855187.19	45749.64	31824833.04	7057369.9
Production value @2017 [.000 USD]	3556030	833260.15	75696.19	35238542.06	7194715.7
Total assets @2019 [.000 USD]	7478541	1142167.37	138022.27	91689649.26	18142872
Total assets @2018 [.000 USD]	7164756	1175600.72	115150.74	91226296.21	17780818
Total assets @2017 [.000 USD]	6454520	1013235	114105.11	82491422.59	15331408
Nr. of employees @2019	9803.909	2988.5	177	63499	16221.6
Nr. of employees @2018	9775.864	2806	180	64625	16393.6
Nr. of employees @2017	9189.114	2717	176	63356	16043.2

Appendix B

In this Appendix, the behavior of sample firms, for what concerns philanthropic collaborations, is summarised.

Only cluster 0	Only cluster 4	Only cluster 3	Clusters 0 and 4	Clusters 0 and 3	Clusters 3 and 4	All Philanthropic clusters
Avio S.p.a.	Aeffe S.p.a.	El.En S.p.a.	Aquafil S.p.a.	Amplifon S.p.a.	Telecom Italia S.p.a.	Cairo Communication S.p.a.
Carel Industries S.p.a.	D'Amico International Shipping S.p.a.	La Doria S.p.a.	Arnoldo Mondadori S.p.a.	IVS Group S.p.a.		CNH Industrial N.V.
Cembre S.p.a.	Ferrari N.V.	Tenaris S.p.a.	Biesse S.p.a.			Davide Campari – Milano N.V.
Italmobiliare S.p.a.			Brembo S.p.a.			Esprinet S.p.a.
Panariagroup			Centrale del Latte d'Italia S.p.a.			Moncler S.p.a.
Ceramiche S.p.a.			Fabbrica Italiana Lapis ed Affini S.p.a. F.I.L.A.			Orsero S.p.a.
Recordati S.p.a.			F.C.A Italy S.p.a.			Pirelli & Co. S.p.a.
Wit S.p.a.						Prysmian S.p.a.
Zignago Vetro S.p.a.			Fiera Milano S.p.a.			
			Gefran S.p.a.			
			Guala Closures S.p.a.			
			I.M.A. S.p.a.			
			I.G:D. – Siiq S.p.a.			
			Leonardo S.p.a.			
			Openjobmetis S.p.a.			
			Sabaf S.p.a.			
			Salvatore			
			Ferragamo S.p.a.			
			Servizi Italia S.p.a.			
			Sesa S.p.a.			
			Sogefi S.p.a.			
			STMicroelectronics N.V.			
			TXT e-Solutions S.p.a.			

Appendix C

In this Appendix, the behavior of sample firms, for what concerns transactional collaborations, is summarised.

Only cluster 5	Only cluster 6	Both
Brembo S.p.a.	Aeroporto Guglielmo Marconi di Bologna S.p.a.	Aquafil S.p.a.
Cementir Holding S.p.a. CNH Industrial N.V.	Cairo Communication S.p.a. Centrale del Latte d'Italia S.p.a.	Arnoldo Mondadori S.p.a. Fabbrica Italiana Lapis ed Affini S.p.a. F.I.L.A.
Pirelli & Co. S.p.a.	D'Amico International Shipping S.p.a.	Guala Closures S.p.a.
Prysmian S.p.a. Reply S.p.a. Salvatore Ferragamo S.p.a. STMicroelectronics N.V.	Davide Campari – Milano N.V. Digital Bros S.p.a. El.En S.p.a. Elica S.p.a. Esprinet S.p.a. Fiera Milano S.p.a. IGD – Siiq S.p.a. Isagro S.p.a. Italmobiliare S.p.a. IVS Group S.p.a. Marr S.p.a. Saes Getters S.p.a. Sanlorenzo S.p.a. Servizi Italia S.p.a. Sesa S.p.a. Telecom Italia S.p.a.	I.M.A. S.p.a. La Doria S.p.a. Leonardo S.p.a. Moncler S.p.a. Openjobmetis S.p.a. Orsero S.p.a.

Appendix D

In this Appendix, the behavior of sample firms, for what concerns integrative collaborations, is summarised.

Only cluster 1	Only cluster 7	Both
Aeroporto Guglielmo Marconi di Bologna S.p.a.	Amplifon S.p.a.	Aquafil S.p.a.
Cairo Communication S.p.a.	Atlantia S.p.a.	Arnoldo Mondadori S.p.a.
El.En S.p.a.	Brembo S.p.a.	CNH Industrial N.V.
Esprinet S.p.a.	Cementir Holding S.p.a.	Davide Campari – Milano N.V.
Fabbrica Italiana Lapis ed Affini S.p.a. F.I.L.A.	Guala Closures S.p.a.	Fiera Milano S.p.a.
I.G:D. – Siiq S.p.a.	Leonardo S.p.a.	I.M.A. S.p.a.
IVS Group S.p.a.	Prysmian S.p.a.	F.C.A Italy S.p.a.
La Doria S.p.a.	Recordati S.p.a.	Moncler S.p.a.
Orsero S.p.a.		STMicroelectronics N.V.
Pirelli & Co. S.p.a.		Telecom Italia S.p.a.
Saes Getters S.p.a.		
Salvatore Ferragamo S.p.a.		
TXT e-Solutions S.p.a.		
Zignago Vetro S.p.a.		

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