



“Candid climate efforts or empty promises?”

analyzing NSA's voluntary
commitments and efforts
D.V. Verheul

“Candid climate efforts or empty promises?”

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Preface

“Understanding anything is a process of learning what it does, how and why it works, how to create or modify it, and eventually how to convey that knowledge to others” (E. Ostrom, 2009)

Throughout the years, my interests have been drawn towards energy, climate change, policy-making, psychology, management, business and entrepreneurship. During my academic years, an internship and while setting up my own company, my affinity with these subjects was formed and confirmed multiple times. Since orientating myself for my thesis in October 2020, I tried to find a thesis topic which combines these aspects. This search for a topic which combines my interests ultimately led to what lies in front of you.

What lies in front of you is the thesis for completion of the master Complex System Engineering & Management (CoSEM) at TU Delft. My thesis is titled, *“Candid climate efforts or empty promises? analyzing voluntary SBTi commitment and efforts”*. A necessity to explore, as the predicted consequences when humankind will not reach the set-out climate targets and goals are considered severe. Hence, I hope that this research, yet on a very, very small-scale, contributes to offering more insights on how climate action can be interpreted and be better steered towards achieving our climate goals.

I would like to thank my chair Prof. dr. Kornelis Blok for presenting this topic to me in the beginning of November 2020. Due to your enthusiasm and interests I found this topic fascinating from the start. Moreover, I am glad that I was able to make use of your extensive knowledge and experience in the field of (corporate) climate action. Second, many thanks to my first supervisor, Prof. dr. Rolf Künneke. Your attentive listening, the critical discussions and encouraging words to put me back on track are highly valued. It was great to be able to work with someone who is so passionate about his field. I wish you the best after your emeritus. Lastly, I am grateful that Dr. Amineh Ghorbani decided to serve as a second supervisor within my committee. First of all, thanks for your involvement (even late in the evenings) and critical perspective. Second, thanks that you proposed your INA method to me, hereby allowing me to work with it, as well as develop the method a little further.

Also, the discussions between the author and several academics & analysts in the field, namely Prof. Dr. Dave Huitema, Prof. Dr. Kilian Bizer, Prof. dr. Philipp Pattberg, Dr. Takeshi Kuramochi, Dr. Sander Chan, Dr. Nicholas Reksten, Dr. Angel Hsu, Andrew Clapper MSc, Lena Güntermann MSc, Anna Melnyk MSc and ir. Batoul Mesdaghi, proved incredibly helpful. Thanks for all your valuable insights and explanations.

Moreover, I would like to thank Yasin Sagdur, Jasper Groenewoud, Rowan Huisman & Willem Wolleswinkel for our shared lunches, coffee meetings and their time to speak about my thesis. In addition, I am very thankful to Roos van Dooren, who provided extensive feedback on the final draft. This is greatly appreciated.

And last many, many thanks to my parents, for their continuous (financial) support and belief in me throughout my academic years.

All there is left for me to say is that I hope that you enjoy reading this thesis!

Dolf Verheul

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Summary

Introduction, theories and method

Climate change mitigation is now accepted as an urgent issue on the agenda of global powers. However, most of the policies for mitigating climate change have been implemented top-down by higher levels of governance and have not been as effective as anticipated. This can mainly be contributed to the ease of retraction by national entities, once these national entities foresaw that they were not able to achieve the set-out goals.

Therefore, to curb global warming, non-state actors (NSAs) are deemed to play an essential role. NSAs are defined as organizations not directed by or affiliated with the government and can range from municipalities to private cooperatives and NGOs. To date, an increasing number of non-state actors (NSAs) have voluntarily concluded upon climate action agreements. However, as NSAs commitment is on a voluntary basis, their actions are non-enforceable. As a result, it is unclear whether we can speak of 'candid efforts or empty promises'.

In order to better understand voluntary NSA climate action, this study applied an institutional economic lens. Institutions can be found at the center of this lens. Institutions are "the prescriptions that humans use to organise all forms of repetitive and structured interactions" (E. Ostrom, 2009). To narrow down our study, we have focused on one of the most prominent voluntary NSA climate agreements in place: the Science-based Targets initiative (SBTi). We have conducted case-studies for 3 Dutch food and beverage (F & B) companies, committed to the SBTi. Ultimately, we tried to find an answer on the following main research question:

How to understand the drivers behind the voluntary commitment and efforts within the science-based targets initiative (SBTi), from an institutional economic perspective?

First, we embedded ourselves in the work of Elinor Ostrom. Ostrom's institutional analysis lens allows to focus on institutions and the exploration of behaviour within particular social situations. Institutions can be formal (written down) or informal (used in the practices of everyday life). Both forms of institutions can incentivize or constrain particular behaviour, making it highly relevant within our case to explore the institutions in place. Even so, as institutions are not always in humans conscious minds, institutions can be transformed to institutional statements, being rules, norms or strategies.

Moreover, an Ostromian perspective can be characterized by her empirical research. Her research has (among other things) found that in order to create effective social situations, well-fitted institutional environments are fundamental. Within this study, the institutional environment is conceptualized to consist out of both formal as well as informal institutions affecting an organization. Therefore, to find an answer on our research question we proposed to explore the institutional environment. Besides institutions, we have also studied motivations for behaviour and the role of enforcement (monitoring and sanctioning). The former as NSAs must possess the right motivations to pursue substantive efforts. The latter as our starting position concerned the non-enforceability of NSA action.

However, understanding the institutional environment is complex. 'Institutional complexity' arises due to the connectivity -being interaction and interdependencies- between institutions. Hereby institutional relations are formed. *Institutional relations refers to the connectivity between institutions and thereby which impact institutions have on another as well as on the outcomes. Relations (may) exist between formal as well as informal institutions.* Institutional relations have two important aspects associated with them: institutional conflict and formation of institutional network. This study primarily focuses on relations, and the relations between institutions can form some sort of a network structure. Studying these networks and thereby the institutional relations is essential to understand aspects as listed above.

On that account, the goal of this research is first of all to unravel the institutional interrelations and complexities that arise in such settings. We do so by using the Institutional Network Analysis (INA) approach that builds on the Institutional grammar. The INA method offers the possibility to identify institutional relations and allows to analyze how formal and informal institutions relate to each other in a specific institutional environment. In addition, we focused on motivations and enforcement to explore their role and impact. Ultimately this allowed us to provide more insight on the question of candid climate action or empty promises.

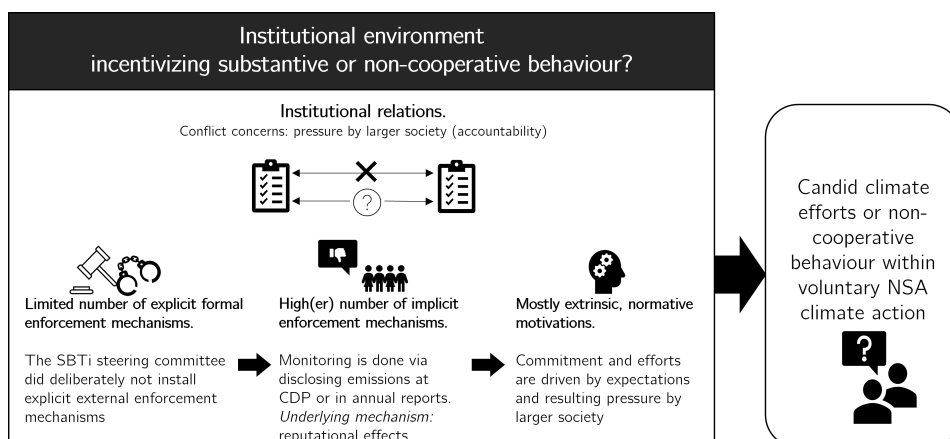
Results

From application of the INA method we concluded that the SBTi adds value as it makes members of the SBTi systematically work towards their set out climate goals. Moreover, we found that the formal institutions in place are mainly procedural and as such do not enforce action on the members. The SBTi steering committee has not installed tangible, formal sanctioning mechanisms. Similar to what the Dutch government has stated, the SBTi steering committee primarily leaves correction up to the larger society. The most important mechanisms which do enforce action are from a more implicit nature, resulting in a process of stakeholder accountability. While this has not been designed by the steering committee of the SBTi, shareholders and clients -not the parties themselves- exert an important pressure for participating companies to comply.

Besides, members are incentivized by extrinsic motivations to pursue candid efforts. This is mainly as stakeholders demands regarding climate actions are increasing. Examples are that members disclose their data as they want to be transparent to their share- and stakeholders. Despite that members state to highly value this transparency, parties also indicate that achieving higher scores on environmental ratings provides them with other benefits. Environmental performance seems to be increasingly becoming beneficial for a companies competitive advantage. To conclude: current members mainly pursue actions not based on stringent enforcement mechanisms but seem to do so by 'moving with the pace of the market'

All in all, our study must be seen as a rudimentary, exploratory study on understanding voluntary NSA climate action. Ambiguity still exists on whether these outcomes hold for all members of the SBTi and whether the behaviour displayed ultimately makes an (in)effective voluntary NSA agreement. Further research should explore other sectors, could apply other institutional economic theories and methods, or conduct the study with more researchers to overcome (cognitive) biases. Most of all, further research could try to explore whether -or under which conditions- the current institutional environment will result in long-term substantive behaviour, or if the pro-environmental efforts stop when the music of the market stops playing...

Final overview of the institutional environment. Source: Studies own findings



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Glossary

Within this glossary, important terminology is discussed, in order of presentation within our study.

Climate-action:

Executing plans or ideas to curb global warming at a maximum of 2 °C or an even more ambitious 1.5 °C. We refer to climate action as reducing CO₂ emissions or climate mitigation in general.

Non-state actor (NSA):

Organization not directed by or affiliated with the government, ranging from municipalities to companies and NGO's.

Voluntary climate agreement or initiative:

A voluntary commitment to fulfil particular climate actions. Mostly related to decarbonization, but above all related to reducing the impact of climate change.

Decarbonization:

Reducing CO₂ emissions

Greenwashing:

Organizations that mislead its stakeholders via green rhetoric while at the same time not acting out on that rhetoric.

Science-Based targets initiative (SBTi):

Within this agreement, targets are set by over more than thousand companies on the globe. The SBTi focuses on setting emission reduction targets. Leading companies can commit to these targets in order to decarbonize.

Institutions:

"The prescriptions that humans use to organise all forms of repetitive and structured interactions including those within families, neighbourhoods, markets, firms, sports leagues, churches, private associations, and governments at all scales" (E. Ostrom, 2009)

Institutional analysis and development framework (IAD):

The IAD framework is a mean to break (complex) social situations down to manageable components, hereby helping analysts to comprehend these situations (Polski & Ostrom, 1999).

Institutional grammar:

A structured syntax to formalize and dissect institutions and transform them to institutional statements.

Free-riding:

Acquiring the benefits from commitment to a particular social situation or agreement, while not contributing any resources to this situation or agreement.

Institutional Network Analysis (INA) method:

Network method that builds upon the IAD framework and draws heavily from the institutional grammar (Mesdaghi, Ghorbani & de Bruijne, forthcoming).

Scope 1,2,3 emissions:

Scope 1 emissions refer to the direct emissions from production activities of a company. Scope 2 emissions comprise the emissions as a result of the electricity that is been used. Scope 3 emissions are the emissions within the whole supply-chain. The latter are seen as most difficult to reduce.

Problem Introduction

“The familiar slogan ‘Think Globally but Act Locally’ hits right at a major dilemma facing all inhabitants of our globe” (E. Ostrom, 2014)

At the end of this chapter, we hope to have provided enough context why the quote above is located there in the first place. To do so, section 1.1. describes the broader context of climate action in the year 2021. In section 1.2. we will define the current knowledge lacunae. Section 1.3 covers our central problem, our research objectives and the main research question. Then, in section 1.4. we will elaborate more upon our research approach and present the sub-questions. Section 1.5. will address the link with the MSc programme Complex System Engineering & Management at TU Delft. Lastly, section 1.6 will provide the global outline of our research.

1.1. The larger picture: essential non-state actor efforts to mitigate climate change

Most of the observable increase in the earth's global average temperature is very likely to be caused by an increase in greenhouse gas concentrations. We have reached scientific consensus that this increase can mainly be contributed to human behaviour, and then primarily due the burning of fossil fuels. From all the greenhouse gases emitted, carbon dioxide or CO₂ can be seen as having the most impact¹ (Intergovernmental Panel on Climate Change, 1990); Environmental Protection Agency (2021))

As a result of these greenhouse gas emissions (CO₂ above all), the globe is warming and the earth's climate is changing. Climate change is predicted to have irreversible consequences for humankind (IPCC, 2014); Woetzel et al. (2020)). Examples of these consequences are floods due to the accelerated rise of the sea level or oppositely, higher levels of drought, mostly within poorer areas (IPCC, 2018b). Other related, projected impacts are food insecurity and severe impacts on human health (World Health Organization, 2011). Conceivably, there is an increasing urgency to combat climate change as it's predicted to have appalling consequences.

To combat climate change, humankind must pursue both adaptation as well as mitigation strategies (World Resource Institute, 2020). The IPCC (2007) defines adaptation as the “adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities”. Mitigation on the other hand can be explained as “curtailing greenhouse gas emission to lower the likelihood that bad states of nature occur” (Kane & Shogren, 2000).

In essence, adaptation and mitigation strategies are interrelated and complementary (IPCC, 2018c). However, as also noted by this same IPCC, without mitigation, the magnitude of climate change will be

¹This large impact is not dependent on the ‘strength’ of CO₂, as other gases have a stronger greenhouse effect (e.g. methane or fluorinated gases). It has such a large impact as it's atmospheric concentration in contrast to all greenhouse gases is by far the largest (IPCC, 2018a)

so large that adaptation becomes impossible. From a more ethical perspective, two reasons why mitigation must be pursued and even may be seen as prevalent over adaptation are offered by Jamieson (2005). First of all, as the effects of climate change remain uncertain, slowing down the process of this change arguably is more beneficial than adopting afterwards. Second, when mitigating successfully, those who have polluted the most can be held responsible for their actions. Last, from a general economic perspective, Stern et al. (2006) in their Stern Review assert that the benefits of mitigation and early action largely offset the costs of not acting. Thus, not to underestimate the importance of adaptation, yet for these reasons our study will focus on mitigation.

In the past, climate change mitigation actions were mostly centrally orchestrated by international politics and policy-making or perceived as such (Bulkeley and Moser (2007); Bernauer and Schaffer (2010)). We will refer to this central, hierarchical steering as 'top-down' steering. However, most of these policies for mitigating climate change have not been as effective as anticipated. This can mainly be contributed to the ease of 'retraction' by national entities, once these national entities foresaw that they were not able to achieve the set-out goals (Chan et al., 2021). An example of such a 'failure' is the top-down steered Kyoto Protocol, which was not able to generate the desired outcomes (Prins & Rayner, 2007). Possibly this was one of the reasons why climate action has (implicitly) also gradually shifted from top-down steering towards different resolutions (Gouldson, 2004); Sabel and Victor (2017)).

These different resolutions are referred to as 'decentralised' action and orchestration of climate action. Instead of one single authority, which -on a top-down basis- sets out the direction, more cooperative, so called bottom-up processes have gained importance. With bottom-up we mean a process where actors, located at the proverbial bottom, work and cooperate to plan and execute particular actions. These actions move through different layers, all the way to the top. One of the most eminent situations where this change within the climate mitigation practice is displayed, is within the United Nations Framework Convention on Climate Change (UNFCCC). Falkner (2016) noted that the original UNFCCC (in place since 1992) has throughout the years shifted from more top-down towards 'catalytic and facilitative' bottom-up processes.

These bottom-up practices were later also incorporated in the fundamental, global 'mitigation effort and commitments' of the Paris agreement (United Nations, 2015). Once the agreement was finalized, John Kerry, US secretary of state at the time, spoke of a 'tremendous victory' for all citizens, the planet and future generations (Clark & Stothard, 2015). As has been described by Kuyper et al. (2018), the Paris agreement is standing at the center of climate action efforts pursued by the global community. By ratifying this agreement, countries agreed to aim at globally 'phasing-out' greenhouse gas emissions by 2050. The ultimate goal is to "limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels" (UNFCCC, 2016).

We agree that at first appearance 'Paris' still seems a very top-down steered process, as national actors stay responsible for achieving particular goals. Nonetheless, during and before the construction of this transnational agreement, a 'groundswell' of bottom-up climate mitigation (and adaptation) action was evolving (Chan, van Asselt, et al., 2015). With groundswell, we refer to the mobilisation of bottom-up actions. Arguably, the Paris agreement turned out to be a 'major inflection point' around this mobilisation of bottom-up climate action (T. Hale et al., 2020). This as the Paris agreement openly invited other parties besides national governments, to scale up their ambition (United Nations, 2015).

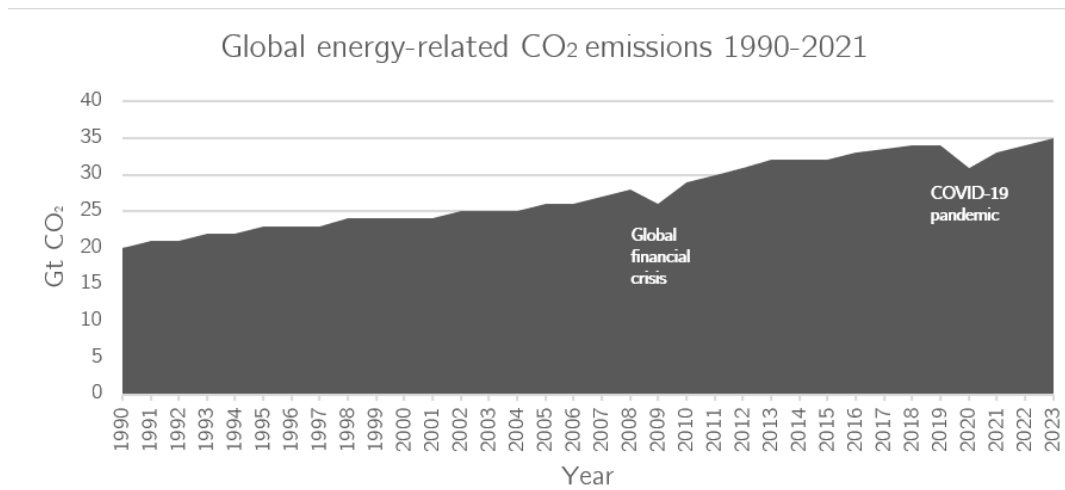
As a matter of fact, these bottom-up climate actions are to date pursued by a broad range of actors. From now on we will refer to this bottom-up climate action as non-state actor (NSA) climate action. NSAs are defined as:

Organisations not directed by or affiliated with the government, ranging from municipalities to private cooperatives and NGOs (Hsu et al., 2020a)

These bottom-up NSA actions are essential, as national actors are not on track to reach their goals. An emission gap (a term borrowed from UNEP (2010)) exists. The emission gap refers to the difference between national pledges to reduce their greenhouse gas emissions and "what they need to do collectively to meet agreed temperature goals — the 'gap'" (Höhne et al., 2020). To date, emissions do

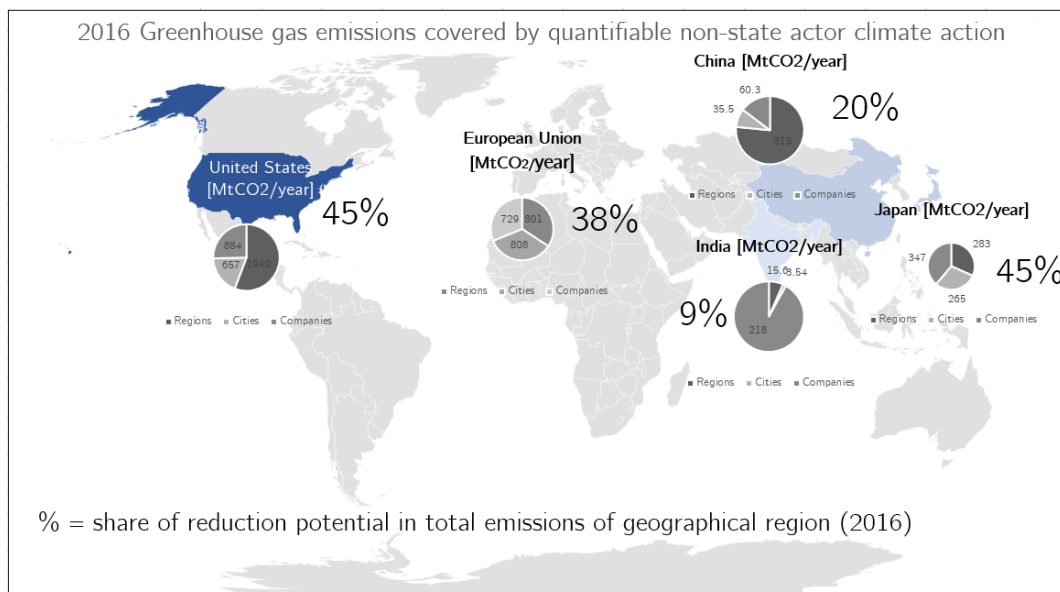
not depict a clear reduction pathway (as can be seen in figure 1.1). Thus, to make sure global warming will stay below 2 or preferably 1.5 degrees Celsius, other forms of climate action are crucial and must be incorporated within global climate action (Hsu et al., 2018); Hsu et al. (2020b).

Figure 1.1: Global emission energy-related trend, based on IEA (2020)



NSA climate action must be perceived as instrumental for reaching global climate goals. First of all, T. Hale et al. (2020) asserts that NSA climate action contributes to mobilization of the resources, boosts the political will of governments and drives change in technological and economic systems. Second, as long as the scale of actions is large enough, these decentralised efforts can contribute a large share towards closing this emission gap (Chan et al., 2021). As a small example, Hale (2016)’s review of multiple quantification studies showed that the mitigation potential of a small set of NSAs, is “to be in the range of 2.5–4 billion tons Gt [(Gigaton)] of CO₂ by 2020, more than India emits in a year”. Different studies such as by UNEP (2014), Roelfsema et al. (2018), Kuramochi et al. (2020) or Chan et al. (2021) all conclude that climate change can de facto not be combatted without the participation of NSAs (an overview of NSA climate action potential is provided in figure 1.2). All in all, a global problem arises once NSAs will not execute their proposed climate action (Hsu et al., 2017).

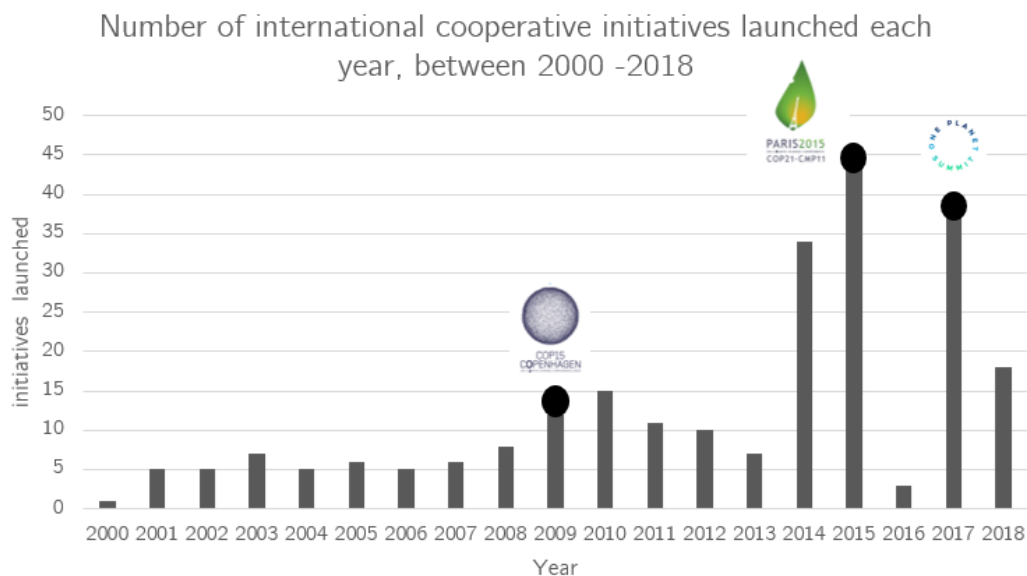
Figure 1.2: Potential of individual NSA climate action in the 5 largest global zones, based on Kuramochi et al. (2020)



1.2. Problem statement: voluntary NSA agreements and candid climate efforts by private parties

As their potential is large, it stems hopeful that NSAs willingness to mitigate climate change seems growing. We primarily come to this derivation, as an increasing number of NSAs have committed to climate action initiatives or agreements (Cole, 2015); Hsu et al. (2020a). Within this study, we will make use of initiatives and agreements interchangeably. Most initiatives have been launched close to international climate summits, with a peak around 'Paris' (see figure 1.3). Climate action initiatives are orchestrated in different forms, varying from cooperation among NSAs to variants which involve national governments. Moreover, the goals committed to can differ. Goals can range from concrete to no specified actions at all. An example of a concrete action is reaching a particular emission reduction level. Ergo, these international initiatives vary in their impact, but also in their scope (Hsu et al., 2020b) T. Hale et al. (2020)).

Figure 1.3: NSA initiatives launched till 2018, based on Climate initiatives platform (2018) & NewClimate Institute and PBL (2018)



Three examples of the aforesaid international climate action agreements are the Science-Based Targets initiative (SBTi), the Oil & Gas climate initiative (OGCI) or the Covenant of Mayors. We will briefly elaborate upon these initiatives due to their different foci and diverse groups of actors committed to them (public versus private). First, the SBTi is one of the earliest transnational NSA initiatives to apply quantified goals in order to realize CO₂ emission reduction². In 2020, more than 1000 companies have committed to the SBTi. Between 2015 and 2019, the SBTi committed parties have reduced a combined amount of 302 Mtons (Megatons) of CO₂. This is equal to 78 coal fired power plants (Science Based Targets Initiative, 2019a). Second, the OGCI has a clear sectoral focus and strives to “accelerate the [oil and gas] industry’s response to climate change” (OGCI, 2017). Committed parties of the OGCI mainly include large oil and gas companies, such as Exxon-Mobil or Saudi-Aramco. Third, the Covenant of Mayors is a movement which involves local public authorities, who have committed to “increase energy efficiency and the use of renewable energy sources within their territories” (Pablo-Romero et al., 2015). All in all, besides these three, an even larger variety of both public and private initiatives exists. Still, the most prominent ones are often sharing this same goal of decarbonization.

To date, multiple studies have quantified the overarching decarbonization potential of different transnational NSA climate action initiatives. In 2012, Blok et al. (2012) found that 21 NSA initiatives have the potential to reduce global carbon emissions with 10 GtCO₂ (Gigaton) by 2020. Graichen et al. (2017)

²We refer to personal communication with Prof. Dr. Kornelis Blok as a source

within their study for 19 initiatives found a potential between 5-11 GtCO₂, only then for 2030. The study of Kuramochi et al. (2020) shares similar findings. As noted, we see an increasing number of NSAs committing to voluntary agreements, which are estimated to have a large emission reduction potential. As also discussed before, in case these reductions are achieved, the emission gap can be bridged.

Nonetheless, this is not the end of the story. Despite that these quantification studies are an valuable step forward, the current knowledge base is incomplete. Therefore, exploring the gaps in current academic literature is crucial. While evaluating the reduction potential is a first step, it is highly uncertain what happens or needs to happen in order to fully exploit this decarbonization potential. This especially holds within the domain of individual, private actions.

First of all, uncertainty arises based on one characteristic which holds for all these commitments to NSA agreements: they are made on a voluntary basis. This 'voluntariness' makes parties free to participate, yet they are expected to limit their scope of action on an intentional basis (Croci, 2006). With scope of action we mean all their activities (or activities related to their actions), which are mostly emitting greenhouse-gases. Thus, by limiting their scope of action, greenhouse-gas emissions are likely lowered and hereby their impact and harm on the environment is reduced.

Most often, when speaking about a voluntary agreement, scholars refer to an arrangement between public authorities and it's private counterparts. When making use of this definition, 'voluntary agreements' (hereafter VAs) have been frequently studied, depicting mixed results (Bodin, 2017). Certain environmental VAs, such as energy-efficiency programs in the Netherlands have proven to be very successful (Cornelis, 2019). Other VAs are seen as symbolic and do not produce any tangible results. For example, from Cashore et al. (2007) analysis (among others) on the forestry sector it follows that VAs have resulted in a "Wild West' climate in which illegal logging is so rampant that it is estimated to be, in many countries, higher than the legal rate". Nonetheless, for the case of voluntary NSA climate action, the definition of the term 'voluntariness' is different. NSAs increasingly commit to agreements which are not initiated by themselves or a public authority, but by third-parties or NGO's.

We already discussed several studies which focused on evaluating and comparing the potential of different NSA initiatives combined. In case individual NGO initiated initiatives have been analyzed, the focus mostly lied on public, as opposed to private oriented NSA initiatives. Explorations of e.g. the Covenant of Mayors have been conducted by Croci et al. (2017) and Kona et al. (2018), amongst others. In addition, some research has explored the urban domain. Multiple authors such as Rosenzweig et al. (2011), Lee and Koski (2015) and Creutzig et al. (2020) have dedicated their time to scrutinize the impact and role of urban climate actions. In the end, the private actions therefore remain somewhat underexposed.

Nonetheless, it is especially relevant in our view to explore this private organizational dimension (companies). After all, private corporations are deemed to play a fundamental role in covering for the global greenhouse cuts and the emission gap (Taebi & Safari, 2017). Second, as put forward by Stern et al. (2006), private parties such as businesses are large polluters and have also profited at the expense of the larger society through almost costless pollution. Therefore they note that companies face a moral responsibility to reduce their greenhouse-gas emissions.

As we did not encounter many research which has evaluated the role of companies within international climate action initiatives our first knowledge gap is:

Knowledge gap 1. While transnational, public initiatives and actions have been analyzed more extensively, ambiguity exists regarding the role of private NSA climate action initiatives

When initially addressing this corporate dimension, an explanation for their voluntary commitment and later efforts could lie in the emerging motivation or need for companies to depict pro-environmental and environmentally responsible behaviour (World Economic Forum, 2020). This has for example also been argued by Nigel Topping (2019), one (out of two) of the worlds high level champions for climate

action³. They are appointed by the United Nations. As a result of this need for companies to pursue climate action, there has also been an increase in the need for companies to be transparent. And by being transparent, companies can, in essence be held accountable.

However, the question arises how committed NSAs (such as companies) are held accountable and by whom. After all, voluntariness results in responsibility of and for actions only lying in the hands of individual enterprises themselves – thus without third party intervention (Lewicka-Strzalecka, 2006). Correspondingly, NSA agreements are non-enforceable while enforcement (monitoring and sanctioning) of actions is seen as essential to reach outcomes within joint agreements (Glachant, 2007). Due to this absence of enforcement, it is difficult to evaluate symbolically cooperating firms as compared to the parties cooperating substantively within a VA (M. A. Delmas & Montes-Sancho, 2010).

As has been argued by Doh and Guay (2006) and Campbell (2007), the behavioural drivers and mechanisms for a company's commitment and efforts are unclear. Even though companies may report their environmental actions within annual reports or voluntary commit to initiatives such as the SBTi, their rhetoric may be different than their behaviour. An increasing number of companies has been accused of inaction or of misleading consumers about their environmental accomplishments (M. A. Delmas & Burbano, 2011); Gatti et al. (2019)). The latter is also referred to as greenwashing. Based on the lack of enforcement combined with unknown behavioural drivers, "an important challenge of such voluntary approaches is how to ensure compliance with the agreed upon commitments, while avoiding greenwashing" (Taebi & Safari, 2017).

Hence, are private NSA commitments and thereby efforts to voluntary agreements symbolic? Or do actors pursue candid climate efforts? And if they choose one or the other, why do they do so? Is their behaviour motivated by the desire to improve and monetize their 'competitive advantage' as compared to others (Whelan & Fink, 2016)? Is it based on internalized environmental values? Or lastly, did the growing societal environmental awareness result in stake- or shareholders holding NSAs (successfully) accountable? In the Netherlands, a large pension fund (149 million euro of shares⁴) is already supporting a climate resolution against Shell (Financieel Dagblad, 2021b).

To conclude, Chan, Falkner, et al. (2015) emphasize that it is unclear whether we can speak of candid efforts or empty promises within NSA climate action. As put forward by Hsu et al. (2020b): "a major question with respect to sub-national and non-state climate commitments is their performance and whether actors are making progress towards stated goals". Do actors symbolically commit to an agreement and afterwards show non-substantive, or even worse, more destructive behaviour? Or are candid climate efforts pursued? Thus far no research has extensively explored this behavioural dimension for the case of voluntary NSA climate action. Hence, as it is unclear which behaviour is displayed by actors within a voluntary NSA agreement and why this is so, our second knowledge gap is:

Knowledge gap 2. *Due to being non-enforceable, ambiguity arises which behavioural drivers play a role in commitment and substantive efforts pursued within voluntary NSA climate agreements*

1.3. Our research: problem, objective and main research question

Against the background of the urgency to collectively reduce global greenhouse gas emissions, we derive the conclusion that it is crucial to take a further look 'under the hood' of voluntary NSA agreements. Within this section we will present our central problem statement (1.3.1), research objective (1.3.2) and scope & main-research question (1.3.3)

1.3.1. Central problem statement

Climate change mitigation is accepted as an urgent issue on the agenda of global powers. However, most of policies for mitigating climate change to-date have been implemented top-down by higher levels of governance and have not been as effective as anticipated. Therefore, non-state actors (NSAs) are

³The role of the high-level champions is to strengthen collaboration and drive action from businesses, investors, organisations, cities, and regions on climate change, and coordinate this work with governments and parties to the United Nations Framework Convention on Climate Change" (International Science Council; 2021)

⁴Pensioenfonds Zorg & Welzijn (2021)

now being considered as complementary actors in order to allow for a more decentralized approach for climate change mitigation. NSAs are defined as organisations not directed by or affiliated with the government and can range from municipalities to private companies and NGOs. To combat global warming, non-state actor climate action is deemed instrumental. Ergo, as an increasing number of NSA have committed to voluntary agreements, it is fundamental to explore in which way current NSA VAs translate into (in)effective climate action. This particularly holds for the private dimension, being companies.

As such, we can crystallize the main uncertainties regarding voluntary NSA climate action. Due to its voluntariness, it is first of all uncertain whether and why actors will commit (participate). Furthermore it is uncertain whether a commitment will be honoured and 'substantive' efforts are indeed undertaken (Friedberg & Crozier, 1980); March and Olsen (1989)). Are NSAs VAs merely offering a beacon of hope for non-contributing participants, making their commitment an empty promise? Or do committed actors pursue candid climate efforts? This dispute will form the basis of our research, which is captured in our central problem statement:

An increasing number of private non-state actors have voluntarily committed to climate action, however it is uncertain what the processes are underlying their commitment and efforts pursued

1.3.2. Research objective: institutions and institutional economics

Dissecting the central problem statement, we expect to find different forms of behaviour displayed within these agreements. This behaviour is to be impacted by social structures and the motives of the committed members. Therefore, exploring the underlying structures can provide answers on the drivers for commitment as well as behaviors displayed within voluntary NSA agreements.

Within literature, these 'social' structures are referred to as institutions. Noble-prize winner Elinor Ostrom refers to institutions as:

"the prescriptions that humans use to organise all forms of repetitive and structured interactions including those within families, neighbourhoods, markets, firms, sports leagues, churches, private associations, and governments at all scales" (E. Ostrom, 2009)

Institutions coordinate⁵ social or economic interaction of humans. An example of such a situation is combatting climate change via mitigation efforts. Thus, it is unclear how institutions coordinate the behaviours and thereby structure social interaction within the situation of collective climate action.

To analyze the role of institutions, we will take in an institutional economic perspective. Institutional economics allows to explore the fundamentals and phenomena why people behave in the way they behave. V. L. Carpenter and Feroz (2001) argue that this perspective "views organisations as operating within a social framework of norms, values, and taken-for-granted assumptions about what he constitutes appropriate or acceptable economic behaviour". Institutional economics 'general theory', if it has one, "would be a general theory indicating how to develop specific and varied analyses of specific [socio-economic] phenomena" (Hodgson, 1998).

All in all, this study aims to be a first step in performing an institutional economic analysis to better understand voluntary NSA climate action. We aim to explore causes why actors do or do not execute particular actions, and what the role of institutions are herein. To conclude upon all this, the objective within our research is to identify and provide understanding for the phenomenon of voluntary NSA climate action.

1.3.3. Scope and main research question

To provide an answer to our central problem statement, we need to narrow it down. Therefore, within this study, we will explore one of the NSA VAs, the Science-Based Targets initiative (hereafter SBT agreement or SBTi). The Carbon Disclosure Project (CDP), one of the SBTi 'founding' and steering parties, has titled the SBTi the "largest global collaborative engagement campaign" (CDP, 2020b). The

⁵Structure the interactions: the interdependent actions as well as general decision-making between numerous actors (Scholten & Künneke, 2016); Koop and Lodge (2014))

SBT agreement aims to provide ambitious, combined efforts towards reducing CO₂ emissions. And the potential is present. A quantitative study of this ambition by Lui et al. (2020) shows that the SBTi - in case 2000 companies commit- has a potential of reducing 2.7 GtCO₂e per year.

Ultimately, within this study we try answer the following main research question:

How to understand the drivers behind the voluntary commitment and efforts within the Science-Based Targets initiative (SBTi) from an institutional economic perspective?

This question is located at the center of a first, empirical exploration focused on the drivers underlying voluntary NSA climate action. We will apply an institutional analytical lens aiding us in this exploration. This lens is predicted to result in better insights in the behavioural drivers within NSA climate action. Within our study, 'how to understand' is chosen as we do not aim to define strict causal relations, yet we will take a first look 'under the hood' of the SBTi. Last, underlying this main research question we try to explore the following, more implicit question: *why do members commit and why do or don't they pursue candid climate efforts?*

1.4. Detailed research approach

To answer our main research question, we have drafted several sub-questions, which we will present in section 1.4.1. All sub-questions belong to a designated chapter within our thesis. Moreover, to find answers we have opted to make use of a case-study approach, where we will elaborate upon in section 1.4.2

1.4.1. Sub-questions

We will first expand on the drafted sub-questions and our approach to answer them:

1. *How to specify an institutional economic perspective for the case of voluntary climate action?*

Within chapter 2, we will first discuss an (Ostromian) institutional economic perspective in more detail. This is followed by further elaborating upon the core-component underlying institutional economics: institutions. Then, for conducting institutional analysis, the Institutional Analysis & Development (IAD) framework can be seen as the main theoretical framework, which allows to discover and evaluate social actions and phenomena (E. Ostrom, 1990a). We will finalize by presenting the Institutional grammar.

Afterwards, the institutional dimension of climate action will be elaborated upon. Eventually this will result in our proposition to strive for improving our understanding of the institutional environment. With institutional environment we mean the larger context which is made up out of different institutions. In the end, as institutional environments may depict network characteristics, we will finalize this chapter by presenting our network-based method applied within this research.

2. *How to systematically represent and analyze the institutional environment for the case of voluntary climate action?*

Within chapter 3, building upon the theoretical notions from chapter 2, we will present and discuss a systematic (network-based) method for institutional analysis. This is the Institutional Network Analysis (INA) method, as developed by Ghorbani et al. (2020) & advanced by Mesdaghi (2020). The INA method can be used to visualize and explore the institutional environment of social settings, such as voluntary climate action. Applying this systematic method is expected to result in deeper understanding regarding the role of institutions and the working of the SBTi agreement.

3. *How does the context and institutional environment of such a voluntary climate agreement look like?*

In chapter 4 we will study the context and institutional environment, based on the outcomes of the INA method application. A case-study approach is used to explore and better understand the behaviour of SBTi members. To successfully conduct these case-studies, extensive data-collection

is needed. Data will be collected via desk-research and interviews. Afterwards, we will try to identify institutions. This process ultimately leads to visualizing and later study the institutional environment.

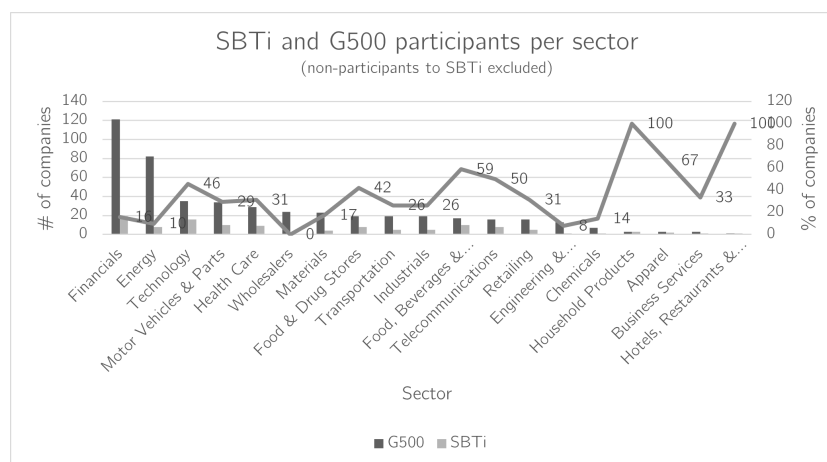
4. Which analytical insights can be derived to understand and possibly improve the SBTi?

Once the institutional environment is visualized and described, we aim to provide insights based on analyzing our study's outcomes. In chapter 5 we will explore which and how institutions impact the efforts and behaviour of the SBTi members. Hence, we will analyze the outcomes, provide insights and design possible improvements for the institutional environment.

1.4.2. A case-study approach

Case-studies are insightful when behavioural aspects of actors are unclear (Yin, 2013). Within this study we will perform case-studies for 3 food and beverage (F & B) companies active within the Netherlands⁶ participating in the SBTi agreement on March 1, 2021. These are Heineken NV, Corbion and Farm-Frites (Science Based Targets Initiative, 2019b). We decided to explore these cases, as the F & B sector seems to have a pro-environmental attitude. Next to the fact that this sector has been the most active in incorporating scope 3 emission targets (seen as most difficult to reduce), 59 % of the actors who are also recognized in the Global 500, have committed to the SBTi (New climate Institute, 2020a); Ruiz (2021)). Arguably other sectors score a higher percentage, yet in that case only a handful of actors (sometimes even 1) are listed / are committed to both agreements (see figure 1.4).

Figure 1.4: Sectoral participation in SBTi and being recognized in G500 based on Ruiz (2021)



1.5. Link with Master Program

The MSc programme Complex System Engineering and Management (CoSEM) is a broad study-program at the faculty of Technology, Policy & Management of the T.U. Delft. The program allows students to study system engineering, economics and technical & societal dilemmas. This thesis is aligned with the CoSEM program due to three aspects: the relation study-program & topic, choice of theories & methods and our aim.

First, as is already hinted towards in the name, the CoSEM program concerns analysis of complex systems. Following Koppenjan and Groenewegen (2005), we argue that our research concerns the characteristics of a complex system, being: (1) the behaviour of actors plays an important role next to technological components; (2) we can speak of multiparty or multi-actor situations; (3) Both public as private parties are involved or have an impact on the system; (4) these systems can both be influenced by governmental aspects as well as market forces. Hence, regarding the relation study program-topic, we agree with Eslamizadeh et al. (2020) that the energy transition comprises large complexity within

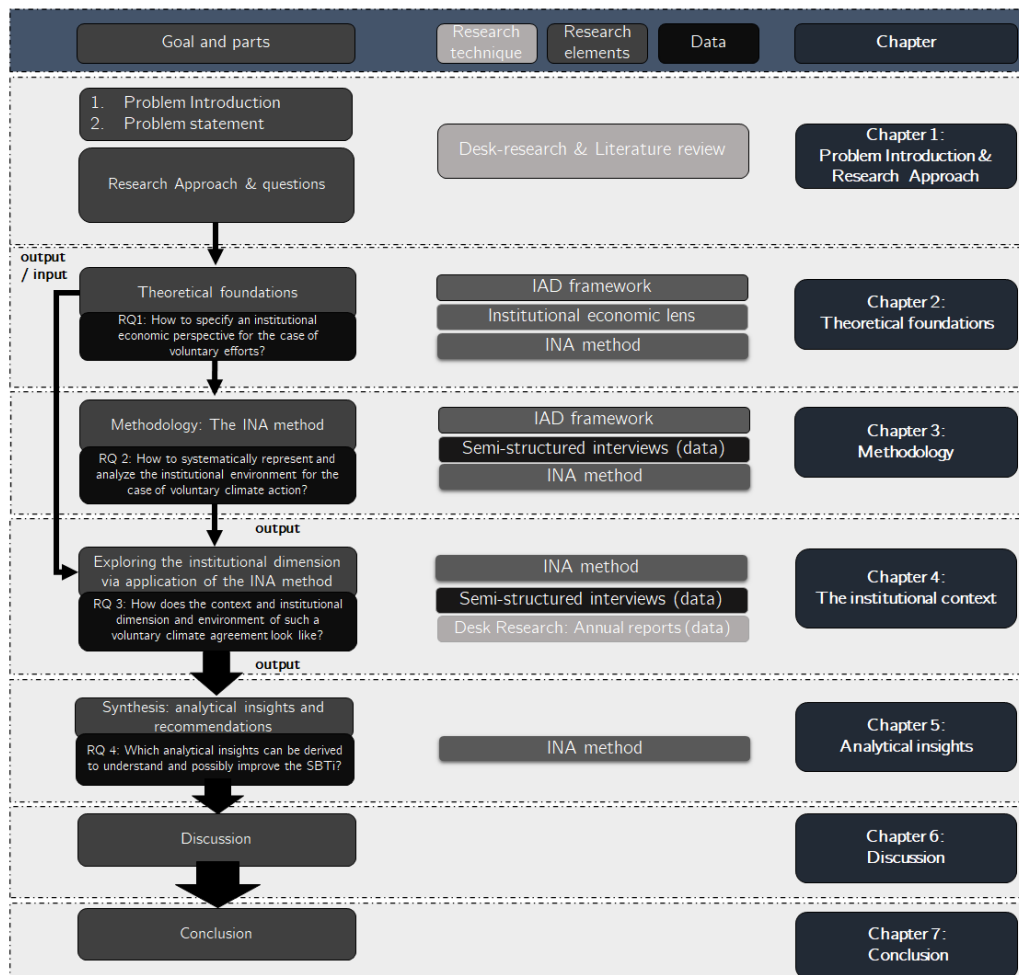
⁶We have not scrutinized Friesland-Campina, as we were not able to conduct data-collection that suffices

a socio-technical system⁷. In addition, Levin et al. (2009) argue that climate change must be seen as a “super-wicked” problem. Because our topic comprises both the energy transition as climate change, we feel the word complex is covered for. Secondly, the institutional economics theories and methods chosen and applied are strongly related to the CoSEM program. Thirdly, we aim to compare theories, evaluate policy recommendations and design for an intervention within the system of choice: the SBTi agreement. This aim resounds in the aim of the original CoSEM study-programme as well.

1.6. Thesis structure: Research-Flow diagram

The outline of our thesis is visualized by our research-flow diagram (RFD). The RFD (Figure 1.5) portrays the goals, the questions, research techniques, data requirements and the chapter outlines. From our RFD it follows that within our study, first the problem and research approach were being introduced (chapter 1). In chapter 2, the theoretical background will be discussed. Chapter 3 concerns the methodology. In chapter 4 we will study the institutional environment and the performed case-studies for a selected number of SBTi members. Chapter 5 presents analytical insights and aims to provide recommendations. Afterwards we will evaluate and discuss our study in chapter 6. Lastly, we will draw conclusions in chapter 7.

Figure 1.5: Research - Flow Diagram



⁷De Bruijn and Herder (2009), define such a socio-technical system as a system which contains “physical-technical elements and networks of interdependent actors”

2

Theoretical background

“First, humans have complex motivations including narrow self-interest as well as norms of proper behaviour and other - regarding preferences; and second, institutions matter”(E. Ostrom, 2009)

This chapter provides the theoretical background to the institutional economic perspective chosen within this study. This chapter can be split up in two main parts: a part that introduces the field of (Ostromian) institutional economics and a part that is study-specific. First, within section 2.1. we will briefly describe our institutional economic lens chosen. Then, within section 2.2. we will present the theoretical notions regarding institutions and the IAD framework. Section 2.3. will discuss institutional statements and the institutional grammar.

Within the study-specific part, we will specify the institutional dimension and environment of climate action (section 2.4). This is followed by further expanding on our methodology for analysis in section 2.5. Last, section 2.6 will summarize this chapter.

2.1. An initial specification of an Ostromian institutional economics and analysis perspective

Within this study we make use of an institutional economics perspective to better understand the commitment and efforts pursued within voluntary climate action. This section will briefly introduce what such a institutional economics perspective implies.

To analyze social-economic situations, two mainstream schools of economics can generally be defined. These are neo-classical economics and new institutional economics (Correlje & Groenewegen, 2009). As climate action can also be perceived as a social-economic situation¹, we could make use of both schools. Therefore we will explore both below.

First, neoclassical economics is based upon the traditional view of a market and market parties. The market as a coordination mechanism makes sure that prices, demand and supply are efficiently allocated. From a behavioural perspective, it assumes that individuals undertake particular actions only to achieve the best possible outcomes as seen from their viewpoint -they are referred to as ‘rational & welfare maximizers’ (Becker, 1976). As noted by Reksten (2018), a neoclassical economic perspective assumes that actors “weigh the costs and benefits of setting and achieving a goal and choose the option that offers the greatest net benefits”.

However, voluntary commitments such as to the SBTi would be incomprehensible from a profit maximizing perspective. From a neo-classical point of view, corporations are not expected to conduct in cooperative climate action behaviour. With cooperative and substantive behaviour we mean parties engaging in candid climate efforts. After all, companies’ costs are predicted to increase -at least in the

¹E.g. seeIPCC (1996)

short to medium term- when adopting 'low-carbon' processes (McKinsey & Company, 2021). Thus, why would companies, whose goal it is to maximize profit, commit and pursue actions that might not immediately contribute to realizing their economic goal?

In addition, Campbell (2007) observes that most companies **do** frequently pursue substantive behaviour. According to Brammer et al. (2012), most corporations are not 'passive players' in the economy "whose social impacts follow a simple profit-maximization rationale with little relevance beyond the confines of the corporate sphere". Hence, the neo-classical assumption that actors only focus on welfare maximization does apparently not always hold in practice (Hazeu, 2007).

On the other hand, institutional economics² does not take in this 'profit and welfare maximization' perspective. Based on Hodgson (2000), general institutional economics (IE) builds upon different fields of research, such as anthropology, political science, sociology or psychology. Throughout the years, the field of institutional economics rose in prominence, e.g. judging by the number of noble-prize winners applying institutional economics³. Within our study we will mainly make use of an Ostromian institutional analytical lens. Thus based on the work of Elinor Ostrom.

Ostromian institutional analysis allows to explore social situations in a more profound manner (Rojas, 2006). According to Dorward et al. (2009), institutional analysis can be used to identify which institutions, activities and outcomes impact actor behaviour. Institutional analysis provides us with the tools to understand "the nature of the problem, the nature of individuals, and the institutional setting" (E. Ostrom, 1990b). Ultimately, institutional analysis and -theory enables analysts to understand how the social and institutional context shapes both an organizations' behavior as well as the dynamics of cooperation (M. A. Delmas & Montes-Sancho, 2010).

Another reason for choosing to make use of an Ostromian institutional lens lies in the fact that Elinor Ostrom, asserted that we must recognize 'local solutions' (as compared to large top-down governmental interventions) to be of critical importance to complex policy problems, such as climate change. In our view, NSA climate action must be perceived as such a local solution.

All in all, within the coming sections we will mostly and quite strictly draw from the work of Ostrom.

2.2. Ostromian institutional analysis: institutions & IAD

Institutions are the cornerstone of Ostromian institutional analysis. Institutions must be seen as fundamental within every economy, as institutions can influence behaviour in all aspects -including the aspects that go beyond profit maximization (Jepperson, 1991); Hodgson (2000). Consequently, within this section, we will first discuss institutions (2.2.1), followed by elaborating upon the main framework related to Ostromian analysis: the IAD framework (2.2.2). Then we will discuss functions of institutions (2.2.3) and we will finalize this section by presenting the institutional 'levels of analysis' (2.2.4).

2.2.1. Institutions

As has hopefully become clear at this point, with institutions we do not mean particular buildings, entities or other organizations. We refer to institutions as "the prescriptions that humans use to organise all forms of repetitive and structured interactions including those within families, neighbourhoods, markets, firms, sports leagues, churches, private associations, and governments at all scales" (E. Ostrom, 2009). Within these interactions or situations, humans face different choices leading to particular outcomes and hereby consequences for both themselves as others (E. Ostrom, 2009)

In general, two 'types' of institutions can be defined: formal (in-form) and informal (in-use) institutions (North, 1991); E. Ostrom (2009). Both are similar in some aspects, as both formal and informal institutions can impact human behaviour. They can both be constraints as well as opportunities im-

²Within this study we will not discuss the differences between new institutional economics and old institutionalism. Neither will we elaborate upon the historical or comparative forms of institutional economics

³Coase (1937) and later North (1987) played essential roles. Afterwards, the academic endeavours of (also noble-prize winners) Oliver Williamson and Elinor Ostrom and her husband Vincent were crucial

pacting the processes of individual and collective choices & decision-making. Hereby, both types of institutions shape “the consequences of these choices for themselves and for others” (McGinnis, 2015).

Yet, the considerable difference between both lies in the fact that formal institutions must exist within written documents, while informal institutions should not be written down per definition (Siddiki et al., 2010). As a result, informal institutions may in some occasions be the opposite of the ‘dos and don’ts’ written down in formal documents (E. Ostrom, 1999). Formal institutions can range from laws to contracts, while informal institutions are more implicit, such as norms or traditions (Juhola & Westerhoff, 2011). We like to emphasize that formal institutions do not per definition prevail over informal institutions. In the end, both ‘forms’ of institutions must be seen of at least equal importance. Or, going even further, North et al. (1990) emphasizes that formal institutions “make up a small part of the sum of constraints that shape choices”; with social-economic interactions mainly being coordinated by informal institutions as a result.

This all being said, E. Ostrom (2009) stressed that understanding institutions is no simple endeavour. A large part of the problem of understanding institutions is associated with the diversity of situations where we, as humans have to deal or cope with. Still, we, albeit implicitly, make sense of most situations as our knowledge on the do’s and don’ts is extensive. In order to better understand this diversity and thereby these institutional puzzles, there was a need for a coherent institutional analytical framework (E. Ostrom, 1999).

After decades of work, E. Ostrom (1990a)⁴ created such a coherent framework which allows to analyze social behaviour in a structured manner. This framework is called the institutional analysis & development (IAD) framework. It is named in this way as analysis implies decomposing the institutional contexts into parts; and development means the changes and dynamics of institutions and its context (McGinnis, 2011a). We will refer to this framework as the IAD framework (which is displayed in figure 2.1.).

2.2.2. The IAD framework

The IAD framework can be applied in order to understand underlying structures and mechanisms in a social system or situation (Polski & Ostrom, 1999). In case individuals are displaying particular behaviour, several building blocks and universal components can be used to analyze this behaviour. Behaviour and its outcomes can hereby be better understood (E. Ostrom, 2009).

At the heart of the IAD framework, we find the action arena. E. Ostrom (2009) asserts that action arenas may e.g. exist in the neighborhood, within companies or at home. Action arenas consist out of participants (human actors) and so-called action situations. The action situation concerns actors making informed decisions on how their actions will result in particular outcomes. These actors are referred to as participants. Participants can comprise all human entities, ranging from a single human-being to large corporate actors or national states. Action situations can comprise a large variety of situations, such as the exchange of goods between buyers and sellers within a market, or states negotiating upon a treaty.

Action arenas are affected by three exogenous variables: biophysical conditions, the attributes of the community and rules. And resulting from those action arenas are specific outcomes and patterns of interaction (E. Ostrom, 2009).

First, the biophysical conditions refer to the effect of the world and physical environment on an actors decisions and actions. Second, for attributes of the community, E. Ostrom (2009) makes use of the term ‘culture’ as a definition of the values shared⁵. Rules make up the third exogenous building block. Rules “designate all relevant aspects of the institutional context within which an action situation is located (McGinnis, 2011a). We like to emphasize that rules take in an important role within the IAD framework -and Ostromian institutional analysis in general. Therefore, Ostrom also refers to rules in

⁴In collaboration with scholars at the Workshop in Political theory and Policy analysis at Indiana university

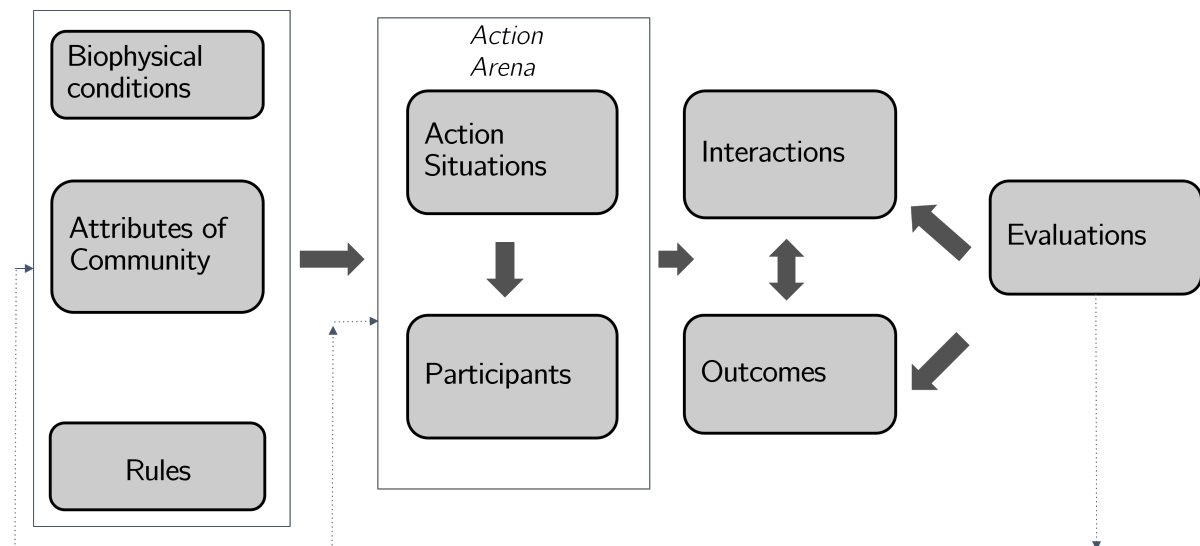
⁵Once particular actors share multiple values, chances are increasing that they will be able to coordinate and cooperate within particular activities more successfully

form -written down- and rules in use -used during the practices of everyday life.

From an action-situation, outcomes arise. With outcomes we mean the output or the results from the action situation. Outcomes can be both behavioural or more physical and tangible. When particular outcomes arise, it is important to analyze where they arise and who is involved in that case. These patterns of interaction relate “to the structural characteristics of an action situation and the conduct of participants in the resulting structure” (Polski & Ostrom, 1999). Lastly, action situations and its outcomes have particular costs or benefits (Imperial, 1999). We can evaluate the outcomes of an action situation, by making use of a variety of criteria. Examples of these criteria are equity or accountability (E. Ostrom, 2009) ⁶.

Taking everything into account, the IAD framework must be seen as a general framework which explores how biophysical conditions, attributes of the community and the rules impact the action arena and its outcomes. Hence, decisions of participants within the action arena are influenced by these biophysical conditions, rules and the attributes of community. Thereby the IAD framework allows to analyze the incentives actors face which ultimately result in particular outcomes (E. Ostrom & Ostrom, 2014). These outcomes of their decisions will be evaluated and result in feedback, which in turn impacts the decisions made and behaviour displayed (Kiser & Ostrom, 2000).

Figure 2.1: IAD framework as presented by E. Ostrom et al. (1994)



2.2.3. Functions of institutions

Institutions have different functions. These functions are dependent on which component of the action situation an institution is affecting. These components of the action situation can be seen in figure 2.2 and are depicted as the grey blocks. Understanding the functions of institutions will support analysts in creating a larger understanding of which behaviour is present and why (E. Ostrom et al., 2002). As Ostrom frequently referred to institutions as rules⁷, she speaks about seven different types or functions of rules. Below we will briefly discuss all seven:

1. Position Rules: relate to the positions⁸ participants can take in or leave. Furthermore these rules focus on the number of positions and the number of actors that can be in a position
2. Boundary Rules: also known as entry and exit rules. Boundary rules define (1) who is able and allowed to enter a particular situation, (2) the process of choosing who is eligible to enter and

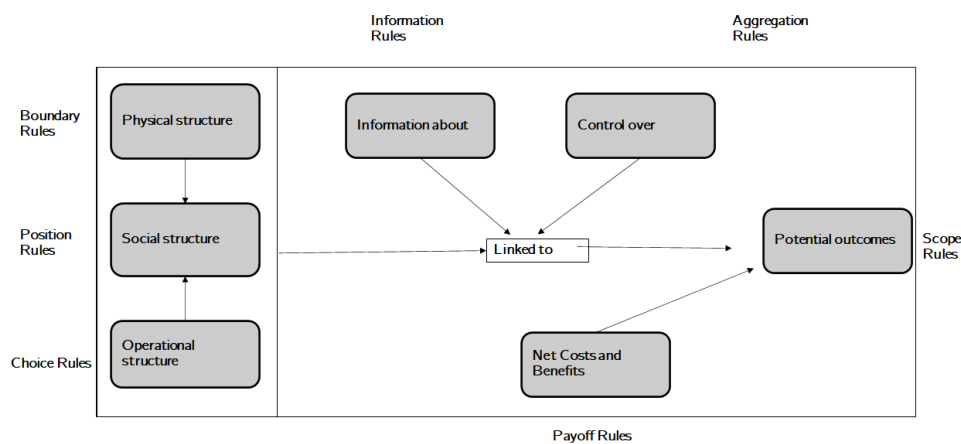
⁶The other criteria established are economic efficiency, adaptability, resilience or robustness and conformance to general morality

⁷Ostrom also frequently referred to institutions as 'rule-structures'. By doing so she voices the concept of rules being of essential importance in structuring social situations wherein individuals interact

⁸We would define positions as the 'role' actors play within a particular action situation. For example, a human could wake up one day and go to work as a judge, while at the end of the day she goes grocery shopping and thereby becomes a consumer

- (3) how an participants is able to exit a particular position. Often, participants wishing to enter a specific position are to some extent tested whether they meet the required boundary rules
3. Choice rules: “specify what a participant occupying a position must, must not, or may do at a particular point in the decision process” (E. Ostrom, 2009)
 4. Aggregation Rules: determine whether only one single participant is able to decide upon a particular action, or that multiple higher level actors are necessary before an action can be executed.
 5. Scope Rules: define the set of possible ranges of outcomes as a result of the actions conducted. “Scope rules affect the width of the outcome space” (E. Ostrom, 2009)
 6. Information rules: affect the level of information available to actors. These rules will ultimately impact the channels where information flows through, the frequency and preciseness of information, the subject of communication and its language
 7. Payoff Rules: regarding rewards or sanctions linked to undertaken actions

Figure 2.2: Action Situation together with the 7 rules. Based on Ostrom (2005)



2.2.4. The action arenas and levels of analysis

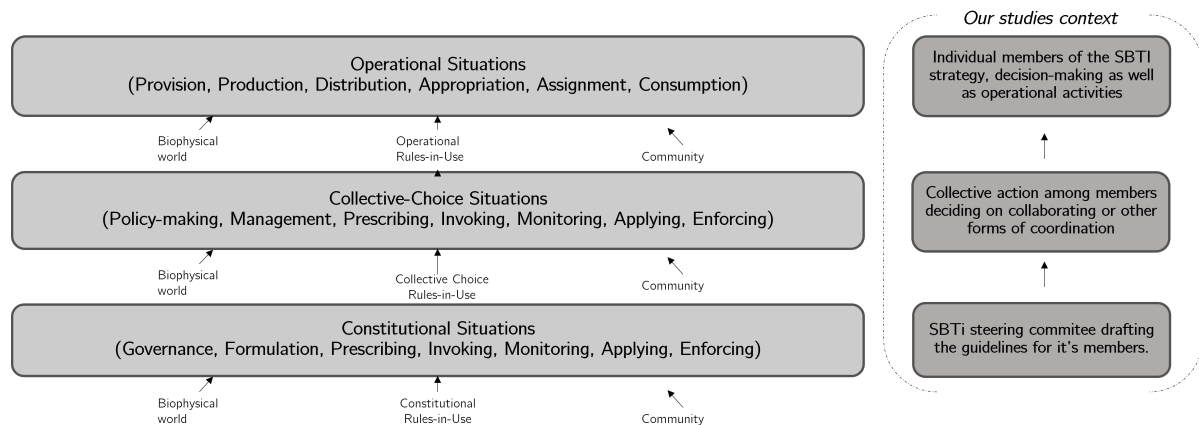
As described, action arenas lie at the core of the IAD framework. As indicated by E. Ostrom (2009) developments within the institutional analysis field have been made with regard to ‘linked’ action arenas. First, arenas can be linked via an organizational linkage. This is implying that the actions and behaviors within a situation are dependent on outcomes of other situations. Second, arenas can be linked in a more fundamental way, focused on multiple levels of analysis (E. Ostrom, 2009). We will elaborate upon the latter now (see figure 2.3 as well):

Decisions about institutions are made on different levels. Therefore, institutional analysis needs to offer the possibility to analyze these different levels (E. Ostrom, 1999). A distinction can be made between three or four levels. This is relevant as the limits and capabilities of a particular set of institutions could be dependent on a higher or lower level of decision-making. The higher one moves up the ladder, the more difficult it becomes to change an institution. This is due to deeper convictions of particular actors (E. Ostrom, 2009). From an actor perspective, the level will affect the possible actions undertaken and the outcome to be obtained (Kiser & Ostrom, 1980).

E. Ostrom et al. (1999) differentiates between the operational-, collective-choice-, constitutional- and meta-constitutional level (the latter we will not take into account). The operational level concern the

human decisions made on a daily basis. Hence, within this study this level concerns the individual company level. Collective-choice level institutions (and related activities) often affect the coordination efforts among actors. In this study, this level concerns the cooperation and coordination among committed companies or other actors if applicable⁹. Lastly, the constitutional level must be seen as influencing the collective-choice level (Imperial & Yandle, 2005; Bal (2013)). Within our study, this level concerns the the SBTi - 'members of the SBTi' relationship. The SBTi steering committee is expected to set the boundaries and guidelines for the actions pursued by it's members.

Figure 2.3: Levels of analysis. Based on E. Ostrom et al. (1999), addition: Authors own proposition



2.3. Ostromian analysis: Institutional statements and Institutional grammar

As institutions and the IAD framework have been discussed, we now offer a further specification of institutional analysis. This is necessary to better understand institutions and how they guide social interaction and it's (behavioural) outcomes. First, we will present the notion of 'institutional statements' in 2.3.1. Second, we will elaborate upon the institutional grammar in section 2.3.2. Third, section 2.3.3 will present a further distinction between rules, norms or strategies.

2.3.1. Institutional statements

Institutions might, despite being in existence, be invisible and not in the consciousness of actors (Schlüter & Theesfeld, 2010). Also, they can be present in a diversity of forms. Therefore, they are not easily observed and analyzed. To overcome this problem, Crawford and Ostrom (1995) introduced the 'institutional statement', which is a "shared linguistic constraint or opportunity that prescribes, permits, or advice actions or outcomes for actors...they are spoken, written, or tacitly understood in a form intelligible to actors in an empirical setting" (Crawford & Ostrom, 1995). As such, every actor, who it concerns, can refer to these statements (E. Ostrom, 2009).

Thus, to better understand institutions, they can be articulated as an institutional statement. This can be done by making use of the institutional grammar. At first sight, institutions and institutional statements may seem relatively similar. Nonetheless, as was argued by Basurto et al. (2010), two important differences between institutions and institutional statements exist. First, institutional statements are linguistic, while institutions are not per definition. Second, institutional statements can be 'coded' as *rules, norms or strategies*. We will discuss all these three types of statements in more detail now:

- Rules are to be drafted by humans and human behaviour must adapt itself to the rules. Rules are seen as the shared prescriptions that can be predictably enforced by appointed -external- agents. With enforcement E. Ostrom (1999) refers to processes of monitoring and imposing of sanctions

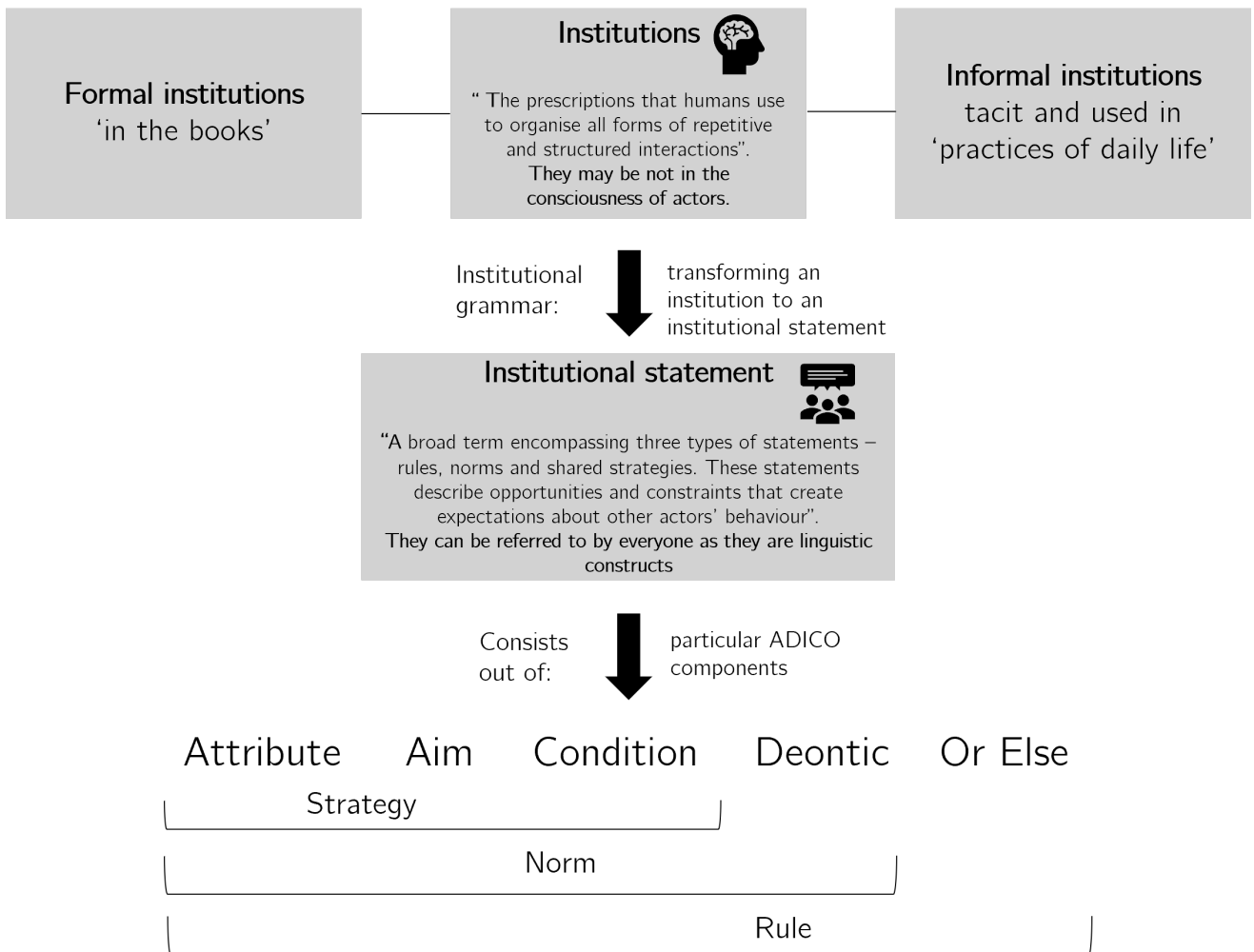
⁹Also, in our view this is in line with E. Ostrom (2009) who states that an example of the collective-choice level can be firms agreeing upon a particular industry standard.

- Norms are prescriptive and can be associated with appropriateness (E. Ostrom, 2009). Norms are seen as the prescriptions that “tend to be enforced by the participants themselves through internally and externally imposed costs and inducements” (E. Ostrom, 1999). We will come back to this enforcement in section 2.3.3
- Strategies are the ‘regularized plans’ individual humans make use of in the light of the current set of rules, norms and behaviors of others present (E. Ostrom, 1999). These adopted strategies in turn lead to consequences for themselves as well as for others (Crawford & Ostrom, 1995)

As we have defined the three types of institutional statements, we offer a reflection on one more aspect. As has been noted by Watkins and Westphal (2016), studies often place(d) emphasis on rules as guides for behaviour. Nonetheless, norms and strategies guide behaviour as well. Therefore, a better understanding of all three types of institutional statements is vital to comprehend social processes and situations.

Before discussing the institutional grammar below, see figure 2.4 for the relations between institutions, institutional statements and the institutional grammar.

Figure 2.4: Institutions, institutional statements and the role of the institutional grammar, adapted from Siddiki et al. (2019)



2.3.2. Institutional grammar

Crawford and Ostrom (1995) developed the institutional grammar, also referred to as the ADICO syntax. The goal of this institutional grammar is to create the possibilities for analysts to find a common and precise language when conducting institutional analysis. When performing institutional analysis,

the structured institutional grammar can be applied to articulate and dissect institutional statements.

The three types of institutional statements can be captured by making use of this ADICO syntax. This means that rules, norms and strategies can be distinguished according to their possession of having particular components. The ADICO syntax consists out of five components, forming the 'word' ADICO. The letters stand for: ATTRIBUTE, DEONTIC, A/M, CONDITION & OR ELSE.

As was also displayed in figure 2.4, for a strategy, only AIC components are present. Norms extend this as they are characterized by ADIC, while rules are known to have a full ADICO structure (Crawford & Ostrom, 1995). We like to stress that within the grammar, rules are only rules in case they possess and OR ELSE and thereby a tangible sanction. Thereupon, "rules are a mere grammatical step away from norms and two steps away from strategies" (E. Ostrom, 2009). Below we have provided a hypothetical example related to our case which sketches the latter. Afterwards we will discuss all five components of the institutional grammar in more detail.

- Strategy: [A] members of the SBTi [I] commit to the SBTi, [C] if they aim to decarbonize
 - Norm: [A] A member of the SBTi [D] should [I] pursue decarbonization efforts, [C] if it has committed to a voluntary agreement
 - Rule: [A] A member of the SBTi [D] must [I] pursue decarbonization efforts, [C] if it has committed to a voluntary agreement, [O] or else it will be removed from this agreement
1. ATTRIBUTE: "distinguishes to whom [human part] the institutional statement applies" (E. Ostrom, 2009). Attributes provide insight in who is addressed -the subject- when looking at a particular institutional statement (Schlüter & Theesfeld, 2010). Also, it can provide descriptions of the subject. The subject addressed by the institutional statement can vary from an organization to a single individual participant. In case of the former, the ATTRIBUTE might provide descriptions of the organization, such as the size. In case of an individual, examples of attributes assigned or 'attributed' to participants can be aspects such as age, citizenship or sex (Crawford & Ostrom, 1995)
 2. DEONTIC: The 'operators' used within a statement. These operators can be applied or assigned to outcomes or actions. The four operators defined are: *may*, *should*, *must* or *must not*. Thus an action or outcome may, should, must or must not occur. Hereby a deontic prescribes which actions are obliged, forbidden or permitted (Crawford & Ostrom, 1995). The 'most rigid' operator *must* often indicates what is forbidden and can often be found in rules. The deontic *should* is often identified when analyzing a norm (Siddiki et al., 2011)
 3. A/M: implies the 'working part' of an action situation and represents the outcomes to which the deontic is assigned. The AIM concerns the active working part of a statement. It is *the* action for which the deontic determines what: may, must or must not happen
 4. CONDITION: defines where, when or why (*spatial, temporal and procedural*) a particular outcome or action is "permitted, obligatory or forbidden". Thus, they define, and provide an indication of when, where or why a particular institutional statement will apply (E. Ostrom, 2009)
 5. OR ELSE: is the consequence of not fulfilling a prescribed, needs-to-be-done action. Once non-compliance exists, the OR ELSE condition specifies the enforcement in place. As has been put forward by E. Ostrom (2009), the OR ELSE in a rule determines what happens when actors do not adhere to an institutional statement. Often, an OR ELSE specifies the range of punishment possible when non-compliant behaviour is depicted or when a rule is not followed

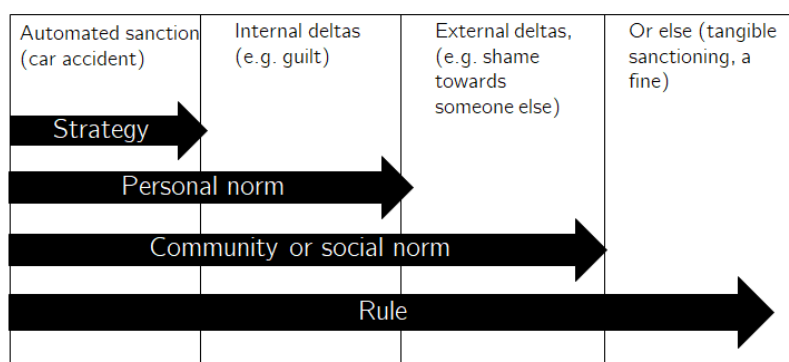
At last, we must emphasize that rules, norms or strategies are often not pre-formulated to perfectly fit the grammar. Hence, we must often reformulate an institution in order to derive to an institutional statement which can be analyzed with the grammar (E. Ostrom, 2009).

2.3.3. Extending the grammar: the role of sanctioning

As mentioned above, rules can be distinguished from norms and strategies within the grammar as rules possess an OR ELSE enforcement mechanism. Also it was mentioned that norms “tend to be enforced by the participants themselves through internally and externally imposed costs and inducements”. It appears that enforcement plays an important role when dissecting and distinguishing institutional statements from one another. Therefore, we like to expand somewhat more on this role for enforcement.

In order to better understand institutional statements (rules, norms or strategies), Schlüter and Theesfeld (2010) propose to distinguish them based on sanctions. Accordingly, rules are obeyed due to a tangible sanction; social or communal norms are followed due to external ‘emotional deltas’¹⁰ (e.g. guilt towards someone else); personal norms are driven by internal emotional deltas (e.g. shame); while strategies are motivated by ‘automatic sanctions’, that is sanctions which are not imposed by someone else (e.g. a car collision when you drive on the other side of the road). An overview is provided within figure 2.5.

Figure 2.5: Rules, norms and strategies distinguished based on their sanctions. Figure from Schlüter and Theesfeld (2010)



Why do we put emphasis on this further distinction based on the role of sanctions and thereby enforcement? This primarily has to do with the starting point of our study. As was noted in chapter 1, the starting point of our analysis concerned uncertainty created by the fact that NSA climate actions are (predicted to be) non-enforceable. Based on the distinctions as mentioned above, we can provide more complete answers on the following: are humans following particular institutions based on an anticipated automated sanction, based on intrinsic or extrinsic ‘emotions’ or do tangible sanctions predominate¹¹?

As the foundations of (Ostromian) institutional economics & analysis theory have been discussed, we will zoom in on the institutional dimension of NSA climate action. Before doing so, we will round off by placing one final remark, as the distinction between institution and institutional statements might remain somewhat vague. Within this study we will make use of the term institution and institutional statement interchangeably from here onwards. They can thus mean the same, unless noted otherwise.

2.4. Understanding the institutional dimension of climate action

We will now expand on the aspects associated with voluntary climate action. First we will discuss institutions and motivations (2.4.1). Afterwards we will elaborate upon the institutional environment, relations and networks (2.4.2). This section will form the build up for presenting our method of analysis.

¹⁰From the perspective of institutional analysis, E. Ostrom (2009) (in turn based on Coleman (1987)) represents extrinsic and intrinsic motivations by defining so called external and internal deltas. “Delta parameters provide a conceptual language ... to discuss differences in studies that incorporate normative incentives along with extrinsic pay-offs”

¹¹We like to stress that these distinctions are not as far from an Ostromian perspective as they at first instance might seem. “We are, of course, aware that all actions have consequences as pointed out to us by many students... the difference that the OR ELSE makes is that the consequence specified by the rule would NOT have occurred without the rule being in place and being enforced.” (E. Ostrom, 2009)

2.4.1. Institutions and motivations in NSA climate action

Within the field of institutional analysis, we speak of collective action in case people cooperate on particular actions in order to reach particular outcomes (Sandler et al., 1992). To date, “global climate change [(mitigation)] has become the collective action problem of our era” (Brechtin, 2016). This problem exists as climate change is not necessarily providing the incentives for actors to carry the burden of mitigation (Wood, 2011). Every party wants to benefit from the improved quality of the environment, yet it is easier to wait till other actors stop polluting, instead of actively mitigating yourself (Espínola-Arredondo & Muñoz-García, 2011). This especially is a risk for collective-action situations, wherein a multitude of actors commit and thus are expected to contribute.

This non-contribution is often referred to as ‘free-riding’, which occurs “when participants in a decision-making process benefit from a group’s efforts without contributing to them” (Imperial, 1999). Once many actors free-ride on the actions of others, the other actors who do pursue candid efforts may stop contributing as well. In the end, this could result in a situation where no one contributes (E. Ostrom, 2014). All in all, within this study, non-cooperative or non-substantive behaviour can be related to *behaviour at the risk of greenwashing or free-riding*.

To realize substantive behaviour, actors must possess the right *motivations*. Motivations can be both intrinsic and extrinsic (Deci & Ryan, 2010). Intrinsic motivations are related to internal pressures, such as perceiving pro-environmental actions as morally just. Values therefore lie at the core of intrinsically motivated pro-environmental behaviour (Steg, 2016). Some scholars such as Shinohara (2005) assert that voluntary actions will be effective only when environmental values are internalized -thus based on intrinsic motivations.

Oppositely, extrinsic motivations are related to external pressures impacting behaviour, such as external stakeholder demands or enforcement (or other external regulation) (Okereke & Russel, 2010). Bizer and Jülich (1999) (among others) assert that extrinsic motivations are the only way to ‘environmental’ success, by arguing in favour of the need for external regulation and enforcement.

A further exploration learns that indeed enforcement -monitoring and sanctioning- mechanisms are seen as one of the most important elements for substantive behaviour (Milinski et al., 2002); E. Ostrom (2009); Barrett (2016); Jauernig et al. (2017)). Monitoring means observing the behaviour and actions of (other) actors. Sanctioning refers to punishment, such as on “those who do not conform to the institutions” (E. Ostrom et al., 1992). Sanctions are most often seen as tangible sanctions, yet they may also be emotional (or automatic) -as presented in figure 2.5.

Most political theories presume that humans will be motivated to display substantive behaviour, as long as external enforcement mechanisms or an external enforcer is present (E. Ostrom et al., 1992). Needless to say, within voluntary NSA climate action, external top-down involvement and enforcement -such as by governments- is (expected to be) absent. Even so, we must not conclude beforehand that due to this absence all actors act as ‘rational egoists’¹² or depict non-substantive behaviour. Elinor Ostrom’s lifelong work¹³ shows that stakeholders have proven to be able to design¹⁴ and follow institutions that result in substantive efforts. This despite having no governmental participation or other forms of external top-down ‘command and control’¹⁵.

Therefore, besides enforcement, it appears that other elements play a role in incentivizing actors to pursue cooperative behaviour. E. Ostrom (2005) note that there is strong evidence that many actors

¹²Rational egoism is referred to as the principle that actors are seen as rational in case that the welfare and self-interest is maximized (Moseley, 2005)

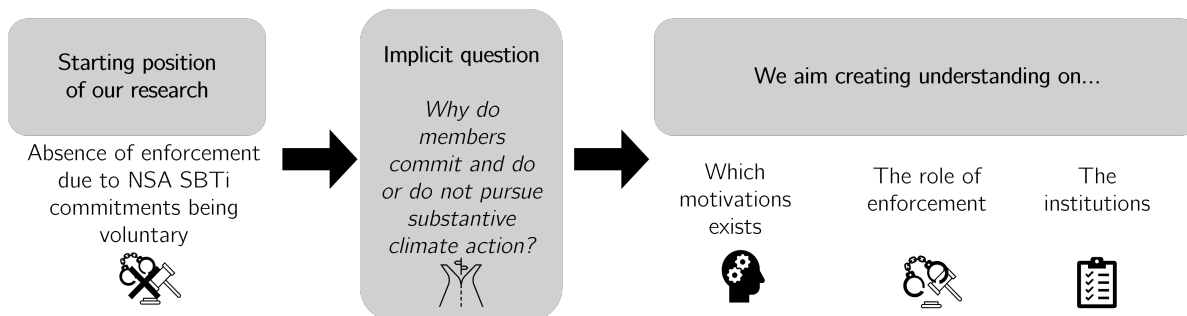
¹³Among others such as Acheson (2003) on Maine lobster fishing or Agrawal and Gupta (2005) on decentralised environmental efforts in Nepal

¹⁴Institutional design comprises the creation of arrangements among actors which are regulating their responsibilities, benefits and risks, their relations and their tasks (Koppenjan & Groenewegen, 2005)

¹⁵Within our case, command and control can best be defined according to the definition provided by Encyclopedia Britannica. (2021): “Most environmental law falls into a general category of laws known as “command and control.” Such laws typically involve three elements: (1) identification of a type of environmentally harmful activity, (2) imposition of specific conditions or standards on that activity, and (3) prohibition of forms of the activity that fail to comply with the imposed conditions or standards”

are motivated by **both** extrinsic as well as intrinsic motivations. In addition, as we have hinted upon above and will expand on in 2.4.2, “institutions matter” (E. Ostrom, 2009). Within this study we want to examine which motivations are leading actors to commit and pursue climate action. Furthermore, we dedicate specific attention to exploring the role of enforcement, for the reason of being our starting point of analysis. Last, yet needless to say, we will study institutions. For comprehension, a visualisation is presented in figure 2.6.

Figure 2.6: Starting position, implicit underlying question and focus points. Source: authors own visualization



2.4.2. Institutional environments, relations & networks

In general, Ostrom has asserted multiple times that actors are often motivated to pursue substantive efforts, once the right institutions are in place. On that account, motivations are conceivably intertwined with institutions. A lack of the ‘right’ institutions could lead to non-substantive behaviors or the destruction of valuable resources (E. Ostrom, 2009)¹⁶. Along these lines, companies (NSAs) can be seen as embedded in, and therefore reflective of the institutional environments wherein they operate (Meyer & Rowan, 1977); Scott (1995)). We will make use of the following definition for institutional environment:

The institutional environment is conceptualized to consist out of both formal and informal institutions affecting an organization (DiMaggio & Powell, 1983); North (2010))

A well-fitted institutional environment is deemed crucial to realize effective social-economic situations (E. Ostrom, 2009). Well-fitted implies that the composition of formal and informal institutions within an institutional environment incentivizes actors to display cooperative behaviour¹⁷. On that account, understanding formal and informal institutions is essential to understand the institutional environment as well as it’s (behavioural) outcomes.

Nonetheless, understanding an institutional environment is challenging. Challenges for understanding mainly arise due to the fact that actions and behaviour are often not shaped (formed) by a single institution, be it formal or informal (Kiser & Ostrom, 1982). Institutions can have interactions or interdependencies, constituting a distinct connection or ‘interrelationship’ between institutions. Within this study we define institutional relations as:

The connections between institutions and thereby which impact institutions have on another as well as on particular outcomes. Relations (may) exist between formal as well as informal institutions

As a result of all this, *institutional complexity* comes into existence (Siddiki et al., 2019). Institutional complexity relates to the interactions & interdependencies as well as the ‘connectivity’ between institutions (Mesdaghi, Ghorbani & de Bruijne, forthcoming). This all being said, institutional relations can be associated with two important aspects: institutional conflict and institutional networks.

¹⁶An example is the earlier mentioned case on forestry by Cashore et al. (2007), which resulted in higher levels of illegal logging

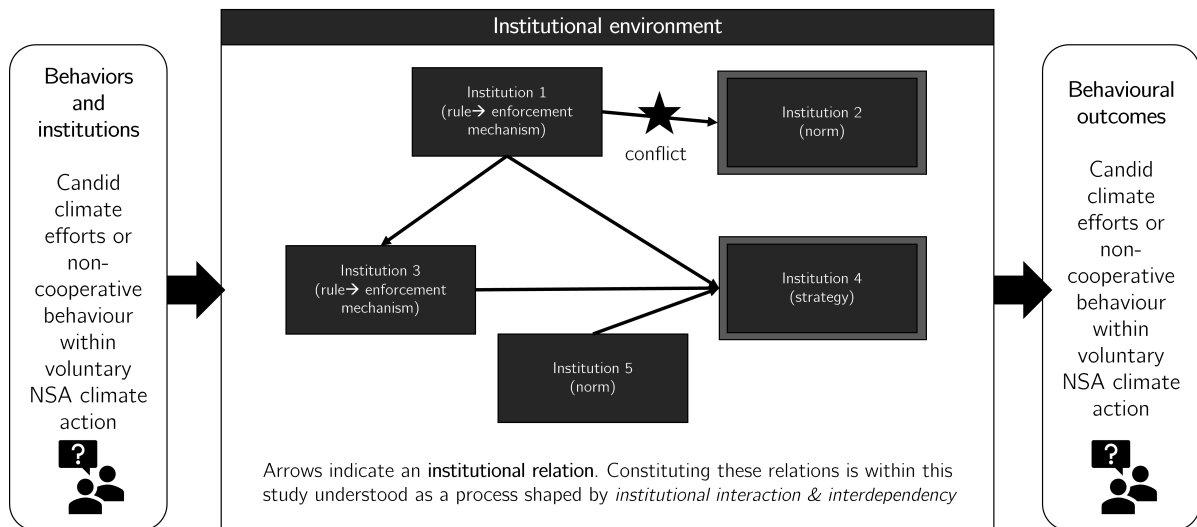
¹⁷Examples are provided within Chhatre and Agrawal (2008), E. Ostrom (2009) or Feiock (2013)

First, due to particular relations, the outcomes of social situations **may** be different than was predicted beforehand. This as institutions may be in conflict with each other, also referred to as *institutional conflicts*¹⁸. Institutional conflict is defined within this research as:

Multiple institutions being in contrast with each other, thereby guiding actor behaviour towards different, sometimes undesired, final outcomes

Second, it can be imagined that in case of multiple relations among a particular set of actors or institutions, networks may form. Put another way: when different institutions have interrelations, the relations between them may depict network characteristics. A visualisation of this network formation process is provided in figure 2.7.

Figure 2.7: Institutional relations leading to institutional networks. Source: authors own interpretation & visualization



This all being said, it is remarkable that studies on institutions often concern the study of individual, isolated institutions (Stead, 2013). This while “no institution can be fully understood in isolation from the institutional configuration(s) within which it is embedded” (McGinnis, 2015). To conclude this section: within this research we aim to better understand institutions, motivations and enforcement by exploring the institutional environment. With the aim of doing this, it is essential to unravel the interrelations between both formal as informal institutions that guide actors during decision-making. We will therefore take in a network perspective, not the least as a network perspective focuses on relationships (Sayles et al., 2019)

2.5. Methodology for analysis: the INA method

This section will first offer a background on network-based approaches (2.5.1). Sequentially we will discuss our chosen method to analyze the institutional networks and thus the institutional environment (2.5.2).

2.5.1. Reviewing network based approaches

Relations within an institutional environment have been scrutinized in different bodies of literature. First of all, a strand of literature focuses on the ‘ecology of games’ (EG), originally presented by Long (1958). The EG framework allows to address institutional complexity. It’s most important contribution “is recognizing the necessity of analyzing multiple policy institutions at the same time” (Lubell, 2013). Moreover, similar to the IAD framework, it takes biophysical, economic and social processes into account (Lubell

¹⁸Within literature, institutional conflicts are mostly referred to as conflicts between different levels of (international) governance (Oberthür (2009)) or as conflicts between different organizations (e.g see Rohde and Simon (2016) or Protsyk (2006)). However, Pache and Santos (2010) also note that individual “organizations are increasingly subject to conflicting demands imposed by their institutional environment”. An example of the latter could be that shareholders have contradicting interest, such as sustainability versus profit

et al., 2010). Second, moving away from EG, McGinnis (2011b), made the proposition to evaluate ‘networks of adjacent action situations’ (NAS). Actions or outcomes in one action situation might impact the actions undertaken in another, adjacent action situation (also see 2.2.3 ‘organizational linkage’). Interactions between different action situations can thus be better understood when appreciating the linkages between adjacent action situations. Third, besides EG and NAS, developments have been made in the field of ‘social ecological networks’(SEN). Social ecological networks consider both natural resource governance as well interplay between ecological and social aspects (Bodin et al., 2017); Sayles and Baggio (2017).

Even so, these frameworks and methods reviewed are not expected to provide us clear insights in several aspects deemed important within our analysis. First, this study does not specifically focus on community-ecological aspects, two factors which have been mostly focused on by EG and SEN application studies. Second, despite that these methods provide some understanding regarding the connections, it does not help with scrutinizing underlying behavioural reasons. With underlying behavioural reasons we mean the drivers or motivations why actors behave in the way they behave, or the way institutions define relations between actors in a network. Third, our goal is to explore and better understand the interrelations between formal and informal institutions. The frameworks and methods reviewed above may not provide easily interpretable insights herein.

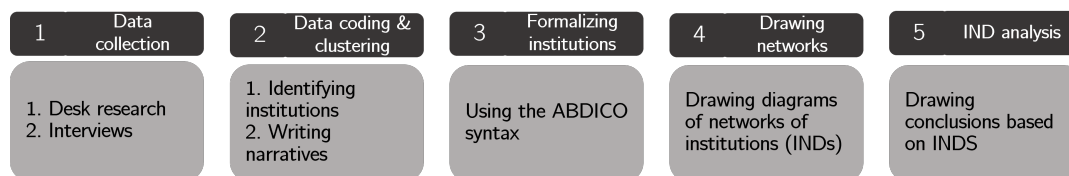
All things considered, no study has, to the best of our knowledge, thoroughly explored the institutional environment of voluntary NSA climate agreements. To explore and comprehend the institutional environment, there was a need for a systematic method which allows to map the relations between formal and informal institutions. This systematic method or approach ideally must be able to derive and easily interpret both institutions and it’s relations. This research gap ultimately led Ghorbani et al. (2020) to develop the Institutional Network Analysis (INA) method, which we will apply within our study.

2.5.2. INA: examining institutional networks and institutional environments

We will now briefly expand upon the INA method and it’s proposed application within our study. We will discuss the INA method in more detail in the next chapter. The INA method has it’s origins in the work of Ghorbani et al. (2020) and has been further developed by Mesdaghi (2020) in her MSc thesis. As indicated by Mesdaghi, Ghorbani & de Bruijne (forthcoming)¹⁹ this INA method, similar to EG and network of action situations, builds upon the IAD framework. “Yet, it aims to add even more granularity to the way institutions are connected to each other, by making use of the IG [(institutional grammar)]”. In addition, it makes use of the levels of institutions as well as the functions of institutions (2.2.3 & 2.2.4), in order to study and differentiate between all possible institutions present. The INA method ultimately allows to visualize the institutional environment, hereby allowing to unravel the relations between formal and informal institutions²⁰.

The INA method consists out of 5 steps, being: data-collection, clustering, formalizing, drawing the network and Institutional Network Diagram (IND) analysis (see figure 2.8).

Figure 2.8: Steps of the INA method, based on Mesdaghi (2020)



Data-collection (step 1) comprises both documents as well as interviews. Hereby both informal and formal institutions can be found. The interview question are based on the levels of institutional statements as well as the functions of institutions. Clustering & Coding (2) is mainly performed to construct

¹⁹B. Mesdaghi et al. (n.d.)

²⁰Cornwell et al. (2003), yet in a work on the EG, argued in favour of visualization: “researchers can do their (and themselves) a favor by presenting and summarizing their findings pictorially”

easily interpretable narratives. Then, within the formalization step (3), the ADICO syntax is used in order to find institutional statements as articulated within documents and interviews. After institutional statements have been derived, institutional network diagrams (INDs) can be drawn (4). These can later be analyzed, e.g. via specific network metrics (5). Lastly, -yet not an 'official' INA step- the diagrams and the outcomes need to be verified and validated.

Thus far the INA method has been primarily applied to study institutional complexity, focused on institutional conflicts. Nonetheless, a central question within our study concerns why people conform to something that is not enforced. Therefore, our goal of applying INA is twofold:

First, via the INA method we aim to explore the underlying institutions and institutional relations that guide actors in their behaviour. Second, we aim to further disentangle the relations between motivations and institutions. As this aspect is not incorporated within the original INA method, we will propose a methodological addition in chapter 3.

2.6. Summarizing and conceptual overview

Our starting point in chapter 1 concerned the uncertainty of candid climate action within voluntary NSA agreements. Within this chapter, we have first specified a (Ostromian) institutional economic perspective. Afterwards we have elaborated upon the institutional dimension of voluntary climate action. First, to realize substantive behaviour, actors must possess the right motivations. Motivations can be both intrinsic, being values; as well as extrinsic, such as economic incentives or enforcement. Enforcement is often seen as crucial to realize effective agreements, yet this is (expected to be) absent within voluntary NSA climate action.

Nonetheless, Ostrom showed that actors have been able to create effective social situations without an external enforcer. To do so, the right institutions -and motivations- must be in place. The institutional environment, consisting out of formal and informal institutions, must incentivize NSAs to pursue candid climate efforts. In the end, we focus on institutions, motivations and enforcement in this institutional environment to see what is there and what is not, and what can potentially make it work.

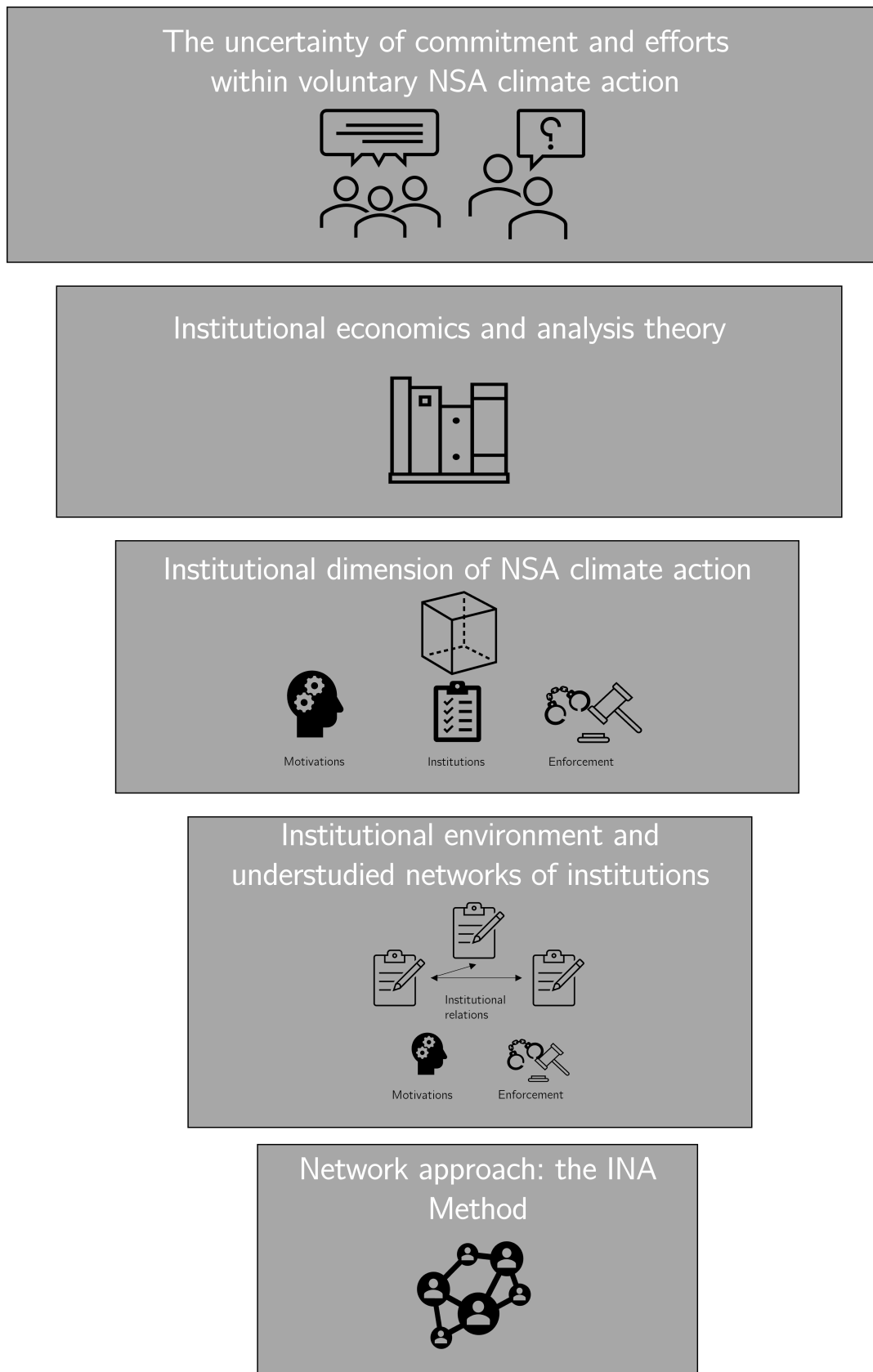
However, understanding the institutional environment is challenging, not the least due to institutional complexity. Interrelations between institutions primarily contribute to this complexity. Therefore we will try to unravel the relations between institutions according to a network-perspective. The chosen network approach is the INA method, which allows to visualize and study institutional networks.

The INA method build on different theoretical institutional notions. First, the IAD framework, which aids to study institutions within an specific action arena. Then, the institutions present within an action arena can be scrutinized by:

1. The help of the institutional grammar, allowing to distinguish between rules, norms and strategies (the INA method primarily builds on this grammar)
2. The level of an institution or institutional statement, being operational, collective-choice or constitutional
3. The institutions' or institutional statements' function, related to the influence of the rules on the working parts on action situation. These are: positions, boundary, payoff, choice, scope, aggregation and information rules

All in all, the conceptual overview of our research outline is displayed in figure 2.9.

Figure 2.9: Conceptual overview of our research outline



3

Methodology: the INA method

“The next important step for social science is developing a cluster of tools for analyzing dynamic situations” (E. Ostrom, 2008)

In this chapter we will primarily discuss the INA steps as presented in chapter 2. It has been indicated when a step related to the INA method is discussed. For every section concerning a step of the INA method, we will -most of the time- also briefly elaborate on how we implemented the particular step within our study.

First, we will elaborate upon our approach to better comprehend voluntary NSA climate action (section 3.1). Afterwards, we will primarily follow the outline of the INA method. Section 3.2 covers the data-collection, followed by 3.3, in which we will describe the coding and clustering step. Section 3.4 will describe the formalization process. Within section 3.5, we will move away from the original INA method and present our methodological addition. We return to the original method in 3.6 by explaining how to draw an Institutional Network Diagram (IND). Section 3.7 will elaborate upon how to interpret and analyze an IND. In section 3.8 we will explain how INDs can be verified and validated, and how this is done within our study. We will summarize and conclude on this chapter in section 3.9.

3.1. Improving our understanding of the SBTi and voluntary NSA climate action

Before implementing the INA method, we decided to broaden our understanding and knowledge base regarding the SBTi and voluntary NSA climate action. This is realized in three phases. First, via desk-research; second, via unofficial, more informal -beware this has nothing to do with informal institutions- discussions with academics; and third by conducting four interviews with different members of the SBTi. We like to stress that these latter interviews have been conducted with parties outside of our scope. These interviews only served to get a global impression and better understanding of the SBTi and NSA climate action.

Figure 3.1: Improving our understanding in three phases



Expanding on the explanations above, more information on the SBTi was firstly collected via desk-research. Desk-research, consists “literally, of those things which can be done while sitting at a desk”

(Blaxter, 2010). Within this phase, desk-research comprised reviewing a variety of materials. The main materials reviewed are displayed in Appendix A.

After completion of this desk-research, we have engaged in non-formal discussion sessions with different academics. In these sessions we have consulted them about their specific research interest and their studies' outcomes. The topics discussed vary from voluntary NSA climate action to the SBTi. An overview of the academics consulted, their work and thereby the topics of discussion can also be found in Appendix A.

Subsequently, 4 interviews with 4 different Dutch members of the SBTi have been conducted. These members are ranging from banks to an oil & gas exploration firm (transcripts in Appendix A). To provide some guidance within these interviews, we have defined three 'initial issues' to be discussed. These initial issues were based on our preliminary understanding of the SBTi, which in turn was based on the desk-research and academic discussions. Based on these issues, several questions were drafted (table 3.1). These questions are also related to chapter 2, as they are focused on enforcement as well as motivations to commit and pursue actions. In addition we have drafted some questions related to coordination and cooperation, as collective action situations are often also centered on coordination and cooperation. Following institutional analysis theory, coordination and cooperation are "shaping behavior in ways that produce more efficient outcomes" (Lubell, 2013).

First initial topics	Example questions
Expectations and motivations to commit	What are the reasons for commitment? What do you expect as most advantageous related to commitment? What do you expect from such an agreement?
Implementation	Which steps have been set internal and externally after commitment? Which responsibilities do you see due to this commitment?
Cooperation, coordination and enforcement	Do you cooperate on actions with others within/outside your sector? If yes, why do you want to cooperate? Do you monitor your actions? Do you monitor the progress or actions of other members or companies? Are there sanctioning or rewarding mechanisms in place? Why do you conduct responsible behaviour (drivers)?

Table 3.1: Example questions used within the exploratory interviews

In the end, based on these three phases we were able to improve our understanding of the SBTi and voluntary NSA climate action. Hereafter, we will continue with describing the steps of the INA method and their application within our study.

3.2. INA method: Data-Collection

Within this section, we will discuss the data-collection step of the INA method. We will discuss our data-collection process in 3.2.1. Hereafter we will define our action arenas for analysis in 3.2.2. We will finalize this section with some ethical considerations regarding interviews in 3.2.3.

3.2.1. Case-studies and finding institutional data

The INA method prescribes data-collection via two ways: document analysis and interviews. However, as we have opted for a case-study approach we decided to collect general information on the F & B companies in scope first. All three Dutch F & B SBTi members have been we have quantitatively and qualitatively studied via desk-research. All qualitative and quantitative data needed is derived from both companies' annual reports, their websites and/or CDP data. For the quantitative outlook, we have analyzed Scope 1 & 2 CO₂ emission data, as well as total revenue & operational profit. For the qualitative part, we searched for company specific information, such as their good or service provided and their reasons for committing to the SBTi. Additionally, we have searched for the current status concerning setting of a science-based target ¹. The results of this quantitative and qualitative desk-research can be found in Appendix B.

¹These can range from 'committed' to 'targets set'. Committed implies that companies are developing a target, but have not yet set one. Targets set means that a company has set a particular target

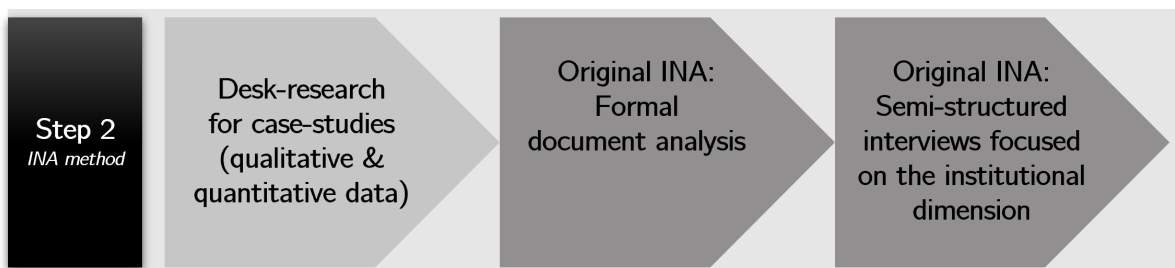
Document reviewed	Focus	Source
Target validation protocol	Formal institutions concerning the 5 process steps or other requirements or rules	Science-Based Targets Initiative
SBTi criteria and recommendations	Formal institutions concerning the 5 process steps or other requirements or rules	Science-Based Targets Initiative

Table 3.2: Documents reviewed

After this concise background examination on the companies in scope, we return to following the original INA method. To comprehend the institutional environment and learn which institutions are most important, both formal as informal institutions must be analyzed. As noted before, formal institutions can be found in documents ('in the books'), such as within contracts or constitutions (North et al., 1990). Within our study, institutions derived from SBTi documentation are perceived as formal institutions. This is due to the fact that all participants are expected to be aware of the processes and steps which need to be completed in order to commit to the SBTi. Thus, in order to retrieve formal institutions, the INA method prescribes document analysis. The documents analyzed for deriving institutions are depicted in table 3.2.

After completion of the document analysis, informal institutions must be found. Informal institutions are often implicitly guiding human behaviour and thus are not 'codified' within documents (Lauth, 2015). To derive informal institutions, interviews are suggested. We will make use of semi-structured interviews. Semi-structured interviews offer the possibility to guide the interviewee towards particular topics as decided upon beforehand. However, due to this set-up of the interview, the outcome is allowed to be open (Ghorbani et al., 2020). Our complete data-collection based on the prescriptions of the INA method is visualized in figure 3.2.

Figure 3.2: Data-collection within our study, following the INA method



3.2.2. Defining Action arenas for analysis

In order to successfully execute the INA method, the next course of action is to define the INA topics of analysis, or action arenas in Ostrom's terminology. From here onwards, action arenas and INA topics will be used interchangeably in this study. Within our study, we have identified 4 topics for analysis. We have based these four topics on: our 'initial issues', the theoretical notions of chapter 2 and our understanding of the SBTi thus far. In addition, the 4 action arenas can be linked to the 'process steps for members and to-become members' as have been formulated by the SBTi. These are: Commit, Develop, Submit, Communicate & Disclose (Science Based Targets Initiative, 2019a). We will further elaborate upon these steps in chapter 4.1.

The INA topics distinguished within this research are: commitment & knowledge gathering (Commit within the SBTi process); action, perception and implementation (Develop and Submit within the SBTi process); coordination & cooperation (Communicate within the SBTi process) and enforcement (Communicate & Disclose within the SBTi process). The reasons for choosing these action arenas are:

First of all, when humans consider to adopt something new, we view it plausible that knowledge must be gathered before they commit to such a VA. After all, actors must evaluate the possible advantages

or disadvantages of commitment. This is in line with Ostrom, who notes that humans (e)valuate the outcomes of their possible actions to be undertaken. Second, once commitment is successful, members of the SBTi are predicted to engage in action and the development of actions plans to realize their goals. Third, in order to realize effective social situations, Ostrom has asserted many times that cooperation and communication is essential (e.g. see E. Ostrom (2009)). Based on that notion, we expect that some form of cooperation, coordination and thereby communication takes place. Fourth, enforcement can be considered the starting point of our study and is deemed essential from a theoretical perspective. Hence we devote a specific action arena to explore the role of enforcement.

After defining these action arenas, we have constructed our interview questions, which are aligned with the INA method. They are formulated in accordance with both the functions of institutions as well as with the levels of analysis (operational, collective-choice and constitutional). This to make sure that every possible institutional aspect could be discussed and was provided more insight in. The complete set of interview questions are presented in Appendix C. A small selection of questions is displayed in figure 3.3 below.

Figure 3.3: Minor selection of questions for the semi-structured 'institutional' interviews

Action Arena & Topics	Question
<p>TOPIC 1 Commitment & Knowledge gathering <i>SBTi step: Commit</i></p>	<p>How is information received/obtained from external/ internal sources (but most of all, what is your perspective on this?)</p> <p>How are members who want to commit to SBTi selected? Or can anyone commit? What are the criteria to select participants and when should participants enter or leave positions?</p>
<p>TOPIC 2 Action, perception & implementation <i>SBTi step: Develop & Submit</i></p>	<p>How do you translate your knowledge efforts into climate mitigation measures? And how do you decide which measures are most necessary?</p> <p>To what extent are companies involved in the guidelines and process of target setting etc?</p>
<p>TOPIC 3 Coordination and Cooperation <i>SBTi step: Communicate</i></p>	<p>How are your actions communicated to other stakeholders? - Who is most important to satisfy herein? - What are the goals of these dialogues and why do you have them?</p> <p>Do you have contact with- or coordinate actions with other parties? Why/Why not? Are they within your sector or not in the sector?</p> <p>What are the information channels for coordination?</p> <p>Are there formal arrangements in place which steer towards more coordination?</p>
<p>TOPIC 4 Enforcement <i>SBTi step: Communicate & Disclose</i></p>	<p>Are there specific monitoring mechanisms in place which help to achieve the goals or inhibit you?</p> <p>What are the possible rewards/ expectations, among actors of disclosing?</p> <p>How do you decide which data to include and which way to gather this data?</p>

Once the topics have been defined and we have established our final interview-questions, we are able to conduct the interviews. In order to arrange the interviews, we drafted several criteria for selecting respondents and have walked through several steps. These can also be found in Appendix C.

As noted, we have first interviewed the three F & B companies. In addition, we interviewed a policy-maker of the Dutch Ministry of Economic affairs, department of climate affairs; and one of the co-founders of the SBTi, who is currently working for the Carbon Disclosure Project (CDP). We have interviewed these latter two persons as they were expected to provide a different perspective on the SBTi and thereby the institutional environment.

3.2.3. Ethical considerations within data-collection

Before all interviews were conducted, a permission to conduct this study was requested from the Human Research Ethics committee of TU Delft. After our data-management plan was presented, and the studies purpose was explained, permission was granted. In addition, due to General Data Protection Regulation (GDPR) guidelines, we have decided to fully anonymize all responses for all background interviews. Also we have removed all personal details for the interviews with the F & B companies, Ministry and CDP. Lastly, before all interviews took place, we have created a consent form, which was send beforehand and send back by the interviewees.

3.3. INA method: Coding & Clustering

The next step of the INA method concerns coding and clustering of interview data. This step takes places after transcripts of the interviews were made. From this coding & clustering, discourse analysis can be executed. Based on this coding & clustering and discourse analysis, narratives will be constructed. We will discuss the general methodology behind coding and clustering in 3.3.1. Afterwards we will discuss our outcomes of this process in 3.3.2.

3.3.1. General methodology behind coding and clustering

The methodological start of this step is to apply discourse analyses. Discourse analysis is analyzing the language in use (Owen, 1985). As has been argued by M. Hajer (2002), discourse analysis allows to focus on the 'what' behind linguistic constructions. Discourse analysis allows to create understanding regarding the perceptions and positions of different stakeholders. Moreover, discourse analysis allows to weigh the consequences of discourses as well as to expose possible constraints and opportunities due to these discourses (Bradley & Sutton, 1993).

In practice, discourse analysis can be used to identify the most important narratives interviewees refer to or use. As has been argued by Holstein and Gubrium (2004), narratives can be used to discover the social constructs that guide behaviour. Narratives are especially usefull when there is not enough case-material for a thorough and complete statistical analysis. Also in our study, we can only perform case-studies on three SBTi members. When making use of narratives, this limitation regarding statistical analysis can to some extent be overcome. Lastly, the narratives can be used to assign roles and articulate perceived problems and solutions for different actors (M. A. Hajer et al., 1995).

A succesfull discourse analysis starts with analyzing the interview questions drafted. Based on these questions, initial 'themes' can be discovered. These initial themes were complemented by further studying the interview transcripts. If particular themes are indeed encountered frequently, they were applied in the coding step (see Appendix D for a list with themes). Coding is used to identify themes or codes which have appeared in qualitative data, such as interview transcripts. Coding is done by assigning expected elements (codes) to particular sections of data. We like to stress that during this coding processes, unidentified themes can be found, which can then be included as well (Talja, 1999); Harding (2015); Mesdaghi (2020)).

After coding is complete, they can be reviewed to find clusters. Making use of computational power and software is recommended. Within our research, the Atlas.ti workbench allowed to qualitatively scrutinize large textual bodies, being the interview transcripts.

3.3.2. Coding & clustering within our study

Following the coding & clustering methodology as described above, we have first identified several themes. Based on these themes, we coded our data-sections. Afterwards, we have clustered the data. All coding can be found in Appendix D. Below, we will address the most important clusters identified. Based on these clusters we have also constructed our narratives as to be found in chapter 4.2.

Clusters & Insights

1. *The SBTi creates awareness.* All parties interviewed have claimed that committing and participating in the SBTi requires a lot of effort. Nonetheless they also truly believe in setting such targets and the awareness the SBTi creates (both internally as for external parties).

2. *The SBTi offers a structured framework for climate action.* The SBTi helps participants to structure and guide their decarbonization processes and goals. It makes them ask how they are going to achieve their goals. The interviewees have indicated that commitment to the SBTi forces them to think about how their purpose / mission² can be translated to concrete actions.
3. *The SBTi is heavily linked to climate change and action.* Often, other actors concerned recognize the need for companies to mitigate climate change and see this as a driver to commit to the SBTi.
4. *Monitoring and commitment.* Parties refer to monitoring as an important part to transparently show their results to the outside world. Monitoring is seen as valuable and almost all parties disclose their emission data at the CDP. The CDP offers to disclose data via their (infamous) questionnaire and also offers guidance to companies for reporting their emissions. In the end the CDP assigns a score to the current climate actions of companies, cities or others. The background on the scoring methodology has been documented extensively by the CDP and the CDP tailored it to different sectors (see CDP (2020a)).
5. *SBTi and its benefits.* The predicted positive outcomes of such a VA are seen as a good example of how parties can improve environmental behaviour. Mainly, it can serve as policy-input as the government knows that parties themselves want to change.
6. *Shareholders, clients and the SBTi.* All parties publicly-listed mention their shareholders as the most important driver / parties to speak to about the SBTi and its implications. This as most companies committed (as well as interviewed) are large companies, which are often listed on the stock exchange. As a result of this public listing, problems may arise in the field of communication and disclosing. This as sharing of particular data could affect the stock-price. In addition, clients are also mentioned as important to satisfy
7. *Cooperation and sanctioning.* Parties make use of learning and knowledge exchange mechanisms. However, it stops here as the Dutch competition law does not allow them to communicate more and members are 'afraid' to violate these regulations

3.4. INA method: Formalizing institutions

After the data-collection and coding and clustering steps are completed, we continue with the formalization step. Within the formalization step, we try to identify the institutional statements present within written documents and interview transcripts. Following the study of Mesdaghi (2020), the ADICO syntax, complemented with one more component, can be applied for both documents and interviews. Within this section we will first briefly elaborate upon this extended syntax (3.4.1). Second we will discuss how we can derive institutional statements from written documents (3.4.2). Third, we will present how we can derive institutional statements from interview transcripts (3.4.3).

3.4.1. Extending the ADICO syntax: ABDICO

In chapter 2 we presented the institutional grammar, as developed by Crawford and Ostrom (1995). Siddiki et al. (2011) added an extra component to this ADICO syntax: the OBJECT, which is argued to improve the process of transforming institutions to institutional statements. When applying this ABDICO syntax, an institutional statement is subdivided in 6 different components:

- **ATTRIBUTE:** provide insight in who is addressed -the subject- when looking at a particular institutional statement (Schlüter & Theesfeld, 2010). It is often the organisation which conducts the AIM
- **OBJECT:** This is the the inanimate or animate part of a statement that the aim relates or refers to. It is the 'receiver' of the action
- **DEONTIC:** this operator prescribes what should, may, must or must not occur
- **A/M:** the action which the ATTRIBUTE undertakes

²Purpose: a "company's core reason for being, and where can you have a unique, positive impact on society?" (McKinsey & Company, 2020b). Mission: "what business the organization is in (and what it isn't) both now and projecting into the future. Its aim is to provide focus for management and staff" (HBR, 2014)

- **CONDITION:** the spatial, procedural or temporal boundaries of a statement. In case this is not mentioned, we assume that the statements holds and goes up at all possible times and locations
- **OR ELSE:** the sanctioning mechanism present in case actors are non-compliant

We will now elaborate upon the analysis steps for both documents as interviews, which both make use of the ABDICO syntax.

3.4.2. Written document analysis: formal institutions

As noted, the documents analyzed are drafted by the SBTi. Within our study, two documents are analyzed, being: **1.** The target validation protocol document and **2.** The SBTi criteria and recommendations document. Within our scope, these documents are the only formal documents steering the members of the SBTi. To successfully apply the ABDICO syntax for written documents analysis, we make use of the steps as established by Basurto et al. (2010), being:

1. Identify and read all definitions, preambles, headings and titles
2. Identify sections of the document as initial units of observation
3. Subdivide all initial section or units established in step 2 that have multiple sentences into sentence-based units of observations.
4. Code the units following the ABDICO syntax
5. Code all units of observation as rules, norms, or strategies
6. Subdivide all sentence-based units of observation that have more than one institutional statements into separate units and recode them

3.4.3. Interview analysis: informal institutions

The difficulty with identifying institutional statements via interviews is that humans 'do not speak in them' (Watkins & Westphal, 2016). To overcome this problem, several strategies can be deployed, which have been addressed within Basurto et al. (2010); Siddiki et al. (2011) & Watkins and Westphal (2016). By combining these studies, Mesdaghi (2020) described steps to identify institutions from interview transcripts. We will state the proposed steps here, with the complete explanation of all steps in Appendix E.

1. Analyze the sentences and identify possible statements
2. Start with identifying and marking the action or AIM verbs for each sentence. Additionally, mark the total action itself
3. Mark the ATTRIBUTE (subject). In case the subject is a pronoun, specify this where possible. It can be helpful to analyze surrounding sentences
4. Mark the CONDITION for each sentence
5. Mark the OBJECT in the unit of observation
6. Explore and analyze the sentence in more-depth by analyzing surrounding sentences as well
7. Establish the DEONTIC for every statement thus far identified
8. Try and observe any emotional or tangible sanction in each unit of analysis
9. Lastly, code all units of observation as rules, norms, or strategies

After institutions are formalized, the next step within the original INA method is 'drawing institutional network diagrams' (INDs). Before elaborating upon this, we present our methodological addition to the INA method. As noted in section 2.5.2, this addition aims to further disentangle the relation between motivations and institutions. As noted, the current INA method is well-fitted to explore institutional relations, yet exploring motivations is not included.

3.5. Methodological addition: identifying underlying motivations

We will first further delineate this necessity for this addition (3.5.1). Afterwards we will explain the process on how we came to our steps in order to identify motivations from institutional statements (3.5.2). Third, we will present these steps of analysis (3.5.3). We will finalize this section by providing an example of an appliance of our steps (3.5.4).

3.5.1. The need for identifying motivations from institutional statements

We view this addition as valuable as our study focuses on understanding institutional relations, motivations and enforcement mechanisms. In our view it is relevant to further explore the relation between institutions and motivations for members of the SBTi to decide on pursuing cooperative or non-cooperative (climate) actions. As put forward by Muller and Kolk (2010), there is a “necessity to further disentangle social behaviours (and their outcomes) from the drivers [(motivations)] that underlie such behaviours”.

Hence, via our methodological addition we first of all aim to further explore the motivations of actors to pursue particular behaviour. Second, we aim to further examine the link between institutional analysis and motivations³. We try to find answers on several questions: first, what are the motivations for actions pursued? Second, what are the implications of this? Third, can we further explore the relation between motivation and institutions?

3.5.2. Finding a stepping stone to develop steps of analysis

In order to answer these questions, we based ourselves -similar to the INA method- on the institutional grammar. Already when the grammar was developed, Crawford and Ostrom (1995) noted that it is uncertain what the link is between institutional statements and actors' motivations. However, despite this acknowledgement, the institutional grammar does not provide a systematic tool or strategy to disentangle motivations from institutional statements. Thus, to do so, we will present several steps of analysis, which are based on a brief literature review (Appendix G). This review primarily focused on developments within the field of institutional grammar, as well as on the relations between motivation and institutions. We summarize below:

Absolutely, several developments have been made in the field of the institutional grammar. First, multiple authors delved into questions on how the institutional grammar can be computerized or improved⁴. Also they have asserted how different future research agendas for the grammar could look like⁵ or investigated institutional transitions⁶. Second, a handfull of scholars has investigated the relations between pro-environmental behaviour, motivations, institutions and the institutional environment⁷. Furthermore, Siddiki (2018) does provide insights on public policy compliance, yet focuses more on following top-down rules and regulatory systems. Nonetheless, she does state that it is interesting to further explore “how different types of motivational factors interact or influence decisions to comply with institutional directives”. All in all, despite these developments, we were not able to derive a systematic guidance or approach to identify these motivations from institutional statements.

Hence, the found work of Shnayder et al. (2016), who in turn based themselves on Scott (1995) forms the stepping stone for our self-developed steps of analysis. Relating motivations to institutional theory, Scott (1995) asserts that institutions influence and motivate actors. Scott categorizes institutions in the way they impact actors: the regulative, normative and cultural-cognitive (hereafter cognitive) pillar. In Ostromian language we can arguably refer to these pillars as rules, norms and (shared) strategies, respectively.

³We have also evaluated other options which could be valuable within this study. The first was to make a further distinction between strategies, personal norms and collective norms and rules based on their sanction, based on Schlüter and Theesfeld (2010). Nonetheless we encountered some practical problems. Second, an addition regarding conflicting objectives did not prove valuable within this study. This can all be seen in Appendix F

⁴See Frantz and Nowostawski (2016), S. Frey et al. (2019) or Kwon et al. (2020)

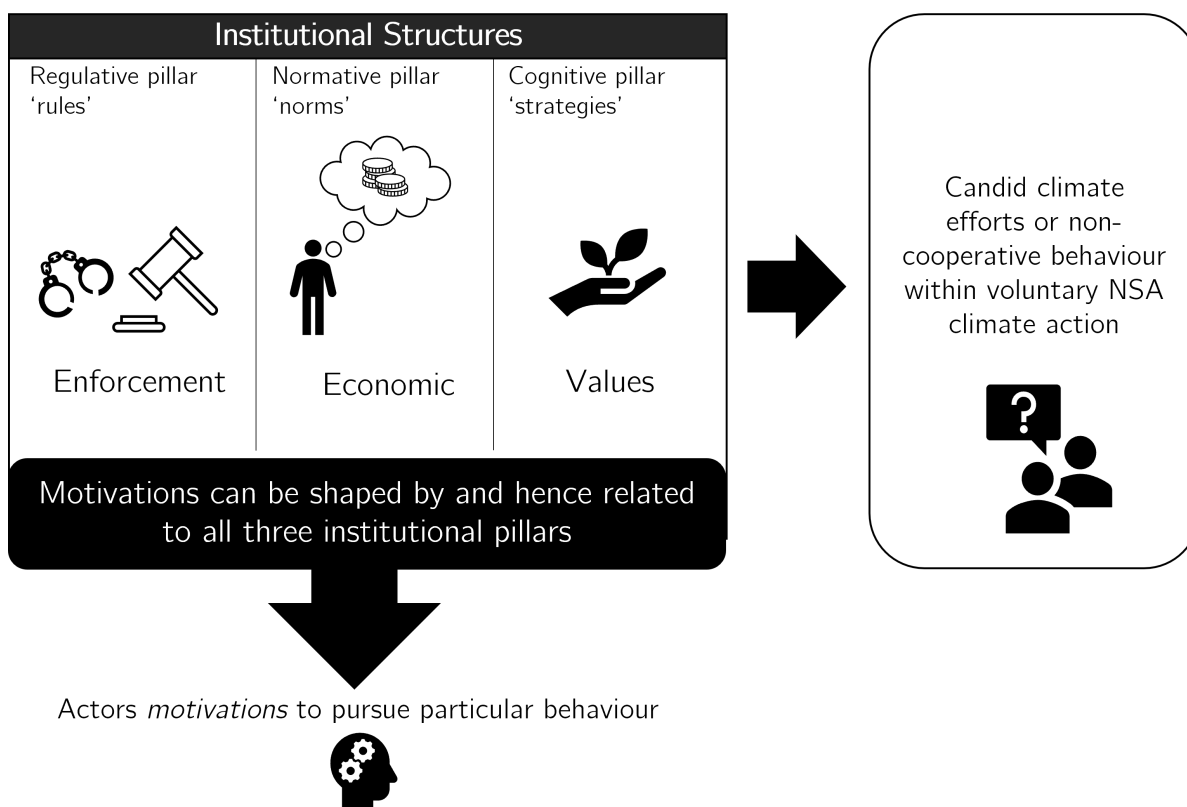
⁵E.g see Therville et al. (2021)

⁶See for example Treuer et al. (2017)

⁷E.g see Campbell (2007) or Li et al. (2019)

Based on these three pillars, Shnayder et al. (2016) argues that a company's motivations can be categorized under one of these three institutional pillars. Under the regulative pillar, motivations that are induced by regulation or enforcement-mechanisms are to be found. The normative pillar includes motivations related to profit or creation of economic-value in general (related to stakeholder demands as mentioned above). Under the cognitive pillar, values -e.g. biospheric or altruistic- are located. Regulative and normative related motivations are viewed as extrinsic, while cognitive related motivations are seen as intrinsic. The linkages between institutional pillars (institutions) and motivations is depicted below in figure 3.4.

Figure 3.4: Three institutional pillars to group motivations. Source: authors own interpretation based on Shnayder et al. (2016)



3.5.3. Our proposed steps for analysis

Based on this foundation, we have drafted several steps of analysis. Working with the institutional grammar, these steps focus on deriving motivations from the CONDITION component of an institutional statement. Analyzing the CONDITION provides two advantages. First, *all* institutional statements: rules, norms and strategies, contain a CONDITION component. Second, within the CONDITION we can -at least within this studies boundaries- often define a particular action being undertaken, hinting at a motivation.

In the end, by relating it to these three different institutional pillars we can study whether an action is inspired by a regulative, economic or value-based motive. Hereby our addition also provides an indication whether a motivation is intrinsic or extrinsic. Afterwards, based on these distinctions, we can relate the motivations to our further research to see what it's implications are. Our steps of analysis are as follows:

1. For every constructed institutional network diagram (IND), examine, identify and label all CONDITION components in place. In case CONDITIONS concern -and are thus labeled as- a temporal, spatial, procedural or process aspect, discard them from this analysis⁸

⁸As can be seen in 3.4.1, CONDITIONS often concern a spatial, temporal, process or procedural boundary. Yet, these type of

2. Identify whether the CONDITION indicates a particular perspective, a want, objective or a desire. This indicates that a motivation is present to undertake a particular action
3. Examine whether the CONDITION or a verb included in the condition hints at an action being undertaken in order to be compliant to the rules in place -thus seen under the regulative pillar. To discover this, a first step is to evaluate which enforcement mechanisms are in place. In case we can speak of an action induced by regulation, identify it as extrinsic and place it under the regulative pillar. If it cannot be placed under the regulative pillar, continue with step 4
4. Examine whether the CONDITION or a verb included in the CONDITION hints at following a code of conduct, financial payoffs external of that of the actor, or creation of economic value -all seen under the normative pillar. In all of those cases, code it as an extrinsic motivation. If it cannot be placed under the normative pillar continue with the next step
5. In case the CONDITION or a verb included in the CONDITION hints at satisfying a particular value or clearly is induced by a motivation which lies in the activity itself, code it as an intrinsic motivation -related to the cognitive pillar. Also in case the objective, goal or value present (beware not the OBJECT!) has a direct link with the attribute, code it as an intrinsic motivation
6. In case motivations are still unidentified, examine the OBJECT. If the object seems impacted by or concerns an external institutional pressure, such as reputation, regulation, market or stakeholders, code this statement as an extrinsic motivation. Then reflect on whether it should be placed under the normative or regulative pillar.

Lastly, if this does not hold, examine whether we can speak of the object being a value or can be interpreted as such. Note it as an intrinsic motivation under the cognitive pillar

3.5.4. Example of our methodological addition applied

To show how our steps can be applied in practice, we provide an example below. This is based on the institutional statements as are identified and presented the IND Commitment and knowledge gathering or 'action arena 1' (we will later present this IND in chapter 4.4.1; also the statements can be found in Appendix K). Applying our steps will result in the following:

First we examine all CONDITIONS, assess them and label them in case they concern a temporal, spatial, procedural or process aspect:

- [C] If it wants to indicate that their company will work to set a science-based emission reduction target (process)
- [C] If it has send the commitment letter (procedural)
- [C] If knowledge and information are offered on the topic of sustainability or climate action
- [C] If value can be added to their client by developing targets
- [C] If it wants to not only state but also undertake action to be sustainable
- [C] If it wants to have a developed target validated by the SBTi (process)
- [C] If it wants to make sure companies go through a robust target setting process (process)
- [C] If potential members of the SBTi have matched all criteria and their targets are seen as valid (procedural)
- [C] If their target is approved by the SBTi (procedural)
- [C] If more value can be added to their client by announcing their approved targets
- [C] If companies targets have been approved AND their targets has been announced (procedural)

CONDITIONS are often not guided by regulations, economic or value-related motives. This at least holds for our study

Afterwards, one can discard all the CONDITIONS labeled as procedural, process, temporal or spatial from the analysis.

Then we analyze whether a verb or action within a remaining CONDITION either satisfies a particular regulative or normative aspect, making them extrinsic motivations. In case this does not hold we examine whether the action is related to values, and thus can be interpreted as an intrinsic motivation. Below every CONDITION we have added our analysis on what type of CONDITION they concern.

- [C] If it wants to not only state but also undertake action to be sustainable.
 - This CONDITION hints at trying to be sustainable, which at first sight can be seen as a value. Nonetheless, in the IND constructed we view that this CONDITION links to the object 'value for clients and shareholders'. Potential members of the SBTi develop targets as this will result in added value for their clients or shareholders. Hence we speak of a normative, extrinsic motivation.
- [C] If value can be added to their client by developing targets
- [C] If knowledge and information are offered on the topic of sustainability or climate action
- [C] If more value can be added to their clients by announcing their approved targets
 - All remaining CONDITIONS are not related to the regulative pillar as there is no identifiable enforcement. Hence we group them under the normative pillar (still extrinsic), as they are not driven by values and are focused on creating economic value or other external economic payoffs.

3.5.5. Identifying enforcement mechanisms

Our study focuses on institutional relations, motivations and enforcement. The INA method allows to study institutions and it's relations, our methodological addition focuses on motivation. So, how can we find enforcement mechanisms?

Via our motivational analysis, we aim to study and identify institutional statements and relate them to three different institutional pillars. As this is the case, we expect to also identify the implications of the regulative institutions and thereby enforcement mechanisms. Therefore, enforcement mechanisms can be identified by reviewing the institutional statements as well as outcomes of the motivational analysis. As noted, the enforcement mechanisms can be both monitoring as well as sanctioning mechanisms.

3.6. INA method: Drawing Institutional network diagrams

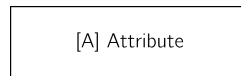
We will now discuss the steps how to construct INDs (3.6.1) as well as offer explanations on how to read and interpret an IND, based on an IND drawn within our research (3.6.2).

3.6.1. Steps for constructing INDs

Based on Mesdaghi (2020), we will walk-through all steps on how INDs can be constructed. In case this holds, for every step we will also define it's relation with the IAD framework, as well as with the ABDICO syntax. Lastly we will present the visual representation of the component or action following from the construction step.

1.
 - **Step 1:** Defining of the action arenas
 - **IAD:** The action arena
 - **ABDICO syntax:** There is no link with the ABDICO syntax
 - **Visualization within an IND:** Within an IND this will be represented as the title of the IND.
2.
 - **Step 2:** Determine which (cluster of) institutional statements defines the action arena
 - **IAD:** Biophysical conditions, Attributes of Community, Rules
 - **ABDICO syntax:** There is no link with the ABDICO syntax
 - **Visualization within an IND:** no visualization
3.
 - **Step 3:** Start with defining the ATTRIBUTE. More precisely, define to who the institutional statement applies to

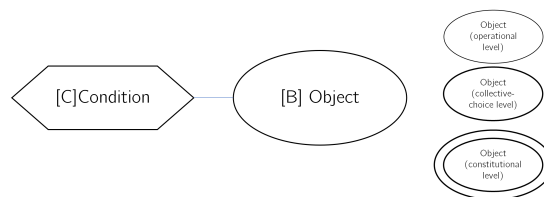
- **IAD:** Participants
- **ABDICO syntax:** Attribute
- **Visualization within an IND:**



4.
 - **Step 4:** Draw a link from the ATTRIBUTE to the CONDITION within the statement
 - **IAD:** Patterns of interaction
 - **ABDICO syntax:** Attribute & Condition
 - **Visualization within an IND:**



5.
 - **Step 5:** From the CONDITION, a link can be drawn to the OBJECT of the statement. We like to emphasize that we can make a distinction between the level of the institutional statement, based on the OBJECTs level.
 - **IAD:** Patterns of interactions & Level of institutional statement
 - **ABDICO syntax:** Attribute, Condition & Object
 - **Visualization within an IND:**



6.
 - **Step 6:** A colour code can be used to distinguish between rules, norms and shared strategies. All linkages within an institutional statement must be coloured in that specific colour
 - **IAD:** Rules
 - **ABDICO syntax:** ABDICO, ABDIC & ABIC
 - **Visualization within an IND:**



7.
 - **Step 7:** Write out the DEONTIC between the ATTRIBUTE and the CONDITION. Second, the AIM of a statement is noted between the CONDITION and the OBJECT. These must also be coloured according to the right colour scheme
 - **IAD:** Rules & Outcomes
 - **ABDICO syntax:** Deontic & Aim



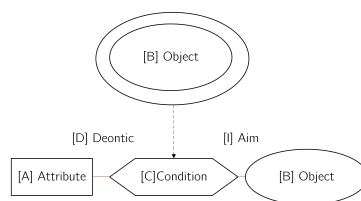
• Visualization within an IND:

8. • **Step 8:** In case the OBJECT of an institutional statement influences the CONDITION(s) of another institutional statement, a black dotted arrow from the object of one institutional statement must be drawn. This arrow must be drawn to the CONDITION(s) of the other institutional statement. Once an object does not influence other statements, it is an outcome of an IND

• IAD: Patterns of interaction & Outcomes

• ABDICO syntax: Object & Conditions

• Visualization within an IND:

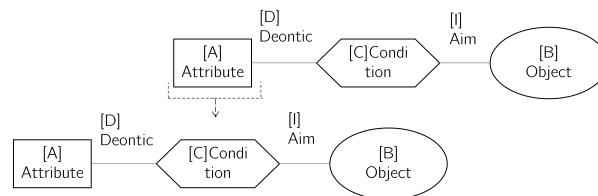


9. • **Step 9:** For formal sanctions, a rectangular dotted line must be drawn. This line surrounds the ATTRIBUTE and the DEONTIC. The line must be connected to the conditional statement (diamond), which states the sanction in case the AIM is not conducted

• IAD: Rules

• ABDICO syntax: Or else

• Visualization within an IND:

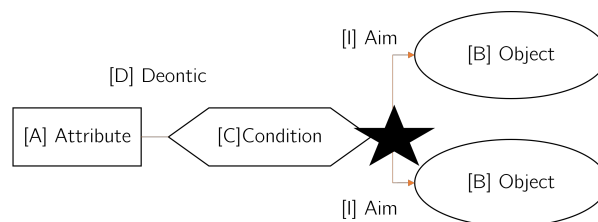


10. • **Step 10:** In case two or more statements result in different outcomes, we speak of an institutional conflict. In this case a black star is drawn

• IAD: The concept in the IAD framework concerns the action arena

• ABDICO syntax: There is no link with the ABDICO syntax

• Visualization within an IND:



3.6.2. Interpreting and reading an IND

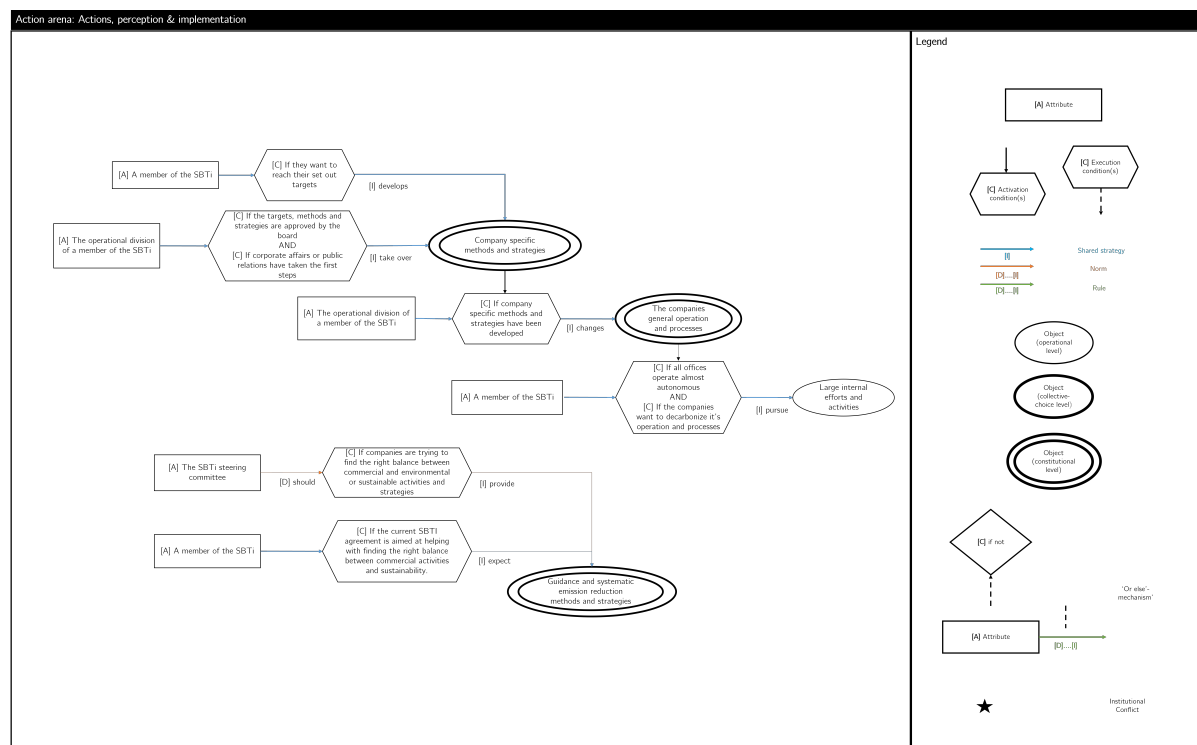
We will briefly illustrate how an IND can be ‘read’ and interpreted. We will further elaborate upon this IND (figure 3.5) in subsection 4.4.1. In addition, we will not separately reflect on institutional relations, motivations and enforcement here. Yet we will do so in chapter 4.

Within this IND, the action arena ‘action, perception and implementation’ is depicted. This IND includes 6 institutional statements. This follows from the number of AIMS we can identify within this IND. Most of the institutional statements are strategies. Besides, 3 ATTRIBUTES are displayed: a member of the SBTi, the operational division of a member of the SBTi and the SBTi steering committee.

In general, we can separate two different processes within this IND. The first process is sequential and describes which actions are undertaken. Companies mainly make use of strategies to work out their decarbonization action plans. First, members of the SBTi indicate that in order to reach their set-out CO₂ reduction target, large efforts are required. While the target has often initially been set by the departments of corporate affairs or public relations, the operational divisions of the companies now needs to take action. To make sure that the members of the SBTi decarbonize, it is essential for the ‘operation’ to lower emissions. After all, actions within the operation distinguish ‘action from rhetoric’.

Nonetheless, as is displayed in the second process, this is in some occasions not so straightforward. Companies namely need to balance commercial and environmental interest, and in some occasions these are not compatible. This is captured in the following institutional statement: [A] The SBTi steering committee [D] should [C] If companies are trying to find the right balance between commercial and environmental or sustainable activities and strategies [I] provide [B] Guidance and systematic emission reduction methods and strategies.

Figure 3.5: Example of an IND, based on our research



3.7. INA method: Network Analysis

The INA method prescribes three ways to analyze a constructed IND. First, institutional conflicts can be addressed and analyzed. If possible, recommendations can be provided to overcome this conflict. Second, institutional network metrics can be calculated and consequentially interpreted. Third, insti-

tutional statements from different constructed INDs can be linked together (Ghorbani et al., 2020). As we discussed institutional conflict in chapter 2, we will expand on the network metrics and linkages between INDs below.

3.7.1. Network metrics

We will present the most important network metrics for the INA method, being: centrality, density and embeddedness. Also we expand on how they must be interpreted within our study. This is all displayed in figure 3.6 (also see Appendix H). Ultimately, the outcomes of the network analysis contribute to providing analytical insights and recommendations, which we aim to do in chapter 5.

Figure 3.6: Network metrics and their meaning in our context. Based on the work of Ghorbani (2021)

Metric	Centrality (attribute)	Embeddedness (object)	Density (Institutional interdependency index) (object)	Institutional conformance index (ICI)
Range & Interpretation of value	The range is between $[0, \infty]$. An attribute with a low centrality has a score below 1. An attribute with a score above 1 can be interpreted to score high on centrality. Higher scores relate to the ease of communication	The range is between $[0, 1]$. Scores closer to 0 indicate a low embeddedness. A low number of institutions are dependent on this object for their execution. Vice-Versa for higher scores closer to 1	The range is between $[0, 1]$. Lower density, scores closer to 0 hint at a lower number of institutions relying on the execution of other institutions for their own execution. Vice-versa for higher scores close to 1	The range is between $[0, 1]$. If the number is not one, it shows that there is conformance issue. Because each condition should lead to one object and not more.
Link to behaviour	Based on the ability to communicate, the link to behaviour is as follows: The importance of an actor within the network of actors in steering behaviour or being steered by behaviour of others.	In case of a low score, this could mean that multiple actors are concerned or share the responsibility for achieving the same outcome (object)	No clear link between density and behaviour of actors	No clear link between ICI and behaviour of actors

We like to emphasize that the outcome of the institutional conformance metric will serve as some sort of 'hygiene check'⁹. One condition can only lead to one object and nothing more.

3.7.2. Linking INDs

Due to the fact that our action arenas are also related to the process steps of the SBT agreement, the four INDs to some extent merge into each other. This is somewhat similar to the linkages between action situations (NAS) as proposed by McGinnis (2011b). In the end, the outcomes are expected to impact each other. We will come back to these linkages in chapter 5.

3.8. Verification and validation

After the INDs have been constructed and our outcomes have been analyzed, we will verify and validate our network diagrams and results. We will first verify our results with the help of Dr. Amineh Ghorbani, who can be seen as one of the founders of this method. Afterwards the results of our INDs will be validated by sharing and discussing them with two different academics in the field of institutional

⁹a check whether an outcome of a method also satisfies the basic needs of a method

analysis, voluntary agreements and climate action: Dr. Nicholas Reksten and Prof. Dr. Kilian Bizer. The outcomes of these two sessions will be described in chapter 5.

3.9. Conclusion

Within this methodological chapter we have -with the exception of our initial background examination, methodological addition and verification & validation- presented and discussed the INA method. The INA method consists out of 5 steps, being: data-collection, coding & clustering, formalization, drawing INDs and network analysis. First, we will conduct document analysis and semi-structured interviews. Based on our understanding of the SBTi thus far, we will construct four INDs, as we have defined 4 action arenas. These are: Commitment & knowledge gathering (commit within the SBTi process); action, perception and implementation (develop and submit); coordination & cooperation (communicate) and enforcement (communicate and disclose).

After data is coded and clustered, narratives can be created. Subsequently, institutions are formalized and transformed to institutional statements. The institutional statements found will be placed within their respective institutional network diagrams (INDs). These INDs allow to visualize the institutional environment and the relations between formal and informal institutions. This will ultimately be needed to better unravel the impact and role of formal and informal institutions for the case of voluntary NSA climate action. Moreover, via our methodological addition we aim to disentangle the relation between motivations and institutional statements -and thus institutions. All in all, the INA method in combination with our motivational analysis addition allows to study institutional relations as well as motivations and enforcement.

4

The institutional context: NSA climate action within the SBTi

“When individuals are given an opportunity to restructure their own situation, they frequently, but not always use this opportunity to make credible commitments and achieve higher joint outcomes without an external enforcer” (E. Ostrom et al., 1992)

In section 4.1 we will offer more background on the SBTi and the three committed F & B companies within our scope. Then section 4.2. will present the discourses and narratives constructed. Afterwards, section 4.3. will cover assumptions related to the drawing of the INDs. In section 4.4. we will discuss and explain how our constructed INDs can be interpreted. Ultimately, this chapter forms the build-up to chapter 5, in which we will provide analytical insights.

4.1. Case specification: contextual overview

First, section 4.1.1 will provide more information on the SBTi, in order to allow for a better understanding of this initiative. Then section 4.1.2 will summarize the outcomes of our desk-research concerning our case-studies. As noted in chapter 3, ‘all three Dutch F & B SBTi members have been quantitatively and qualitatively studied via desk-research’. In addition, we offer some general information on the sector. More information and data is displayed in Appendix B.

4.1.1. The SBTi

The SBTi is one of the first NSA VAs to apply quantified goals to realize CO₂ emission reduction¹. Companies attempting to curb global warming, can commit to targets which aim at keeping the global temperature at 2 °C, well below 2 °C or 1.5 °C² (Science Based Targets Initiative, 2019a). The SBTi has been founded by four parties: World-Wide Fund for nature (WWF), World-resource institute (WRI), Carbon Disclosure project (CDP) and the United Nations Global Compact (UNGC). Together they form the *SBTi steering committee*.

When companies want to participate, the SBTi steering committee has drafted 5 steps which need to be fulfilled in order to become and remain a member. Sequentially listed, these steps are:

1. Commit: submitting a letter of intention to set a science-based target. Parties are stimulated to commit to the highest possible level of ambition
2. Develop: develop emission reduction targets and plans aligned with the SBTi criteria. This step consists of determining a carbon ‘budget’³, drafting emission scenarios and choosing the allocation approach. Regarding the latter, this means choosing how the carbon budget is ‘translated’

¹Source: personal communication with Prof. Dr. Kornelis Blok

²One of the reasons behind aiming at 1.5 °C instead of 2 °C is provided by the experts of NASA (2019). Limiting global warming to 1.5 °C instead of 2 °C, will help maintain an enormous layer of permafrost, thereby trapping the stored CO₂ below

³“Amount of carbon dioxide that a country, company, or organization has agreed is the largest it will produce in a particular period of time”(Cambridge English Dictionary, 2010)

to practical requirements to make sure that decarbonization is realized. Last, an initial base-year and thereby emission level must be chosen. Future emission levels can then be compared to that base-year.

3. Submit: submit and present the target & plans to the SBTi for external review and validation
4. Communicate: communicate both a set target and company-wide emissions, after targets have been accepted. Moreover, members have to annually communicate their emissions, progress and target to stakeholders
5. Disclose: annual disclosing and reporting of annual emissions & tracking of emission reduction progress

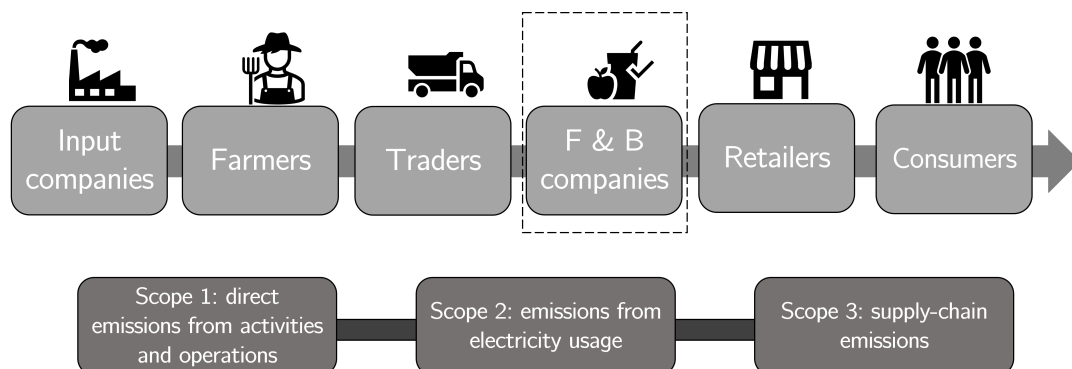
To conclude: the SBTi tries to increase the level of climate mitigation action by providing a structured approach to do so.

4.1.2. Case-studies on three Dutch F & B companies

General sector information

Due to its global orientation, the entire F & B value-chain from input to consumer is highly interdependent. As a result, F & B companies are largely affected by disruptions. As the consequences of climate change can be considered disruptive, it is a real risk that climate change will make the value-chain more fragile and vulnerable (PWC, 2020). From the value-chain as has been depicted in figure 4.1, this study focuses on the 4th 'chain component'. The 3 F & B companies within our scope are all responsible for the production of food, beverages or related additives.

Figure 4.1: F & B value-chain visualized in combination with scope 1,2,3 emissions. Value-chain based on PWC (2020)



Qualitative and quantitative desk-research outcomes

The activities of the 3 companies within our scope are diverse. Heineken focuses on brewing beer, Farm-Frites on cultivating potatoes & producing fries and Corbion is the global market-leader in lactic acids and algae ingredients. The companies vary in size, ranging from 84.000 (Heineken) to 1500 employees (Farm-Frites). Also, they have committed in different years and have set different base-years. Farm-Frites still needs to set their official SBTi target, while Heineken and Corbion have already done so. Moreover, while production facility characteristics (due to different products) are different, it becomes clear that to some extent all companies have incorporated sustainability and climate action within their company's mission or values. Nonetheless, while Corbion clearly reports what its drivers are behind SBTi commitment and efforts, the other two remain more ambiguous. There is one common denominator for all three companies scrutinized: commitment to the SBTi has to do with 'climate leadership'⁴.

Our quantitative emission (reduction) analysis depicts mixed results. Farm-Frites has lowered Scope

⁴"It is how businesses tell the world they understand the transition to zero-carbon is underway and are up to date and on board with the changes they need to take. Companies that lay out their climate ambition stand to win a reputation for leadership and a head start on their competitors" (We Mean Business, 2021)

1 emissions in 2019 as compared to *our chosen base-year* of 2015, while Scope 1 emissions have increased for Heineken & Corbion. Besides, Scope 2 emissions for Corbion and Farm-Frites shows a reducing trend.

An overview of the desk-research’s outcomes is depicted in table 4.1. We must emphasize that companies are only required to disclose emission data once they have set a target and have become a ‘full’ member of the SBTi. Furthermore, Heineken and Corbion are publicly listed, while Farm-Frites is not. As a result of both differences, some data (mostly for Farm-Frites) was not found.

	Heineken	Corbion	Farm-Frites
Status	‘Target-set’	‘Target-set’	‘Committed’
Product	Beer	Lactic acids	Fries
Year of Target-set	2021	2019	No target set
Target aimed for	Well-below 2 degrees	2 degrees	No target set
Scope 1 Emissions development Company base-year - 2019 [%]	-0.50	7.4	No target set
Scope 1 emissions change 2015-2019 [%]	1.41	9.8	-2.6
Scope 2 emissions change 2015-2019 [%]	NO DATA	-23.5	-33
Operating profit development 2015-2019 [%]	18.9	-43.6	NO DATA
Total revenue growth 2015-2019 [%]	16.5	6.3	NO DATA

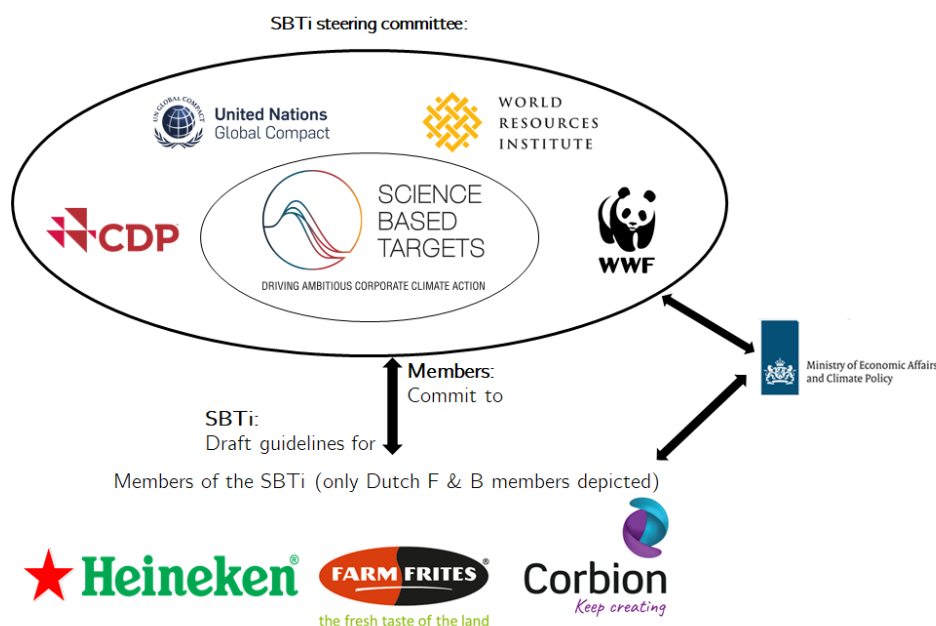
Table 4.1: Results from desk-research for the case-studies

4.1.3. Relations between actors

Before presenting the narratives, an overview of the relations between our interviewees is depicted in figure 4.2. We illustrate this to provide some insight in the ‘dependencies’ and relations between them.

The SBTi steering committee drafts the guidelines for members of the SBTi, such as the three Dutch F & B companies. These companies in return must satisfy all guidelines and requirements, as they are-, or want to become a ‘member of the SBTi’. For comprehension, from here onwards we will also refer to **all** F & B companies in scope as *members of the SBTi* or *members*. Moreover, all Dutch members are to some extent also guided by Dutch climate policies drafted by the Dutch ministry of Economic Affairs and Climate Policy. Lastly, a more ‘implicit’ relationship exists between a VA such as the SBTi and the ministry, which we will reflect on later.

Figure 4.2: Relations between the SBTi steering committee, Members of the SBTi & Government, visualized in an adapted formal chart. Formal chart concept based on Enserink et al. (2010)



4.2. Narratives

Within this section, different narratives will be presented based on the discourse analysis of interview transcripts. These themes and narratives will aid in constructing and understanding the INDs. In addition, they provide easily interpretable insights. These will be presented now:

SBTi as a structured framework to implement climate action

The SBTi provides a structured framework to transparently review and develop actions in order to contribute to combatting climate change

The SBTi steering committee is responsible for drafting the guidelines which need to be respected by members of the SBTi. It has been mentioned multiple times that the current steps and guidelines as have been outlined by the SBTi contribute to setting focused and clearer goals. Also, as the SBTi obliges participants to disclose emission data, the transparency of members' actions and efforts increases. Moreover, the SBTi's guidelines results in information, best practices and knowledge being easily received by its members. In the end, the SBTi set-up makes sure that members are forced to translate the higher level climate goals to concrete actions. This is one of the main arguments why the participating members of the SBTi find that the SBTi is an effective agreement.

SBTi as an addition to current practices and creator of value

The SBTi is an addition to companies' current sustainability & environmental practices; and their clients and other stake- or shareholders value this

To date, sustainability and climate change can no longer be ignored. Also for companies, setting a clear directive and showing their focus on tackling these problems is necessary. Companies, to ensure being future-proof, acknowledge and endorse this themselves. This primarily has to do with two reasons. On one hand, companies must improve their value offering to attract new talented employees or new clients. On the other, they need to suffice the needs of current stakeholders -such as shareholders or clients. While in the past climate action was often seen as vague and incomprehensible, the drafted steps by the SBTi can be used to more clearly communicate a company's actions and climate efforts to shareholders, clients or other stakeholders.

Members of the SBTi reporting and monitoring

Members of the SBTi disclose (report) their data to be transparent and if needed to be held accountable

Participants are obliged by the SBTi to disclose their data at a certain location. In practice, members often disclose at two locations: in their own annual reports or by filling in the CDP questionnaire. As noted in chapter 3, based on the filled-in questionnaire, the CDP assigns a particular score to the current climate efforts of companies. According to Ban-ki Moon, the former UN secretary general, the work of CDP is essential to climate success in this century. This as the CDP is "helping persuade companies throughout the world to measure, manage, disclose and ultimately reduce their greenhouse gas emissions". Moreover, they are the only organization which gathers this type of corporate data, analyzes it and provides it again to the global marketplace (CDP, 2021).

In general, disclosing of emission data is seen as valuable as it increases transparency. Disclosing makes sure that emission data can be analyzed and if needed that members can be held accountable for their actions or for their inertia. Nonetheless, from a company perspective, this transparency can also be an obstacle. In case members of the SBTi disclose their data at CDP, the risk is present that consumers or shareholders find that not enough has been done. As a result, these stakeholders might react in order to bring about change.

The drivers behind CDP disclosure

The CDP score has an impact on the level of financing companies can obtain, as a higher CDP score results in a higher credit rating and eases the obtainment of receiving financing

Members of the SBTi strive to get a higher CDP score as this impacts the way they can obtain financing. Today, banks and other credit lenders relate environmental scores or ratings to credit ratings (e.g. see Devalle et al. (2017)). Therefore, members also strive to obtain higher CDP scores as this will help them in obtaining finance more easily. This allows them to invest in other projects in an easier manner.

The SBTi and sanctioning mechanisms

Sanctioning mechanisms are not seen as beneficial for an agreement as the SBTi

At this point, no formal sanctioning mechanisms are installed by the SBTi steering committee. This means that no tangible (monetary) punishments are incorporated within the agreement in case of not showing substantive behaviour. Nevertheless, members of the SBTi also argue that sanctioning mechanisms are not necessary as this - in their view - will not contribute to progress. Besides, members remark that the SBTi (from a judicial point of view) is not allowed to sanction its members.

In addition, members of the SBTi will not sanction other members in case of non-compliance. What members do expect is that the 'larger society' (consumers or shareholders) holds them or other members accountable if needed. However, society should not put sanctions in place as this affects the motivations for decarbonization and participation in the SBTi in a negative manner⁵. After all, members undertake actions, thereby take their responsibility and are trying to be transparent in doing so. Hence, they should not be too harshly evaluated or even sanctioned. Albeit, what could be beneficial in members' view are rewards. Members argue that society could possibly honor the companies that pursue candid climate efforts.

The SBTi and collaborating members

Members in some cases want to cooperate more intensively with others, yet are hindered or risk sanctioning when doing so

In most cases, members perceive coordinating and cooperation on climate action as beneficial. To reach particular goals, members of the SBTi must collaborate upon particular terrains. And they currently do so as they often share best-practices with each other. Nonetheless, within some occasions it might be useful to share more than best-practices. However, at this point members will not, as competition authorities and hereby competition law does not allow them do so. In the end, the risk of getting a fine weighs more heavily than learning or collaboration.

Members of the SBTi and the balancing act

Members need to balance commercial and environmental interest, and in some occasions these interests are not compatible

In case ambiguity exists, members of the SBTi desire more guidance and systematic emissions reduction strategies, provided by the steering committee of the SBTi. Nonetheless, this is currently not provided.

4.3. Drawing Institutional networks

Within this section we will elaborate upon the choices and assumptions made while constructing the INDS. The INDS will be studied in the next section (4.4).

4.3.1. Choices and action-arenas

Four action arenas (topics) and thus INDS were established: (1) commitment & knowledge gathering; (2) actions, perception and development; (3) coordination & cooperation; (4) enforcement. The graphical representations of the first two INDS are excluded within this body text (these can be found in Appendix H, together with the network metric calculations for all INDS). Even so, we *will* discuss the institutions, their relations, derived motivations and enforcement aspects captured in these two action arenas (also see figure 4.3).

⁵Arguably related to the crowding out effect. "The motivation crowding effect suggests that external intervention via monetary incentives or punishments may undermine, and under different identifiable conditions strengthen, intrinsic motivation" (B. S. Frey & Jegen, 2001)

4.3.2. Assumptions

To construct the institutional network diagrams, assumptions had to be made compared to the original institutional grammar and INA method. First, an assumption has made concerning rules. According to Crawford and Ostrom (1995), rules must possess an 'OR ELSE' component to be considered a rule (otherwise it would be a norm). However, the formal institutions derived from the SBTi document analysis do often not possess such an 'OR ELSE'. Nevertheless, they are still assumed to be rules, as they are derived from formal SBTi documentation and as every company needs to oblige or comply to them.

Second, in some instances, identified norms have assumed to be strategies. Following the theoretical notions, we found that while some statements indicated a DEONTIC, they could not be seen as rules or norms. Therefore, they are assumed to be strategies. For example, an original found institutional statement is [A] A member of the SBTi [D] should [C] if the actions primarily concerns their own core-business processes [I] not coordinate [B] actions with other parties. This has been transformed to a strategy.

Third, another important assumption concerns that institutional statements related to individual members of the SBTi have been generalized to 'A member of the SBTi'. Concretely, this means that a statement by e.g. Heineken is presented as a statement by 'A member of the SBTi'. Arguably, the consequence of this generalization is that individual detail is lost. Moreover, the possibility exists that some results are generalized, while they do not hold for all members. Nonetheless, for our analysis, this was the only workable way⁶ which resulted in a better possibility for exploring the institutional environment of voluntary NSA climate action.

Lastly, a note on interpretation. The current INDs (might) convey the message that every action arena is static and that companies will only execute actions sequentially. To construct the INDs we have also taken in this static perspective. However it is important to stress that most action situations do occur simultaneously. For example, companies need to commit (which to some extent is static), although afterwards they pursue different actions in parallel. These actions could range from coordinating and cooperating with others while also working on disclosing their data. Based on the outcomes of these simultaneous efforts, members might assess their further actions in a different manner, and change them in an iterative way.

4.4. Institutional network diagrams

INDs are graphical representation of the networks of institutional statements in an action arena (Ghorbani et al., 2020). As noted, institutional statements are derived from document- as well as interview analysis. For every action arena (IND), we will first 'capture' the institutional context. This implies that we will describe what can be seen when observing the INDs constructed. We present how every IND can be interpreted and what must be 'taken-away' from these diagrams. Afterwards we will be describing the relations between institutions, as these are the main reason for choosing a network perspective. This is followed by reflecting on motivations, found via our steps of analysis presented in chapter 3. We will finalize by elaborating upon the role of enforcement, if applicable. See figure 4.3 for an overview of our aspects discussed. All of this will form the foundation for the analytical insights provided in chapter 5. Lastly, all institutional statements used within the INDs are presented in Appendix I.

Figure 4.3: Outline of coming sections' aspects discussed, unless noted differently



⁶In case we would have depicted so many different actors, the INDs are expected to lose comprehensibility. Besides, based on the knowledge we acquired we think it was often safe to assume that a statement generalized holds for multiple Members. Still, we are aware that this is vital to be checked in further research

4.4.1. Institutions in Action arena 1: Commitment & knowledge gathering

Within this action arena, parties wanting to commit need to follow several steps in order to become a member. This IND can be found in Appendix H.

Institutional context captured in the diagram

Multiple formal institutions indicating a procedural step which needs to be completed are displayed. These procedural steps refer to the guidelines as drafted by the SBTi steering committee. First, parties indicating that they want to set a science-based target must send a commitment letter to the SBTi. After this commitment letter has been submitted, the process of target development is initiated. Once a company's target has been developed, they need to be validated by the SBTi. And to become validated, potential members must match all criteria as set-out by the SBTi steering committee.

In case all criteria have been matched, the SBTi must validate the target. Once validation is successful, the SBTi steering committee confirms that parties have set an approved science-based emission reduction target. Following this approval, a potential member has almost become a full member. In order to become one, the targets must be announced. In case this is not done within 6 months, a formal OR ELSE exists: companies will have to resubmit their target in order to see their target approved. Once their approved target is announced, they will become recognized and ultimately have become a member of the SBTi.

Institutional relations

It becomes clear from this IND that we can speak of some sort of sequential process relations between institutions. The formal institutions sketch the boundaries wherein informal institutions guide the actions of (potential) members. In this IND, we did not identify any institutional relation leading to unexpected or undesired outcomes. The steps fulfilled result in other steps being undertaken. Due to these 'waterfall'⁷ process steps, the outcomes are relatively predictable.

Identified motivations

Within these subsections we will discuss identified motivations, based on the appliance of our methodological addition as has been described in chapter 3. As we evaluate the CONDITION component of an institutional statement, we will present the CONDITION from which we derived a motivation below. Afterwards we will evaluate whether we can speak of a regulative, normative or cognitive pillar related motivation. As noted, this also allows to differentiate between an extrinsic as well as an intrinsic motivation.

Within this IND, four conditions have been identified which indicate a motivational component:

- *[C] if it wants to not only state but also undertake action to be sustainable.* This condition hints at trying to be sustainable, which at first sight can be seen as a value. Nonetheless, this condition links to the object of 'value for clients and shareholders'. Potential members of the SBTi develop targets as this will result in added value for their clients or shareholders. Hence we speak of a normative, extrinsic motivation
- *[C] If value can be added to their client by developing targets; [C] if knowledge and information are offered on the topic of sustainability or climate action; [C] If more value can be added to their clients by announcing their approved targets.* All these three conditions are profit related and therefore can be placed under the normative pillar. Actions are all driven by extrinsic motivations, as they are based on external economic payoff and creating economic value.

The role of enforcement

The SBTi steering committee has drafted several rules which need to be respected by companies to make sure companies' commitment is completed. They can be categorized as procedural rules, indicating which actions need to be executed or which criteria need to be fulfilled. Within this action arena we can consider one of the formal rules as installed by the SBTi as an enforcement mechanism. Namely, in case a company's target has been approved, a newly become member must announce their target.

⁷"A core principle of the waterfall development approach is that a team [or any organization] using it can't move to any phase without ironing out the details of the preceding one" (McKinsey, 2016)

In case this is not done within 6 months, companies need to resubmit their science-based target (OR ELSE mechanism). As a result, underlying this announcement -and thereby the enforcement mechanism in place-, an implicit accountability mechanism arises. Announcement creates the possibility for other stakeholders to take notice of a company's commitment, hereby allowing for a monitoring process to be initiated later by the larger society.

4.4.2. Institutions in Action Arena 2: Actions, perception and development

Once companies have become an official member of the SBTi, actions need to be developed to decarbonize and ultimately reach their science-based target. Also this IND can be found in Appendix H.

Institutional context captured in the diagram

After companies have successfully become members of the SBTi, they develop company specific methods and strategies. They do so in order to decarbonize and reach their set out science-based targets. While the target has often initially been set by the departments of corporate affairs or public relations, the operational divisions and thereby the operation of the companies then needs to take action. To make sure that the members of the SBTi decarbonize, it is essential for the 'operation' to change. After all, actions within the operation distinguish 'action from rhetoric'. Last, members of the SBTi admit that large efforts are often required in order to aim at reaching their target. This is due to operational processes in need of change, in combination with the fact that their operations are often located all around the world. Therefore this process is in some occasions not so straightforward. We will explain this under institutional relations.

Institutional relations

Regarding the institutional relations, we must separate two different processes within this IND. The first process is a sequential process like in IND 1. What is different is that informal institutions prevail over formal institutions. Companies are guided by (or follow) strategies to work out their decarbonization plans.

Then, the other process is indicating a particular relationship between two institutions. Companies need to balance commercial and environmental interest, and in some occasions these are argued to not be compatible (strategy). In case ambiguity exists, members of the SBTi desire that guidance regarding what actions to pursue is provided by the steering committee of the SBTi (norm). Nonetheless, this is currently not provided by the SBTi steering committee. Yet we cannot speak of an institutional conflict, merely of a lack of guidance.

Identified motivations

Applying the steps for disentangling motivations from institutional statements, we found two CONDITIONS which indicate a motivational component. These are:

[C] If companies want to decarbonize their operation and processes & [C] If they want to reach their set out targets.

Based on this IND we were initially not able to clearly disentangle the motivations underlying the institutional statement. These motivations cannot be placed under the regulative pillar. After all, no related regulative mechanism -rule- is in place within this or others INDs. Still, ambiguity exists whether they are profit-driven (normative) or value based (cognitive). An exploration of the other INDs learns that the motives for these actions can be found in action arena 4. The drivers are mainly related to the role of their clients, share- or other stakeholders. Hence, for both CONDITIONS, the motivations are therefore seen as normative and extrinsic. We will return to these drivers when discussing action arena 4.

Enforcement

This action arena mainly consists out of strategies. No formal or tangible enforcement mechanisms are found.

4.4.3. Institutions in Action Arena 3: Coordination and cooperation

For effective collective action and overcoming social dilemmas such as combatting climate change, cooperation and coordination among members is expected to be necessary. This subsection on 'coordination and cooperation' and the following on 'enforcement' differ somewhat from the first two. This as we found more aspects deemed relevant to answer our research questions associated within these action arenas. After capturing and describing the institutional context, we will again reflect on the institutional relations, motivations and enforcement mechanisms. See figure 4.4 for the complete IND.

Institutional context captured in the diagram

Based on this IND, we will highlight four different processes. Within these processes, members of the SBTi play the key-role. We have also indicated whether formal or informal institutions can be associated with the process.

Informal institutions: Members are implementing and creating best-practices, which can be shared among members via two paths

First of all, members of the SBTi recognize the benefits of cooperation and learning from each other. This primarily shows itself in the form of sharing best-practices among each other. These best-practices may vary from 'sustainability' in general to the processes following from commitment to the SBTi (action arena 1 & 2). To have this learning effect, there is a choice of two trails.

First, as the SBTi does not organize or facilitate meetings with participating companies herself, companies meet at other places. Members meet in particular communities or platforms that focus on climate change, the energy transition or other environmental programs. In case they meet each other at these locations, they may share best-practices (norm). Second, members can make use of consultants to obtain knowledge (strategy). In case these consultants are the same -yet hired by different members- members may implement the same best-practices (norm). Two learning pathways for these best-practices thus exist. Both pathways are related to norms, which are allowing them to share best-practices, yet it is not formally enforced to do so.

Informal institution: Members wanting to cooperate, only do so with companies which are operating in different sectors and do not extensively cooperate with their competitors

Members cooperate on particular terrains to achieve their goals. In institutional terms, two strategies are found. In most occasions, members indicate to coordinate actions and cooperate with members who are not in their sector. Nonetheless, in case their actions (or information) concern their own business practices, members themselves decide not to coordinate and cooperate with any other party. Arguably this is at odds with the fact that they need to work together.

Formal institution: Members are to some extent, hindered by formal legislation to share particular information

Members do not coordinate any more actions with each other than the sharing of best practices. This behaviour or decision is based on a formal (enforcement) institution in place. Members indicate to be 'scared' to violate the Dutch competition law. Arguably not unjustified, as the Autoriteit Consument en Markt or ACM in short (the Dutch competition authority), has put a sanction in place⁸. In general, if companies in the Netherlands are considered as harming the competition on the Dutch market there is a punishment of 900.000 euro. More specific, the Dutch competitions law forbids arrangements between corporations, or deliberately coordinated actions between corporations, which in turn limit or falsifies the competition, or a part of the competition, on the Dutch market. As this holds for all companies located in the Netherlands, this also holds for Dutch members of the SBTi.

All in all, a distinction exists between cooperation (sharing of best-practices) versus sharing of sensitive business information. In the end, members of the SBTi indicate that the risk of sanctioning outweighs the possible benefits of cooperation and sharing of more than best practices.

Informal institution: Members wanting to cooperate, often take the desires of other members into ac-

⁸After multiple members indicated to be afraid of violating the law, this sanction was found by analyzing the law document via Rijksoverheid (2021)

count

When there is decided to work together, a norm is that parties aim to take the desires of other members into account. As these are cooperative processes, one member can not solely pressurize other members to do what they want.

Institutional relations

Within this action arena, the informal institutions again prevail over the formal institutions in guiding behaviour. Moreover, we see that multiple informal institutions lead to pursuing actions with other members, which in turn lead to sharing of best practices, as well as development of the norm “taking the desires of other parties into account”.

Furthermore, institutional interaction can be identified, although not leading to undesired, conflicting outcomes. Interplay takes place between two strategies (bottom-left of the IND) and a rule and concerns the need for members to coordinate as well as reasons for not coordinating. First of all, companies want to- or even must cooperate on particular topics to reach their goals. However, they will not cooperate once it is related to sharing their companies own business practices. Both are clear examples of strategies that take place internally within a company. This being said, even when they want to cooperate, members of the SBTi may be hindered by formal regulation (Dutch competition law), as seen in the depicted rule.

We placed a final reflection regarding this interplay of institutions under the heading of enforcement.

Identified motivations

In action arena 3, two CONDITIONS have been found which provide an indication for the motivations of actions by the SBTi member companies. These are:

[C] if they want to achieve their targets on different terrains (e.g technology) & [C] if they are in some occasions in need of external knowledge concerning climate action or to help them with target setting and implementation.

So what drives members to be in a need of successfully implementing and reaching their targets? It cannot be related to regulative aspects. Yet again, the answer can be found when further exploring action arena 4. Members experience the need to obtain a better CDP rating, improve -or at least maintain- a good reputation and satisfy shareholders' needs. Ultimately, economic value is created when pursuing candid climate efforts, resulting in motivations to be placed under the normative and extrinsic pillar.

Enforcement

Companies (and thus members of the SBTi) will receive a sanction in case they cross the borders of Dutch competition law. Indeed, this enforcement does take place within the institutional environment. Nonetheless, this enforcement mechanism is not installed by the SBTi.

4.4.4. Institutions in Action Arena 4: Enforcement

Similar to the section on coordination and cooperation we will dissect several important themes for action arena 4. This action arena focuses on enforcement. Again, we have also indicated whether a formal or informal institution(s) can be associated with the process. Within this action arena, a large diversity of institutions exists. See figure 4.5 for the complete IND.

Institutional context captured in the diagram

Informal institutions: neither the SBTi steering committee or other members of the SBTi file complaints in case other members do not depict substantive behaviour

Two shared strategies can be observed. Both the steering members as the members among each other do not file complaints in the case of non-compliance. This implies that no sanctioning takes place, when members do not decarbonize and thereby arguably are not pursuing candid climate efforts. Members indicate to not watch other members actions due to two reasons. First, the system boundaries and criteria for reporting might differ. Second and most of all, they do not see themselves responsible for signalling other members who are not on track to achieve their targets. They consider this as something which is out of their scope of action. Taking this as our starting point, this IND does depict other enforcing mechanisms, steering members of the SBTi.

Formal institution: companies must disclose their emissions

The SBTi steering committee has drafted a guideline, which can be interpreted as a formal institution (hence it is displayed as a rule statement). This rule prescribes that all members must disclose their company wide greenhouse gas emissions and progress. They may do so at every location they desire, as long as it is done in the end. Moreover this disclosure must be done every year. We like to emphasize that no tangible sanction can be linked to this formal prescription (see 4.3.1 why we still coded it as a rule).

Formal institution: a CDP rating must be announced

As a result of the formal prescription noted above, members of the SBTi mostly disclose both in their annual reports as well as to the CDP. Companies fill in the CDP questionnaire and send it to the CDP, who in turn analyzes this data. Afterwards, a CDP rating will be provided. In case members obtain a CDP rating, another rule can be observed. Namely, the CDP rating must be announced to the larger public. Nonetheless, this rule is again not accompanied by an officially installed OR ELSE.

Informal institution: Members are expected to report correct emission-data In case companies report their data to the CDP, the CDP does not check whether the level / total emissions reported are indeed correct. Hence a norm exist. Members of the SBTi are expected to disclose the correct company-wide emissions as they are expected to be trustworthy in their disclosure.

Informal institutions: Companies disclose their emissions to obtain a better CDP rating, with some beneficial aspects in return

From the perspective of a member of the SBTi, a substantial reason why they report at CDP relates to the fact that in case a higher CDP rating is obtained, this will result in a better position to easier receive 'green loans' and investment financing. The best CDP rating possible is the A-rating (CDP, 2020b).

Informal institution: Companies disclose their emissions to show to society, their clients or shareholders that they are sustainable

Moreover, Members value reporting as they want to be a more sustainable company and in doing so gain larger support from their business, investors or clients. Companies want to show that they are concerned and pursue large efforts to combat climate change. Therefore, via disclosure of emission data, external actors become aware that companies are taking climate action seriously. This is another important driver for members to disclose their emissions.

Informal institution: Monitoring by the larger society

As members of the SBTi are publicly reporting their emission data, the larger society can hold the members of the SBTi accountable. Members of the SBTi also expect society to do so. This is also endorsed by the Dutch government, which does not intervene in this voluntary agreement (or similar ones) itself

and leaves this up to society. As a result, shareholders, clients or consumers must, if they want to hold members accountable for their progress, monitor company wide greenhouse-gas emissions and progress (norm).

Informal institution: Not other members, but clients or shareholders must hold other participants accountable when participants do not comply and reach their targets

As noted above, SBTi participating companies do not monitor or check the progress of their sectoral counterparts, their competition or other members in detail. According to members of the SBTi, not other companies participating, but clients, shareholders or consumers must hold members accountable if needed. Shareholders or clients were mentioned as the two parties which have the most power to exert this pressure. Also, clients or shareholders might hold members accountable in case targets are not achieved or in case this years CDP rating is lower than it was in the previous year(s). Still, clients or shareholders are not expected (from a normative point of view) to pressure members too harshly when prematurely evaluating progress.

Institutional relations

The formal institutions are again of a procedural nature, resulting in the actions undertaken to be mainly guided by informal institutions. However, we identify one institutional relation leading to an unexpected or undesired outcome. This conflict concerns the pressure exerted by stakeholders as opposed to them exerting too much pressure. We will expand on this conflict in the next chapter (section 5.1.2).

Identified motivations

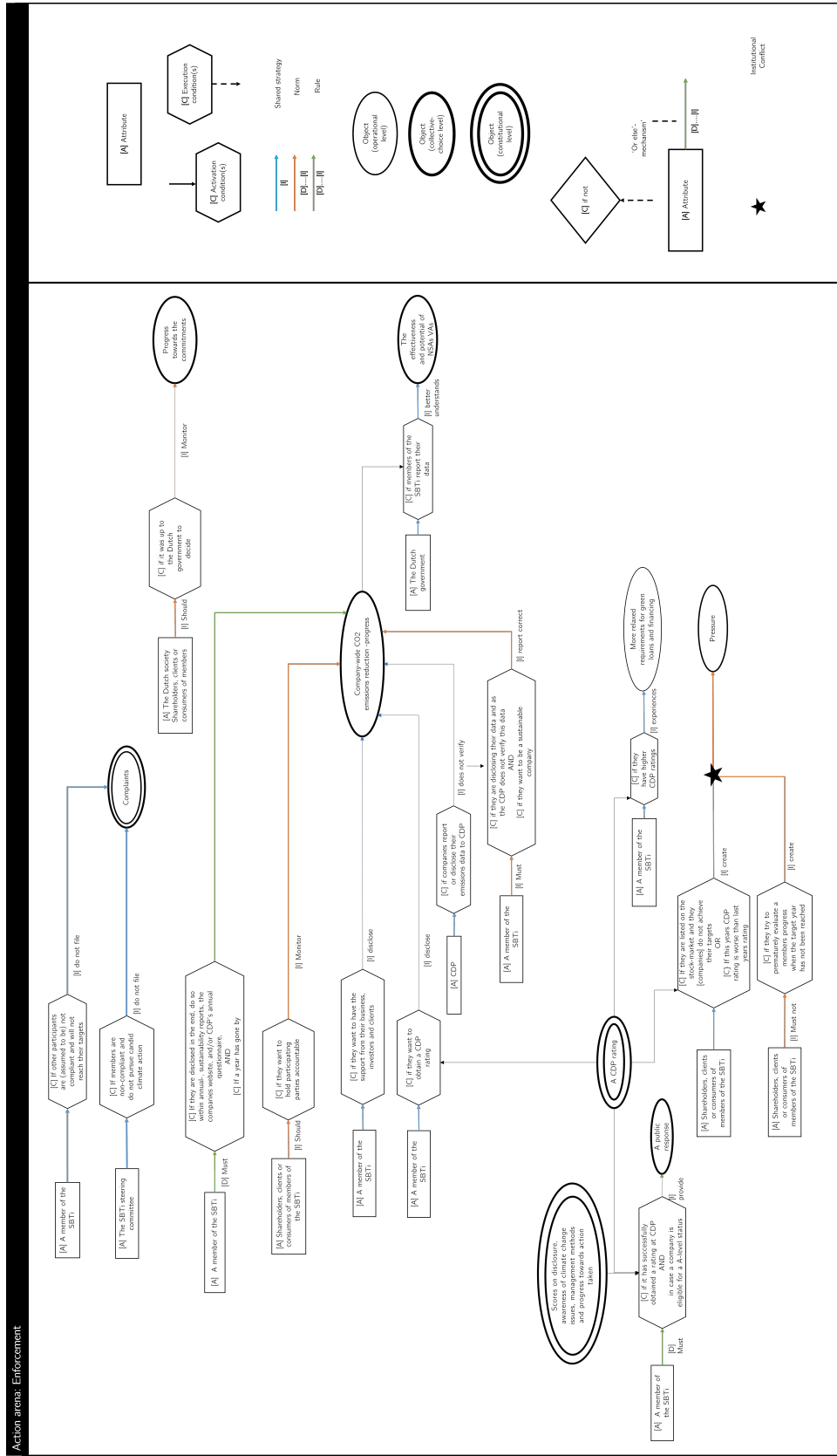
From the fourth action arena, four CONDITIONS from which we can derive motivations have been found, being:

- *[C] if they want to obtain a CDP rating & [C] if they [clients or shareholders] want to hold participating members accountable & [C] if they want to have the support from their business, investors and clients.* Similar to the motivations as have been described before, these conditions are extrinsically driven and can be placed under the normative pillar. After all they can be seen as wanting to reach a particular external goal or creating value.
- *[C] if they want to be a sustainable company.* The only condition regarding the need to be a sustainable company can be attributed to a value (being sustainable) and is thus regarded as an intrinsic motivation. Nonetheless, due to the fact that sustainability has also become a business asset, we could also argue that this still comprises an economic motivation.

Enforcement

Within this section we will not separately reflect on enforcement. This is due to the fact that the general actions and institutions identified all concern enforcement.

Figure 4.5: Institutional Network Diagram 4: Enforcement



5

The institutional context: analytical insights and recommendations

*“Institutional theory alerts scholars to the simple fact that corporate agency is largely shaped by the dominant intuitions of the ‘business system’ or ‘organizational field’ within which firms operate”
(Brammer et al., 2012)*

Within this chapter, we will further expand on the institutional analysis to assess the institutional environment. In section 5.1, we will first elaborate on institutional relations, motivations and enforcement. Section 5.2 discusses the INA network metrics analysis. In section 5.3, we will present the final institutional environment, based on our results. Within section 5.4, we will reflect on the expert validation. All sections to some extent form the build-up towards recommendations, which are presented in section 5.5.

5.1. Analysis of the institutional environment

As we have presented all four INDs in chapter 4, we will now provide analytical insights. First we conclude on the role of formal and informal institutions, motivations and enforcement (5.1.1.). Second, we will elaborate upon our institutional conflict found (5.1.2).

5.1.1. Institutions, motivations and enforcement

Our starting point of analysis concerned that voluntary actions are deemed to be non-enforceable. This being the case, we expected a limited number of formal institutions enforcing action on parties. Neither did we expect to find externally imposed enforcement mechanisms (such as by the government).

Indeed, from analyzing our INDs, we found that actions of members are mainly structured and guided by informal institutions. Only a handful of formal institutions¹ were identified -as was to be expected. These formal institutions are mainly from a procedural nature and are all drafted by the SBTi steering committee. Only two formal institutions related to an enforcement mechanism were identified. First, the SBTi guidelines prescribe that members *must* report their emissions at a particular location. Second, the CDP prescribes that a company (members of the SBTi as well) *must* make it's obtained CDP rating public.

Even so, the SBTi steering committee has not installed tangible sanctioning mechanisms. No sanctions are installed when the requirements or criteria are not met, neither are there sanctions in case of failing to reach a target. Similar to what the Dutch government has stated, the SBTi steering committee primarily leaves 'correction' up to the market. Even so, based on Ostromian literature, a possibility might be that members enforce actions on each other. However, we found that this was not the case.

¹We can also refer to this as an institutional arrangement. Institutional arrangements are the structure of institutions (Tang, 1991)

Epitomizing, it appears that formal (enforcement related) institutions are not driving members of the SBTi to display cooperative behaviour. At first sight this seems to confirm the non-enforceability of voluntary NSA actions. However, as we will argue below, mechanisms are present which implicitly enforce action on members. Therefore, stating that the SBTi is ineffective due to a limited number of explicit enforcement mechanisms would be too facile.

After all, within the action arenas, we *did* identify several ‘implicit’ enforcement arrangements. Within our study, institutions related to reporting and making a members’ emission reduction progress public composes the SBTi’s implicit enforcement mechanisms. As also put forward by Walton (2000), environmental reporting is “the ideal vehicle for highlighting the gap between rhetoric and action”. Therefore, transparency via reporting is important to stakeholders, in order to evaluate the true level of commitment and efforts pursued. Moreover, other parties, such as the Dutch government can hereby better evaluate the (in)effectiveness of the SBTi.

However, while transparency is generally considered positive, two types of ‘costs’ can be identified for companies as well. First, information regarding lower environmental performance can negatively impact both the public and financial position; second, many resources are needed by companies to correctly disclose and report the data (Najam, 1999); Arora et al. (2000)). Therefore, what are the drivers to be transparent and pursue substantive efforts?

The answer to this question can be found when analyzing the motivations (identified via our motivational analysis) in more detail. Members mostly engage in actions as they want to realize external economic objectives or satisfy external stakeholders (mostly clients and shareholders). Even while at the risk of being publicly held accountable due to disclosure, members of the SBTi expect their clients and shareholders to hold them accountable. Members want to create economic value and satisfy their stakeholders. Being transparent results in better relationships and higher levels of credibility². Moreover, most parties disclose their emissions at CDP. The better the reduction progress, the better the CDP rating. This in turn will ease obtaining investment and how a particular company is perceived by its shareholders or clients.

We conclude that implicit enforcement induces a process of stakeholder accountability³. In case a member’s actions are not appreciated by the larger society, a possible result could then be that shareholders become more activist (e.g. see Financieel Dagblad (2021a)) or pursue ‘naming and shaming’⁴ strategies. Ultimately this will affect a company’s highly valued reputation (also see Taebi and Safari (2017)). In the end, this is the most important (enforcement) mechanism for steering behaviour in place.

All in all, the institutional environment of NSA climate actions is made up out of a combination of a limited number of explicit enforcement mechanisms and a handfull of implicit enforcement mechanisms. The members of the SBTi do not hold each other accountable or enforce actions on each other. Hence, the more market-related and informal institutions seem to be driving commitment, transparency and members willingness to pursue candid climate actions.

5.1.2. Institutional conflict

Now we will address the institutional conflict identified. To provide better understanding on this relationship between institutions, or under which circumstances this conflict occurred, we added phrases from the interview-transcripts.

1. **Institutional conflict in IND 4: The broader society is expected to pressure companies, however they must not do so too harsh.** First of all, members will not enforce actions on other members. Then, the conflict identified indicates a tension between the pressure exerted on members to pursue climate efforts on the one hand; and too much pressure when not enough progress has been realized on the other. Within this situation, different perceptions or interests come together. After all, they want to satisfy stakeholders and want stakeholders to hold them

²This was also indicated by multiple SBTi members, after checking this with them after the interviews took place

³As noted before, accountability is also one of the evaluative criteria originally drafted by E. Ostrom (2009)

⁴Naming concerns the disclosure of names, while shaming refers to the process of social disapproval, thereby hoping to invoke an effect on the person being shamed (van Erp, 2014)

accountable. Nonetheless, members do not want these same stakeholders to hold them harshly accountable prematurely or execute other sanctioning mechanisms (such as voting with their feet⁵ or naming and shaming).

From the review of our interview-transcripts, we encountered the following 3 phrases:

- *We stick to our own activities and we expect that from others as well. For example, if company x does to little, this is not up to a member to flag this. It is up to consumers and investors in my view.*
- *So for me the question is, are we going to sanction or are we going to incentivize good behaviour?*
- *One thing that is important to mention is that it is difficult to assess companies prematurely. Because companies commit to achieve emission reduction in a certain time-frame. We are talking about radical transformation and this change is not linear. We cannot say that that a company is not on track when it does not linearly decrease it's emissions every year. It is simply not linear.*

5.2. INA Network Analysis

Within this section we will present and discuss the network metrics in more detail. For every action arena, the network metrics have been calculated and analyzed. As we only want to expand on the interpretation of the calculation, the complete calculations can be found in Appendix H. Hence we will briefly recap how a metric must be interpreted and then discuss the outcomes. We will finalize this section by reflecting on the linkages between INDs.

5.2.1. Network metrics

Centrality of Attributes

Scores on centrality are considered low in case they are below 1. Hence, an Attribute with a score above 1 can be interpreted to score high on centrality. Within our study, higher scores relate to the ease of communication, implying that an actor with a higher score can arguably better steer behaviour or its behaviour is being steered more easily.

The most important conclusions to be derived here, concerns the high centrality scores of 'Members of the SBTi' (average score of 1.4 for all respective action arenas) and 'shareholders, clients or consumers of members of the SBTi' (1.25 respectively). Within every relevant action arena, these Attributes almost always score higher than 1. This indicates, as was expected, that these parties play an important (or arguably the most important) role regarding the actions undertaken or the outcomes achieved. Another way of understanding is that these two 'actors' (as members are more than one party) are most responsible for the course of action within the SBTi.

Embeddedness of Objects

Embeddedness has a range of score 0 to 1. Scores closer to 0 indicate a low embeddedness meaning a low number of institutions being dependent on this object for their execution. Vice-Versa for higher scores closer to 1. Relating this to behaviour: in case of a low score, this could mean that multiple actors are concerned about- or have shared responsibility for achieving a particular outcome (Object).

Within our study, despite the higher score on 'CDP rating' (score of 1), most action arenas depict a low embeddedness score for the Objects. This metric confirms that we must conclude that the CDP score is important and has a role in steering SBTi members behaviour. Multiple institutions are also dependent on this Object. This is described before: all members want to achieve a high CDP score due to multiple reasons. To some extent we can therefore argue that multiple actors are concerned about the CDP score. Also, behaviour of multiple actors is influenced by the CDP score. All in all, the CDP score influences a variety of processes.

⁵"to show your opinion by leaving an organization or by no longer supporting, using, or buying something" (Cambridge English Dictionary, 2004)

Density of Objects

With a range between 0 and 1, scores closer to 0 hint at a lower number of institutions relying on the execution of other institutions for their own execution. Vice-versa for higher scores close to 1. For our study we do not see a clear link between density and behaviour of actors.

Within all action arenas, the scores on density are average (a maximum score of 0.5). This indicates that institutions do not rely on many other institutions for their own execution.

Institutional conformance

For all INDs, the institutional conformance score is 1. This implies that all INDs match this metric and this hygiene check -satisfying the basic needs of a method- has been passed successfully.

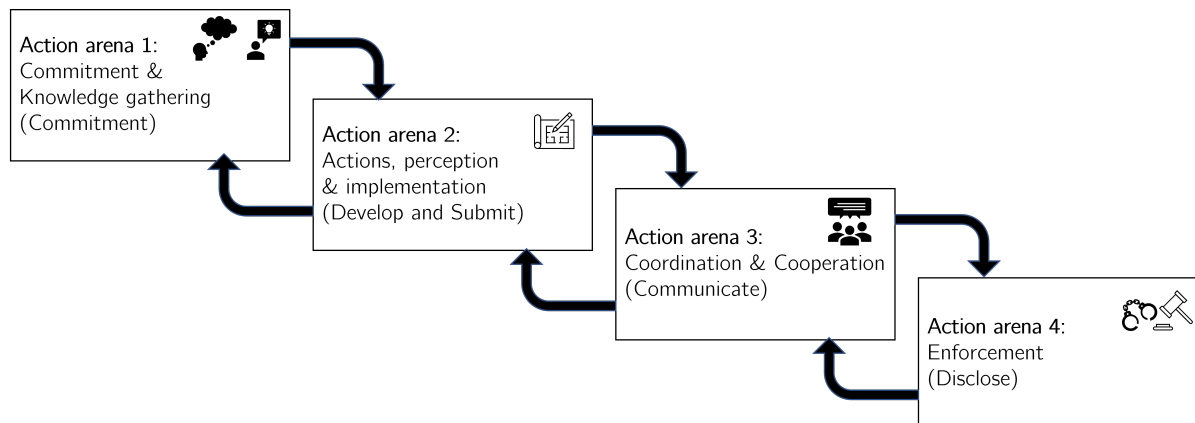
5.2.2. Linkages between INDs

At first, companies will need to complete the commitment step, before evaluating their strategies and methods to reach these targets. After the goals and strategies are established, it is possible that cooperation and coordination of actions takes place as well. After all, this might be necessary for companies to reach their targets. Cooperation and development of actions and strategies are expected to occur in parallel. Lastly, once parties have committed they need to respect the disclosure requirements. See figure 5.1. We like to emphasize that in principle, all action arenas can be connected in some way .

Another reason how we can indicate that the INDs are linked can be found when reflecting on the motivational analysis conducted. As was noted in chapter 4, from action arena 2 onwards, the motivations to pursue particular conditions can be found in action arena 4. These motivations mostly revolve around the aspects of profit, creating economic value and the process of stakeholder accountability. All in all, linkages exists between all action arenas. The separations are therefore not as black-and-white as may be concluded when reviewing and analyzing the INDs.

Still, we should be aware of these linkages, as decisions or actions in one arena, might affect behaviour in other arenas. For example: in case stakeholders hold members accountable too harshly, potential members might decide not to commit -as they are afraid of the negative (reputational) effects commitment might cause.

Figure 5.1: Linkages between action arenas

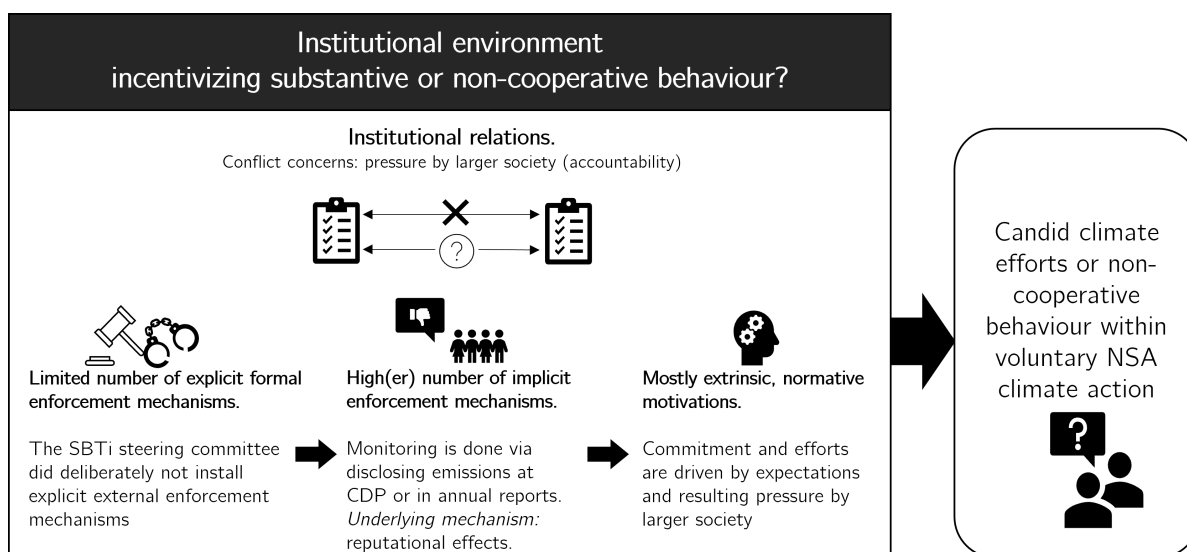


5.3. The institutional environment of the SBTi and voluntary NSA climate action

As can be derived from the sections above, the formal institutional relations in place are mainly procedural and as such do not enforce action on the members. The most important mechanisms which do enforce action are from a more implicit nature. Moreover, the informal institutions in place guide actors towards particular outcomes. Members are guided by norms or strategies, mainly in order to satisfy the needs of the larger society. In line with this, we found their motivations to be mostly extrinsic and economically related.

A final overview of the institutional environment is displayed below in figure 5.2. Nonetheless, we like to affirm that despite these results, it is still uncertain whether these mechanisms will lead to sufficient decarbonization efforts by NSAs.

Figure 5.2: Final overview of the institutional environment. Source: Studies own findings



5.4. Insights from the expert validation sessions

Once the institutional environment was explored and better understood, we have conducted the expert validation sessions. Based on the expert validation sessions, three points of reflection have been established. These points aid to better contextualize our outcomes, yet do also shed a different perspective on our results. For every expert remark made, we also reflect on it ourselves.

- First of all, the ‘ideology’ of corporations in need of pro-environmental behaviour was expected to play the most important role in incentivizing members to pursue climate action. In addition, for the case of the SBTi, larger pressure from NGO’s or think-tanks was expected.

This pressure has not been mentioned within our interviews. Nonetheless, a possible reason why this has not been done is the fact that the SBTi steering committee is made up out of NGO’s.

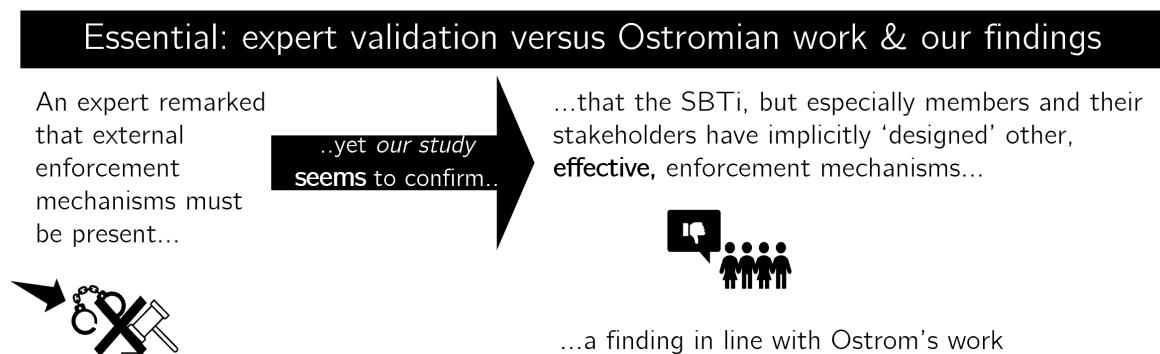
- Second, a remark concerns the way we must interpret our outcomes. A critical notion was placed regarding the current low number of formal explicit enforcement mechanisms in place. According to one of the experts, the only way candid decarbonization efforts are pursued in the long-term is in case official authorities take on enforcement mechanisms. An example of such an authority could be a national regulator. Examples can be found within carbon taxation markets (such as the Emission Trading Scheme -ETS), which are guided by formal, regulative institutions. This remark is in line with other scholars, as “proponents of direct regulation often justify the need for government intervention by pointing to the myopic, profit-driven nature of industry, and they

design regulation and its enforcement accordingly” (Malloy, 2001).

The reason why one of the experts remarked this, is also related to our finding that the motivations to pursue particular actions were normative and economically driven. Members mention that stakeholders must be satisfied and value must be created. Therefore, are the environmental efforts pursued more than just ‘moving along with the pace of the market’? With this statement, one of the experts meant that companies will move in the pace directed by their stakeholders. Thus, as environmental values possibly are not internalized, a slow-down of the global market environmental awareness trend might result in less substantial climate actions pursued.

This all being said, we like to reflect on this proposition by reviewing the work of Ostrom. One of the most famous ‘lessons’ Ostrom has taught us is the fact that collective action should not be externally imposed and enforced. In order to realize effective collective action, formal enforcement mechanisms do not have to be present per definition. Actors might design and follow more informal institutions; and implicit enforcing mechanisms are therefore deemed to play an essential role. This also holds for our study, as informal institutions are guiding actor behaviour more than formal institutions. Our case therefore seemingly supports this important finding of Ostrom (see figure 5.3).

Figure 5.3: Essential insight derived



- Third, as an increasing number of companies are committing, free-rider incentives may be larger. The expert’s argument is that in case free-riding is present or participants expect that free-riding is present, this could lead to less decarbonization progress. A larger group size could induce free-riding as there is no complete overview of who is cooperating and who is not. In the long-term this could undermine the effectiveness of the SBTi.

In order to reflect on this remark, we relate it to the work on collective-action. First of all we find that Olson (1965) -arguably the founding father of collective action theory- argued that group-size plays a large role in collective action. Nonetheless, little agreement can be found whether larger or smaller groups result in more effective social situations. Hence, E. Ostrom (1997) summarized that different results can be found with regard to the impact of group size on collective-action and it’s possible related problems⁶. As no consensus has been reached on this topic, we do not want to make any further claims on this expert validation remark.

5.5. Recommendations for improving NSA climate action within the SBTi

Based on our analytical insights, we provide recommendations for the SBTi and it’s members. Recommendations will be provided in three sections; first by addressing the institutional conflict so it can

⁶For example, later studies, such as Meinzen-Dick et al. (2002) finds negative effects, while conflicting laboratory evidence has also been found by J. P. Carpenter (2007)

be overcome, second by improving the coordination and facilitation with & by the national government and third by improving the institutional structure in general.

5.5.1. Addressing and improving the institutional conflict

Within this study, the institutional conflict found concerns different conceptions regarding how thorough other stakeholders 'may' pressurize members of the SBTi. To overcome this conflict, we suggest the following:

Creation of awareness and clear expectations between members and their stakeholders

Current members clearly indicate that they do not expect national authorities or the SBTi steering committee to enforce 'action' on them. Clients and shareholders are the 'predestined' parties which may pressurize members to reach their goals. However, as mentioned by members of the SBTi, too rigid or harsh pressure may not be the most effective. After all, companies commit on a voluntary basis and their decarbonization processes before the end of their established target-year must not be evaluated too stringently.

We therefore recommend, yet it seems that they do this already, that members of the SBTi keep consistent dialogue with their clients and shareholders. Transparency must be valued and in case companies do not reach their goals, these dialogues can contribute to larger understanding of the situation and the *why* behind not reaching the set-out goals⁷.

Reflecting on our recommendation; stakeholders seem aware which role they have to play and what is expected of them. As stated by one of the shareholders of Corbion (anonymized and paraphrased due to confidentiality):

'We, as a shareholder, will engage in dialogue with a company in order to better understand a company's position. We will voice our opinion if we think more must be done in the realm of climate action. If this is not successful, we may escalate via voting pro- or against certain actions at the general shareholders meeting. If this is not effective, we might divest this business. I like to stress that the latter is really our last resort'

5.5.2. General improvements for the outcomes of voluntary NSA climate action

- **Additional guidance regarding actions, methods and strategies**

We would make clear to the SBTi steering committee that some members would be more appreciative of the initiative in case the SBTi offers them more guidance in particular occasions. Even so, from our conversation with the CDP (and thus steering committee) we learned that the steering committee is currently developing such guidance and documentation. It was stated that it was a deliberate choice to first focus on the target-setting process and thereby allowing as much companies commit as possible. Now, the SBTi steering committee's prioritization has shifted to creating these forms of guidance. Therefore, this problem has been addressed and is on its way to be 'solved'.

- **Meetings can be initiated and facilitated by the SBTi**

We recommend that meetings are facilitated among the members and between the members & the SBTi steering committee. Besides that this could create an extra opportunity to share information and learn from each other, the direct communication in meetings are also important to "to renew their commitment and to reassure trust" (Jauernig et al., 2017).

- **Improving the role of national governments**

"Company engagement and innovation are essential components of transition, but they are not sufficient for global climate stabilisation" (Science Based Targets Initiative, 2019a). This implies that despite the important role of NSAs, national climate action is just as essential. NSA climate action and national actions are complementary (Andonova et al., 2017). Accordingly, some policies installed by the national government can be complementary to the current SBTi institutional environment. Within this study it suffices to state that "institutional complementarities mean that

⁷Companies are also in favour of this, as has been mentioned in one of our interviews, see Appendix A

a country's institutions fit together [with the institutional environment of the SBTi] such that the function of one depends on and enhances the function of the other" (Deeg, 2005).

Nonetheless, the policy-officer from the Dutch Ministry indicated in our interview to not have a complete understanding on how to interpret and support the (voluntary) actions of NSAs. Therefore, it is in question from their perspective how a national government could contribute to realizing NSA climate action. The governments wants to offer a supportive hand, yet are not entirely sure how the most optimal support can be offered.

Therefore a first recommendation is to create more engagement with national governments. This goes for for both members of the SBTi as well as for the steering parties of the SBTi. It works the other way around as well, national governments could also more frequently enter into discussions with members who do or do not have set science-based targets. Nevertheless, this can only be realized when more insights are provided in each others actions. Moreover, nations can also set 'more ambitious' targets themselves. Hereby, national authorities will give clear investment signals to companies. The latter is also endorsed by the Planbureau voor de leefomgeving (Netherlands Environmental Assessment Agency), see Notenboom and Boot (2016). In this way, national governments, can also offer that supportive hand if wanted and needed

5.5.3. Improving the institutional structure

To provide recommendations and improve the institutional structure, we will first revisit the network metric analysis. Within the SBTi, two actors take in central positions: members of the SBTi and the shareholders, clients or consumers of a member of the SBTi. Also, the importance of obtaining a (high) CDP score must not be underestimated (hence the high score on embeddedness).

Second, one of the experts remarked that top-down installed enforcement mechanisms must be present to create effective voluntary agreements. This point is arguably up for debate, as thus far the more market-driven or market-correction mechanisms seem to be effective and resulting in substantive behaviour. Even so, we position ourselves by stating that the possibility of overreliance on market correction mechanisms *could* be present. As we aim to improve the institutional network structure, we will provide two recommendations in order reduce this possible overreliance on implicit enforcement by the larger society.

Within the general realm of corporate behaviour, both enforcement as well as rewards can be found. Regarding enforcement, a first recommendation is to explore whether it is beneficial to execute an intensive audit instead of mere annual disclosure by companies themselves. An audit implies that an *external party*, possibly appointed by the SBTi steering committee, reviews and checks all emission related data. Nonetheless, this "is not without difficulties, as auditing requires a willingness [from members] to open the black box of internal processes and a quantification of behavior" (Jauernig et al., 2017).

Second, Brammer et al. (2012) states that "consumers must reward companies for doing good and punish companies for doing bad". In order to do so, awareness of the larger society must be high. Currently it seems that this awareness is emerging (e.g see the Shell 'climate court-case' (McDonald, 2021); or Eccles and Klimenko (2019) on the 'new' investor-company relationship). Now, based on the current interviewees' voiced opinions and statements, we do not presume that harsher enforcement mechanisms will be deployed within the SBTi. In case this happens, we at least expect a lot of resistance from its members.

In addition, in our view, incorporating a system of rewards from the perspective of the SBTi can be explored. This rewarding system can be complementary to the current implicit enforcement (accountability) by the larger society. Rewarding compliant behaviour could improve the outcomes. When rewards are public, the reputation of participants that pursue candid climate efforts is improved. It also works the other way around: in case you are seen as a 'laggard' (by not receiving the reward), this will negatively affect your reputation (May, 2005).

6

Discussion

More research needs to be conducted to determine what “makes climate action more or less successful, effective, and efficient” (Hale, 2016)

Within this study we have conducted a first exploration ‘under the hood’ of voluntary NSA climate action. Our findings provide rudimentary insights in the drivers of NSAs to commit and pursue climate action. Nonetheless, based on this study we cannot state that these are the only drivers which make climate action, “successful, effective and efficient” (Hale, 2016). Within this chapter we will discuss and reflect on the limitations of our study and provide recommendations for further research. Also we will elaborate upon our scientific contribution to the INA method.

We will follow the same outline of this thesis. Therefore we will start with reflecting on our approach in 6.1, followed by an assessment of our INA methodology application in section 6.2. Then we reflect on our results in section 6.3. Afterwards, section 6.4 provides general recommendations for further research. Lastly, section 6.5 will discuss our scientific contribution.

6.1. Reflection on our approach

Within this section we will reflect on our chosen perspective of institutional economics as well as our scoping and focus of our study.

6.1.1. Limitations and additions

Limitations

First and foremost, we have chosen to make use of an institutional economic perspective. More specifically, we have embedded ourselves in the institutional analysis context, mainly provided for by Elinor Ostrom. Despite its advantages, two critical notions must be placed regarding this decision to make use of an Ostromian analytical lens.

First of all, based on her empirical work, Ostrom has found multiple collective-action situations wherein actors succeeded to create an institutional environment which makes actors contribute. Even so, the case-studies wherein actors displayed this cooperative behaviour are different than our study. After all, Elinors (Ostrom) later work¹ focuses on self-organized common-pool resources. The collective-action situations that were analyzed within her work extensively concern cases such as irrigation or lobster fishing. Within these situations, appropriation rules (who can take what), authority rules (how much can be taken) and enforcement play essential roles. Nonetheless, our case arguably concerns a voluntary agreement which does not have a clear tangible common good where everyone contributes or non-contributes to². Hence our line of argumentation stating that it is essential to scrutinize the institutional

¹In the beginning of her career, the Ostroms focused on metropolitan areas and the notion of polycentricity. Afterwards Elinor started to explore common-pool resources in more detail (McGinnis & Walker, 2010)

²It can nonetheless be argued that the global atmosphere concerns a common good. After all, no one owns the atmosphere (or global ‘carbon sink’, yet everyone can ‘overharvest’ and pollute it (Singer, 2004)

environment and put weight on the role of enforcement can be debated.

Second, we have made a deliberate choice for making use of institutional economics as opposed to neo-classical economics. Institutional economics places the focus on institutions as the coordinating mechanism for actions, while neo-classical economics 'views' the market as such. Therefore, neo-classical economics could have provided different insights on whether actors pursue particular behaviour. For example, a neo-classical perspective could have provided a different answer on the question whether members are 'profit maximizers' and sustainability offers them a way to do so, or that they are pursuing these actions primarily based on other market incentives. After all, companies who pursue environmental efforts have higher market values than those who do not (Al-Najjar & Anfimiadou, 2012).

Additions to our current institutional analytical perspective

First, institutional economics comprises a broader range of analytical tools and approaches than Ostromian institutional analysis alone. For example, we could have evaluated and made use of the Williamson layered framework or the theory of transaction costs (Williamson (2000) and (Williamson, 1979) respectively). Possibly this analytical framework and lens could have provided us with different results. For example, from the layered framework it is possible that we derived other insights in the relations between informal & formal institutions or other constructs, such as policies or contracts.

Second, other theories derived from social sciences could have been integrated. Following Fernando and Lawrence (2014), legitimacy- and stakeholder theories could also add value within the sphere of improving our understanding of behaviour. Legitimacy theory concerns the societal expectations, which have to be met by organisations such as companies. The theory argues that "organisations can only continue to exist if the society in which they are based perceives the organisation to be operating to a value system that is commensurate with the society's own value system" (Gray et al., 2009). Additionally, stakeholder theory aids to explore the organisational accountability in combination with the rights of all stakeholders. Moreover, Shnayder et al. (2016) has already applied a combination of stakeholder and institutional theory for a CSR case, as they are seen as complementary. And as is known, we have based our motivational analysis for a large part on their work. To summarize, both theories could have been helpful in deriving insights in the role of stakeholders, which are found to be very important.

6.1.2. Ostromian institutional economics: a justified approach

All things considered, from this justified reflection we conclude that an Ostromian institutional analysis is no panacea³ for this study's purpose. Still, despite that its limitations are present, we argue that the value of the Ostromian institutional economic perspective taken in is evident. It moves away from (neo-)classical 'utility maximization' and broadens the economic analysis by evaluating institutions and their impact on human behaviour (Knudsen, 1993). Therefore, Ostromian institutional economics and analysis allowed us to explore behaviour and social phenomena in more detail. It provided insights in human decision-making and the impact of institutions herein. As candid efforts within the realm of climate action must be incentivized and ultimately realized, trying to understand why humans conduct particular behaviour is admissible. After all, climate change can only be combatted if all actors responsible pursue candid climate efforts.

Our final point concerns the Ostromian lesson as noted in chapter 5. Ostrom concluded, based on her vast empirical work that collective action should not be enforced by external agents. More informal and implicit enforcing mechanisms are deemed to play an essential role. This also seems to hold for our study, in combination with the fact that informal institutions are guiding actor behaviour more than formal institutions. Our study therefore seems to support this finding of Ostrom. Without taking in an Ostromian perspective, we argue that we would not have interpreted and contextualized this important outcome as such.

All in all, our most important recommendation is that more research should be conducted to better understand whether the SBTi's current institutional environment provides satisfactory incentives for sustainable, long-term cooperative behaviour or not.

³a universal cure-all, a term borrowed from E. Ostrom (2009) herself

6.1.3. Scoping and generalizability of our study

To derive a better understanding of the drivers and efforts within the SBTi, we have conducted case-studies on Dutch SBTi members active in the food and beverage industry. Nonetheless, due to this scoping we must address a few points of concern:

First of all, our scoping implied that three case-studies could be performed. This also implies that only three parties could be interviewed for the institutional analysis. On March 1 2021, only four Dutch F & B companies are committed. One of them did not want to participate in this study. Now, we acknowledge that since the end of March, JDE Peets has also committed. Nonetheless, based on a telephone conversation with JDE-Peets, both parties concluded that, as JDE-Peets was still orienting themselves, their data would not be the most interesting for our research.

Second, our choice for the food and beverage sector excludes the possibility of scrutinizing other sectors. The exploration of other sectors might have resulted in different outcomes. To boot, as we have made use of specific case-studies, Simon and Goes (2013) argue that alternative explanations or relations (differing from ours) may exist, which remain uncharted within our particular study.

All in all, our results must only be seen as a first exploration and cannot be generalized with certainty for other sectors (let alone all members who participate in the SBTi). Further research could contribute by evaluating other sectors or analyze a larger number of members (enlarge our current $n=3$). Afterwards their results and ours can be compared and evaluated.

6.1.4. Focused on unraveling networks of institutions

Within chapter 2, we proposed to unravel the interrelations between formal and informal institutions for the case of NSA climate action. To do so, we evaluated networks of adjacent action situations, socio-ecological networks, ecology of games as well as other network related methods & approaches. However, the methods or approaches described or applied in these studies were not seen as a 'perfect-fit' for our study's purpose. As argued, these methods have different foci (e.g. ecology or more centered around policy and less about institutions). Moreover, these methods do not allow to visualize the dynamic institutional environment, while this is deemed valuable.

Therefore we argued to make use of the INA method. Nonetheless, opting for this perspective also meant that we primarily focused on the interrelations between institutions as seen from a network perspective. In general, despite the value that this network perspective has brought about, we hereby ruled out other perspectives. Examples are the above mentioned legitimacy- or stakeholder theory perspectives.

6.1.5. The value of the IAD framework

In the end it is useful to employ "multiple methods to attack tough analytical puzzles". The IAD framework forms one of the best possible foundations to do so (E. Ostrom, 2009). For example, the IAD framework allows to study institutions within an specific action arena. The latter concept is an important element within the INA method.

Still, some elements from the IAD framework could have been used more extensively within this study. For example, the behaviour actors display might also be impacted by the characteristics of the production facilities (bio-physical) or the values or culture within the company (attributes of the community). Arguably, these are more difficult to retrieve within the interviews (especially values), yet could play an important role. Further research could try and focus more on incorporating elements from the IAD framework. To derive more insights in particular values, the IAD framework might be adapted. A possible adapted framework to be used is further explained in Milchram et al. (2019).

6.2. Methodological discussion and recommendations

Within this study, the method chosen to explore the institutional environment has been the institutional network and analysis method (INA). This approach allowed us to visualize and scrutinize the impact and relations between formal and informal institutions and their impact on behaviour. Nonetheless,

this method is no panacea either. By reflecting on the INA method application within our study, we will further address the limitations of our study. Moreover, we propose recommendations for further research where applicable.

6.2.1. Data-collection

First, we reflect on the data-collection while conducting desk-research for our case-studies. Second, two more aspects could have been improved within the interview data-collection phase, being: conducting of interviews and the identification of the institutions.

Case-studies desk-research limitations and observations

First, not all data could be collected from desk-research. This hindrance within the process of data-collection is mainly by the reason of the non-public listing of companies, or non-existence of the data within annual- or corporate social responsibility (CSR) reports. Second, large differences exist between the style and details of reporting. This holds both for definition as content. While some companies do not clearly differentiate between sustainability, climate action or energy, some make very explicit distinctions. All in all, we do observe that most companies have incorporated sustainability or climate action within their annual reports. However, systematically comparing reports is more challenging, due to the large differences in reporting styles, metrics and system boundaries used. It is important to take this into account when trying to interpret the outcomes of our case-studies' desk-research.

Conducting interviews

Four aspects must be seen as most essential to reflect on: interviewers bias, the fact that all interviews have been conducted online due to COVID-19, fast switching of topics and perspectives.

- Via the first set of interviews with parties outside of our scope, we were able to better understand the SBTi and its working. This improved understanding allowed us to draw action arenas as well as better interview questions in our view. Nonetheless, while conducting interviews with the F & B companies, the possibility exists that we were too fixated on the outcomes which were stated earlier. Hence it is a legitimate risk that we have steered the interviews too much, and were influenced by confirmation bias⁴. The consequential problems are that essential information was not collected and the answers were influenced in an excessive manner. We therefore recommend to conduct the interviews by different persons, in order to perceive a situation from different perspectives.
- Second, in principle, interviews enable researchers to observe non-verbal behaviour via face-to-face interviews (Louise-Barriball & While, 1994). Non-verbal behaviour can give away important clues on perception of a situation. However, due to the COVID-19 measures in place, all interviews were held online. Therefore, non-verbal indicators were more difficult to observe.
- Third, our goal was to provide a first understanding of the drivers underlying voluntary NSA climate action. As the interviews were not focused on one topic, we have in multiple occasions swiftly switched from one action arena (and topic) to another. Due to the time constraints of an interview and the need of retrieving as much information as possible, in-depth information concerning a particular action arena or behaviors might not have been collected.
- Fourth, the interviews with different members have only been conducted with one person. Thereby only a single perspective is provided. Interviewing different persons and triangulating the information provided could be valuable or result in different outcomes.

Finding all institutions

Last, the interviewees are not expected to know the theoretical notions regarding institutions. Therefore, our research might have been more valuable in case we did discuss the concepts of institutions and institutional analysis with the interviewees. This primarily could result in more and easier identifiable institutional statements. An option to realize this could be to offer a short theoretical background on institutional theory, or to follow-up with the interviewees.

⁴Confirmation bias was introduced by psychologists Daniel Kahneman and Amos Tversky, meaning the process of looking for information that supports an existing belief, and hereby rejecting data that go against what you believe (Kahneman, 2011)

6.2.2. Coding & Clustering

The coding & clustering has aided us in constructing the narratives (chapter 4.2). Even so, as the coding and clustering was only done by one individual, the possibility for biased coding and clustering exists. This bias is primarily induced during the creation of an initial list of themes which could be expected within the interviews. When performing the coding and clustering, too much focus could lie on these themes. This as these themes are deemed most relevant from the researcher's perspective. Due to this bias, other information, perspectives or narratives might be lost. To overcome this problem, we (again) recommend to conduct the coding & clustering in teams instead of by a single researcher.

6.2.3. Formalization

As most actors 'do not speak in institutional statements' Watkins and Westphal (2016), we must rewrite sentences derived from interview transcripts in order to make them fit the ABDICO grammar. In our view, a delicate balance exists regarding what we need to know and maintaining the essence of the original sentence spoken. Analysts must be aware of bias when formalizing the statements made. Since all statements can be changed and formalized in a particular way that mostly suits the researcher, the possibility exists that original statements are not appreciated anymore. Therefore we recommend to let other analysts check the formalization and compare them with the original sentences as found in the interview transcripts.

6.2.4. Drawing the INDS

We created INDS which include both formal as informal institutional statements. Nonetheless, due to our generalization of statements (despite done intentionally), possible institutional conflicts or other insights might have been lost. Furthermore we have to some extent 'arbitrarily' decided which objects are placed on the constitutional, collective-action and operational level. Lastly, it is possible that we did not appreciate all institutional relations. To overcome these limitations, we recommend that the INDS are constructed independently by two researchers. Afterwards, the drawn INDS can be discussed. This process can take place in rounds and can be repeated till one final IND is formed, where the participating researchers reach consensus upon.

6.2.5. Network analysis

After the INDS were constructed, the network analysis was conducted. We have made use of the INA metrics as has been most recently revised by Dr. Amineh Ghorbani. The metrics confirmed our observations. After all, these metrics showed that members of the SBTi, their stakeholders and the CDP rating play important roles. Nonetheless, in our view, we were not able to derive other insights from analyzing the metrics. A possible reason for this could be our generalization from individual members to 'A member of the SBTi'. Follow-up research should study this.

6.2.6. Verification and validation

This does not concern an official INA step, yet we do want to offer some discussion. To verify our INDS and validate our outcomes, we have decided to conduct different experts sessions, with experts from different backgrounds. First of all, as has been noted, our diagrams were verified by Dr. Amineh Ghorbani. We acknowledge that she was involved in our research project from the start, yet was unaware of our first INDS and outcomes. Ultimately, a 'perfect IND' can be understood easily by a variety of people, with no extensive prior knowledge of the situation⁵. Via this verification session we revised the INDS by processing the feedback elements and improving the aspects which were unclear.

In addition, the validation of our results have deliberately been conducted with experts who did not have prior knowledge of our research. By doing so, we aimed to overcome possible (cognitive) biases and triangulate our studies outcomes. We recommend to improve expert validation by selecting a larger variety of experts. Moreover, the results could have been validated more extensively with the interviewees.

⁵This was mentioned by Dr. Ghorbani multiple times in our sessions

6.3. Reflection on our outcomes and insights provided

It follows from our analysis that for actors to pursue particular efforts, informal institutions are ‘over-abundant’ as compared to formal institutions. From our document analysis we found that there are only a handful of formal institutions in place. Only after the interview with the SBTi steering committee, we learned that having no real formal enforcement was an intentional choice at that point in time. Currently, the steering committee is investigating more formal enforcement options, after members have completed the target setting process.

Thus far, the informal institutions in place seem to be guiding behaviors within the SBTi. As companies are aware of the reputational impact when not pursuing any actions, the current institutional environment seems to be resulting in cooperative behaviour. After all, obtaining a poor CDP score or loss of reputation due to naming and shaming strategies of clients and shareholders is definitely not beneficial for companies. Additionally, what has become clear is the fact that parties are expecting broader society to ‘steer’ them towards concrete actions. This is not an unexpected finding per definition, as the pressure of stakeholders has always been listed as one of the most influential pressures to comply or adopt environmental programs (Henriques & Sadosky, 1996) ; M. Delmas and Montiel (2009)).

Still, despite the limited number of formal enforcement mechanisms, we do not want to underestimate their importance. As this is only one case and one study, tangible enforcement mechanisms might still be of importance to make sure institutions are respected and followed. Therefore, further research should evaluate if our results can be generalized and explore whether indeed these steering mechanisms have a large impact on the behaviour of actors within voluntary agreements.

Besides, we found that members are mainly driven by extrinsic motivations. We nevertheless must stress that it is possible that interviewees more easily speak about these types of economic motivations. It is important for follow-up research to take this into account.

Lastly, we like to reflect on the link between learning and cooperation. “Cooperation and distribution cannot occur without learning” (Lubell, 2013). Also within our case we do see that cooperation exist, yet not in an extensive manner. Nonetheless the aspect of learning is indeed related to cooperation, as members work together by sharing best-practices. However, as has been mentioned before, this process of learning stops there, as members are afraid to violate the Dutch competition law. It does not mean that this latter ‘fear’ also holds for other members in other countries with different jurisdictions.

6.4. General recommendations for further research

Currently our focus was on exploring the institutional environment. Therefore, several aspects remain concealed in trying to better understand voluntary NSA climate action. We therefore have the following general limitations and thereby suggestions which can be explored in further research:

- The role of management and the real processes that occur internally resulting in particular behaviour, remains uncharted within our study ⁶.
- The impact of international versus national oriented companies remains underexposed within our research. Also comparisons can be drawn between different sectors. Therefore, broadening the scope and conducting cross-national studies is recommended, as these provide new insights or a better generalization of the results.
- We consulted one of the shareholders of Corbion to check our findings via e-mail. However, interviews with clients and shareholders of members could also have been conducted. The past months more and more shareholders and even the Dutch court ⁷ have enforced climate action on different actors. To retrieve their motives and actions, these interviews could be valuable
- Besides, further research could focus more on the SBTis (international) policy impact. We are e.g. aware of the work of Güntermann (forthcoming).

⁶For an example of these roles see Li et al. (2019)

⁷see Rechtbank Den Haag (2021)

- Further research could also focus on exploring the role of other institutional mechanisms on members behaviour. After all, enforcement is not the only institutional mechanism which can be designed to create well-fitted institutional environments. Other factors, such as the design of institutions impacting the level of mutual trust or conflict-resolution mechanisms have also been listed by E. Ostrom (2009). "Affect-based attitudes like trust are crucial to cooperation" (Lubell, 2013).
- Lastly, while we have conducted a brief quantitative analysis, a combination of both qualitative and quantitative research could add value to our study. Our research could have been improved if we were able to conduct both an extensive quantitative analysis as well as our current qualitative research set-up. From the quantitative research component we could evaluate whether companies were on track to reach their targets⁸. Then, adapted from our current study outline we could reflect on the drivers and motivations which made members realize or not realize their decarbonization goals. Arguably, when the quantitative results could be linked to which motives actors pursued, concrete answer could be provided on the (in)effectiveness of the SBTi. Unfortunately, we were not able to do so due to time constraints.

6.5. Scientific contribution to INA and institutional research

The main objective of this research was to better understand voluntary NSA climate. Based on our institutional economic perspective, we argued that institutional relations must be studied. As multiple institutional relations can depict network characteristics, we have opted to make use of the novel INA method. Thus far, the INA method has proved helpful in studying institutional conflicts, as well as institutional conformance.

Nonetheless, a central question within our study concerned why people conform to something that is not enforced. Hence, motivations for pursuing particular behaviour are deemed important to be scrutinized. Thus, in order to provide an answer to this question, we proposed a methodological addition to the INA method. We proposed that motivations must be disentangled from institutions, in order to better understand the drivers and the outcomes of social situations. We tried to find answers on several questions: first, what are the motivations for actions pursued? Second, what are the implications of this? Third, can we further explore the relation between motivation and institutions?

This is relevant within our case as we can thereby provide insights in the drivers underlying behaviour. By having insights in these drivers, e.g. policy-makers or orchestrating parties, such as the SBTi steering committee (within our case), can better evaluate possible incentives.

In order to answer these questions, we based ourselves -similar to the INA method- on the institutional grammar. We have conducted a literature review focused on developments in the field of institutional grammar as well as in the field of cooperative, pro-environmental behaviour. Our stepping stone became the research of Shnayder et al. (2016), which asserted the notions and relations between motivations and three pillars of institutions -based on Scott (1995). This implied that enforcement mechanisms, economic motives and values could be differentiated and related to one of the three pillars and hence motivations.

Afterwards, we argued to evaluate the CONDITION component of an institutional statement, thereby allowing to provide insight in the motivations of actors. In case a CONDITION indicated to have an enforcement aspect, we perceived it as a regulative, extrinsic institution. In the case of a economic or profit motive, we perceived it as a normative, extrinsic motivation. Last, in case of a value-oriented motive, we perceived it as a cognitive, intrinsic motivation. In order to find the motivational components and dissect them from the CONDITION component, we proposed and applied the following steps of analysis:

1. For every constructed institutional network diagram (IND), examine, identify and label all CONDITION components in place. In case CONDITIONS concern -and are thus labeled as- a temporal,

⁸Only recently a paper has evaluated whether the SBTi was on track, see Giesekam et al. (2021)

spatial, procedural or process aspect, discard them from this analysis⁹

2. Identify whether the CONDITION indicates a particular perspective, a want, objective or a desire. This indicates that a motivation is present to undertake a particular action.
3. Examine whether the CONDITION or a verb included in the condition hints at an action being undertaken in order to be compliant to the rules in place -thus seen under the regulative pillar. To discover this, a first step is to evaluate which enforcement mechanisms are in place. In case we can speak of an action induced by regulation, identify it as extrinsic and place it under the regulative pillar. If it cannot be placed under the regulative pillar, continue with step 4
4. Examine whether the CONDITION or a verb included in the CONDITION hints at following a code of conduct, financial payoffs external of that of the actor, or creation of economic value -all seen under the normative pillar. In all of those cases, code it as an extrinsic motivation. If it cannot be placed under the normative pillar continue with the next step
5. In case the CONDITION or a verb included in the CONDITION hints at satisfying a particular value or clearly is induced by a motivation which lies in the activity itself, code it as an intrinsic motivation -related to the cognitive pillar. Also in case the objective, goal or value present (beware not the OBJECT!) has a direct link with the attribute, code it as an intrinsic motivation
6. In case motivations are still unidentified, examine the OBJECT. If the object seems impacted by or concerns an external institutional pressure, such as reputation, regulation, market or stakeholders, code this statement as an extrinsic motivation. Then reflect on whether it should be placed under the normative or regulative pillar.

Lastly, if this does not hold, examine whether we can speak of the object being a value or can be interpreted as such. Note it as an intrinsic motivation under the cognitive pillar

All in all, this methodological addition must be seen as first attempt at deriving motivations based on the identified institutional statements. We will now answer the questions as noted above in order to further support our argument that this addition is valuable:

- **What are the motivations for actions pursued?**

From our analysis we found that most motivations are normative and thus related to profit or other economic motives

- **What are the implications of this?**

Members of the SBTi commit and mainly pursue actions to satisfy their shareholders and other stakeholders. They want to create (economic) value for them. Nonetheless, it is unclear what happens when their stakeholders do not hold them accountable or stop attaching value to pro-environmental behaviour.

- **Can we further explore the relation between motivation and institutions?**

Based on two papers by different scholars we related the notion of three institutional pillars to motivations. Arguably, these pillars or systems can (to some extent) be related to the Ostromian rules, norms and strategies. Thus to answer the question, motivations can be disentangled from institutional statements by applying this method. Our steps of analysis are identified by drawing from different bodies of literature. Further research should aim at better crystallizing this link as well as the relation with Ostromian institutional analysis.

Within further research it is important to apply these steps and adjust them were needed. After all it is possible that these steps were only useful within our studies context and purpose. Even so, we still argue that this is a valuable addition in order to better understand the institutional environment and its outcomes, as well as to develop the institutional grammar and INA method further.

⁹We do so as it turned out that these type of CONDITIONS are not guided by regulations, economic or value-related motives. This at least holds for our study



Conclusion

“Institutions are among the tools that fallible humans use to change incentives to enable fallible humans to overcome social dilemmas” (E. Ostrom, 2009)

Climate change mitigation is now accepted as an urgent issue on the agenda of global powers. To date, most policies for mitigating climate change have been implemented top-down by higher levels of governance. However, these policies and the resulting decarbonizations actions have not been as effective as anticipated. Therefore, non-state actors (NSAs) are being considered as complementary actors in order to allow for a more bottom-up, decentralized approach for climate change mitigation.

NSAs are defined as organizations not directed by or affiliated with the government and can range from municipalities to private cooperatives and NGOs. A multitude of NSAs are committing to voluntary climate action agreements. These initiatives mostly set out goals to curb CO₂ emissions. One of the most prominent NSA climate initiatives to date is the Science-Based Targets initiative (SBTi). Nonetheless, despite that an increasing number of private actors has committed to initiatives like the SBTi, the drivers of their commitment and the substantiality of efforts pursued are unclear.

In order to provide better insights in the climate action pursued by these NSAs, this thesis has conducted an institutional economic analysis. Institutional economics is build upon the notion of institutions, which are “the prescriptions that humans use to organise all forms of repetitive and structured interactions” (E. Ostrom, 2009). Institutions are coordinating human behaviour. All in all, the main research question formulated similar to all this is as follows:

How to understand the drivers behind the voluntary commitment and efforts within the science-based targets initiative (SBTi) from an institutional economic perspective?

In order to answer this main research question, case-studies have been conducted, focused on 3 members of the SBTi who are active in the Dutch food and beverage (F & B) sector.

Below we will shortly conclude on all chapters and thereby provide answers to the sub-research questions, before answering our main question.

Sub-question 1

How to specify an institutional economic perspective?

We specify the institutional economic perspective chosen based on the work of Elinor Ostrom. Her institutional analytical lens allows to focus on institutions and thereby the exploration of behaviour within social situations. Institutions structure and coordinate social interaction and situations. We can distinguish between formal (written down ‘in the books’) and informal institutions (used in practices of everyday life). As institutions might not be in humans conscious minds, institutions can be transformed to institutional statements, being rules, norms or strategies. This can be done by making use of the

institutional grammar.

Actors, varying from individuals to organizations, are perceived to be located in an institutional environment. Within this study, the institutional environment is conceptualized to consist out of both formal, as well as informal institutions affecting an organization. This institutional environment either incentivizes or constrains actors to pursue particular actions or depict particular behaviour. In the end, we focused on institutions, motivations and enforcement in this institutional environment to see what is there and what is not, and what can potentially make it work. In order to answer this and better comprehend the institutional environment, we proposed to apply a network perspective. This decision is based on the existence of interrelations between formal and informal institutions, which can result in some sort of a network structure.

Sub-question 2

How to systematically represent and analyze the institutional environment for the case of voluntary climate action?

A network approach to unravel and hereby better understand institutional relations is deemed valuable for understanding the institutional environment. Within this research we have made use of the institutional network analysis (INA) method as has been developed by Ghorbani et al. (2020) and advanced by Mesdaghi (2020). In order to study both formal and informal institutions, documents as well as interview transcripts have been scrutinized. After we identified the institutions and formalized them according to the institutional grammar, the INA method allows to draw institutional network diagrams (INDs). Within these diagrams, both formal as informal institutions are visualized. Ultimately, these INDs allowed to capture and analyze the institutions and their relations, thereby providing insights in the larger institutional environment.

Sub-question 3

How does the context and institutional environment of such a voluntary climate agreement look like?

Companies' awareness on climate action seems growing, as almost all companies under scrutiny stated to want to become 'climate leaders'. For members of the SBTi, the SBTi adds value as it makes actors systematically work towards its set out climate goals. From an institutional perspective, we found that there are not many formal regulative, enforcement mechanisms in place. Actions are mainly driven by informal institutions, related to socio-economic constructs having an effect on a company's reputation (normative, extrinsic motivations). Moreover, Members disclose their data to satisfy their stakeholders as well as to obtain a CDP or other environmental score. Members indicate that achieving high scores on environmental ratings provides them with other benefits, such as easier obtainment of finance.

Sub-question 4

Which analytical insights can be derived to understand and possibly improve the SBTi?

Based on the institutional network analysis, we conclude that the formal institutional relations in place are mainly procedural and as such do not enforce action on the members. The SBTi steering committee has not installed tangible formal sanctioning mechanisms. Similar to what the Dutch government has stated, the SBTi steering committee primarily leaves correction up to the larger society. The most important mechanisms which do enforce action are from a more implicit nature, resulting in a process of stakeholder accountability.

Moreover, the informal institutions primarily guide actors towards particular outcomes. Members of the SBTi follow or are guided by norms or strategies, mainly in order to satisfy the needs of the larger society. Caveat: despite our outcomes, it is still uncertain whether these mechanisms will lead to sufficient decarbonization efforts of NSAs.

Given the answers on the sub-questions, we can now answer the main research question.

Main research-question

How to understand the drivers behind the voluntary commitment and efforts within the science-based targets initiative from an institutional economic perspective?

In order to realize candid climate efforts, understanding the institutional environment is deemed essential. We focused on comprehending institutions, motivations and enforcement in this institutional environment. Based on our institutional analysis with the help of the INA method, we primarily conclude that members voluntarily commit and pursue efforts to satisfy the needs of the larger society. Our study of both formal and informal institutions and their interactions reveals that the main mechanisms guiding actions of members are socio-economic constructs. An example is the pressure from the larger society, in turn affecting a company's reputation.

Moreover, one of the most famous 'lessons' Ostrom has taught us is the fact that collective action should not be externally imposed and enforced. More informal and implicit enforcing mechanisms are deemed to play an essential role. This also seems to hold for our study, in combination with the fact that informal institutions are guiding actor behaviour more than formal institutions.

Thus far, as the larger society is increasingly aware of its role, voluntary NSA climate agreements seem to result in substantive behaviour and thus decarbonization efforts. Nonetheless, our study must only be seen as a first, small study in exploring the drivers and commitment. Hence, ambiguity still exists on whether our results hold for all members of the SBTi and whether the behaviour displayed ultimately makes an (in)effective voluntary NSA agreement. Further research among many other things should explore whether members will keep on engaging in candid climate efforts or will turn their commitments into empty promises once the music of the market stops playing..

Hypothesis for further research

Based on the insights and conclusions derived within our research, we have drafted three hypotheses. These hypotheses can be used as a stepping stone for further research. This being said, we highly encourage further research to study and challenge them.

H1: Companies commit to the SBTi as they are aware that climate action is appreciated by their shareholders and clients, thus improving or at least not deteriorating their greatly valued reputation

H2: Actions by members of the SBTi are not externally & explicitly enforced, and the main mechanisms steering members are socio-economic constructs, such as the pressure from the larger society

H3: Members of the SBTi are not in need of external, explicit enforcement mechanisms, as members of the SBTi will pursue substantive efforts as their clients and shareholders expect them to do so, and the latter actors will also hold companies accountable in case of inertia

A final reflection on our scientific and societal contribution

Within this section we will reflect upon the added value from both a scientific as societal perspective.

Societal contribution

Climate change is possibly the largest challenge the world has ever faced. Awareness concerning the consequences of climate change is growing. However, global actors are not positioned on a successful decarbonization pathway. Fortunately, opportunities are looming as non-state actors in an increasing manner have voluntarily set-out strategies to decarbonize. These climate actions are essential for the globe to bridge the 'emission gap' and reach our climate goals. Nonetheless, it is uncertain whether actors are only committing to improve their reputation or whether they are truly decarbonizing. It is thus unclear what is driving actors to commit and pursue substantive or non-substantive efforts. Understanding these drivers behind their behaviors is highly relevant from a societal perspective, as candid NSA climate action is fundamental for reaching our climate goals.

Besides, only in case more understanding is provided, the motivations for behaviour or mechanisms within the institutional environment can be altered if needed. If needed we can hereby realize that all members and actors responsible, truly conduct in substantive behaviour. Also, the Dutch government, members of the SBTi, the SBTi steering committee and larger society can make use of these first insights to better understand voluntary NSA climate action.

Scientific contribution

The scientific community seemingly has reached some form of consensus on appreciating NSA climate action as essential to reach our climate goals. However, most studies conducted within this domain concern quantification studies (as listed before, e.g see Kuramochi et al. (2017), Hsu et al. (2020b) or Lui et al. (2020) among others). Nonetheless, more qualitative research is lacking. In our view this is unfortunate, as both qualitative and quantitative research should be conducted to better evaluate and understand NSA climate actions. After all, as an increasing number of companies has voluntarily committed to reduce their climate impact, it is in question whether substantive efforts are pursued. However, understanding (substantive or non-substantive) behaviour is like 'opening up Pandora's box of complexity' (E. Ostrom, 2009).

Still, by visualizing and analyzing the institutional environment, we concluded that informal institutions prevail in steering members of the SBTi to conduct particular actions. We conclude that implicit enforcement induces a process of stakeholder accountability. An example is that via the disclosing of data, pressure from the larger society could arise, in turn affecting a company's reputation. Thus, as opposed to the theoretical claim of non-enforcement, there does exist some form of enforcement, yet it is not explicit(!). Last, based on our motivational analysis we found that actions are mainly driven by extrinsic, normative (profit-related) motivations. Therefore, an important question to be further scrutinized concerns whether members will keep on engaging in substantive efforts, even if the music of the market stops playing.

Reading our study and its outcomes, it can be argued that these results could be expected from the start. After all, our research finds that companies are hesitant in their opinion regarding stricter regulation, and more in favour of more implicit guiding mechanisms -such as stakeholder pressure. Moreover, the fact that a company's reputation is highly valued could be expected based on existent literature (e.g see Herbig and Milewicz (1993)). Nonetheless, we view our study as contributing to science due to the following aspects:

First of all, in order to explore behaviour we argued that it is critical to better understand the role of the institutional environment. Via our institutional analysis we derived new insights in underlying drivers why actors behave the way they behave. For example: members of the SBTi often pursue activities on their own, while more extensive cooperation was possibly expected. Also, the companies committed see the need for decarbonization as their stakeholders expect this from them. Stakeholders on the other hand may keep the participating members accountable in case of inertia, yet not too harshly.

Second, to unravel the relations between-, the role of formal and informal institutions and their effect on behaviour, we made use of a state-of-the-art network approach: the INA method. Via visualization in the INDs, this method allowed to study the institutions and their role. To the best of our knowledge, this research is the first study which makes use of an institutional network perspective for such a case.

Last, our study seems to confirm the Ostromian concept that no external enforcer must be present in order to motivate actors to engage in substantive behaviour. To some extent this was found via our methodological addition, which allowed us to set a first footstep in disentangling motivations from institutional statements (based on the CONDITION component). Hereby we developed the institutional grammar and its possibility for appliance somewhat further.

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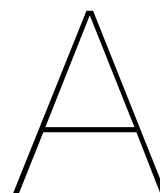
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Data collection

A.1. Table of materials reviewed

Author or organization	Topic of material
NewClimate Institute and PBL (2018)	Climate Action within Cities, Regions and businesses
Science Based Targets Initiative (2019a)	Decarbonisation progress report of companies
New climate Institute (2020b)	Non-state action & reduction potential in the EU
UNEP (2019)	The role of non-state actors to bridge the 'gap'
CDP (2021)	City, state and regional emissions inventories
McKinsey & Company (2020a)	McKinsey on the state of climate Change
Markman (2018)	Lack of motivations to Address Climate Change
Lyon et al. (2018)	Corporate sustainability and politics
UN Global Compact (2020)	Need for Science-Based Emission Reduction Targets
World Resource Institute (2021)	Resilience in climate action
Rijksoverheid (2019)	Klimaataakkoord 'National climate-agreement'
Tweede Kamer der Staten Generaal (2021)	Kamerstuk: Internationale klimaatafspraken 'International climate arrangements'

Table A.1: Most important materials scanned and reviewed within step 1

A.2. Informal discussions with academics

Name	Research interest and discussion focus
Dr. Takeshi Kuramochi	Quantification of NSA potential and the role of voluntary agreements
Dr. Angel Hsu	NSA potential, voluntary agreements or initiatives and actions of NSAs
Andrew Clapper	Carbon reporting and disclosure at CDP
Prof. Dr. Dave Huitema	Institutions, polycentricity and global climate governance and the role of NSAs
Dr. Sander Chan	Transnational NSA climate actions
Prof. Dr. Philip Pattberg	Global decentralised climate governance
Lena Güntermann MSc	PhD on NSA actions, polycentricity and the role of the UNFCCC in NSA climate action
Anna Melnyk MSc	PhD on Institutions and values in climate change and the energy transition

Table A.2: Academic discussions conducted and topic of discussion

A.3. Background information interviews

A.3.1. Company active in the Oil and gas exploration sector

How do you perceive the SBTi, climate change and sustainability in general?

The topic of sustainability has been on the agenda for a long time. However, the topic has undergone an evolution regarding its meaning. In the past, sustainability was linked to corporate social responsibility (MVO in Dutch). As of today, the topics have matured. Climate change awareness has become much more widespread. It is clear that the knowledge has been around for a while, however awareness has only been spreading recently.

Of course, you have differences between companies. We see (1) companies who do see climate change responsibilities as a problem for their business and (2) companies who see climate change as an opportunity, because their business can help. The latter companies perceive climate change as a topic which is aligned with their purpose and mission, such as in our case. In our case, Fugro has shifted its strategy due to our mission statements, but also partially due to the global tendency moving away from oil and gas.

What are the implications of Science-Based Targets?

Science based targets require a lot of effort. Nevertheless, I do believe that Science-based targets can make a difference. As refusing to commit or not living up to the targets can lower a company's credibility. The CDP and SBTi have thought their programmes through and created a supportive structure that really helps companies improve. First of all, they make sure that awareness is created. It creates transparency, which is very important, and tracks implementation of proposed measures. For some it is bittersweet, but for Fugro it offers an opportunity.

The SBTi is voluntary but not without future obligations. That is a positive thing. There are challenges, such as the workload. And for international companies the global orientation can bring extra challenges. You can imagine how collating energy consumption from all over the world and coming up with solutions for entities in different countries is more complex than collection and management only within the Netherlands. Every country and region has a different level of awareness and the same solution may not be effective everywhere.

Another challenge is that the structure as set up by for example CDP serves many companies. For some companies, the 'one size fits all' does not fit. For example, emission data is collected per region or country, but if you have vessels that move around globally all the time. The reporting format of CDP is not set up for this. Some parts of the company do not let themselves be understood within the proposed metrics. You can imagine that, concerning the administrative burden, a ship which is travelling across the world, is difficult to match the metric. To which country does it belong to? A moving object does not meet the CDP metrics.

How are we going to solve for this?

To solve this, we will discuss with CDP what the most optimal method is to disclose and report. Regarding the current monitoring in place, what is your perception? In the future I expect that emission data will be audited. Does this current process feel like an audit? We take the execution very serious. It is the start of a process of working out how the the most accurate gathering and processing of data can be realized. This is only the beginning regarding monitoring or disclosing.

What are your drivers to commit to SBT?

It is a combination of factors. First, we should look at the purpose of the company: Operating sustainably forms a core part of the company. This is at the core of this mission statement. And that sometimes comes with discussing and aligning the pathway. How do we identify opportunities and how do we perceive ourselves are important questions. Sustainability is broader than recycling for example. In our case it really has to do with the core of the business. There are great opportunities if we

create more awareness. So, it is very interesting to see how to get more impact. In the case of stake and shareholders, there is still a discrepancy between sustainability and communication. Clients are very important for us and we are in dialogue with them regarding our mission and purpose. Our clients and the wider society demand more from our company.

How to execute actions and which strategy do you use to successfully do this?

This is actually straight forward. We set targets, develop them and implement the measures. Of course, it is low hanging fruit to reduce emissions at NW Europe. But to do so in Dubai is much more difficult. Solar panels at Dubai are not efficient. What to do?

In the end it is all about commercial operations. We do not want to destroy our company, but still implement targets. For shipping (where we have a lot of), decarbonisation is very difficult. Every ship has different characteristics. Actually, we need an solution for decarbonisation. However, this process is tough and challenging. Yet it is also an exciting process and displays the ambition level. If you do not want to take that climate leadership, you set your goals at 2050. This is less challenging, and it is required anyway. Fugro is more ambitious, but as an countereffect, we face more complexity.

Do you coordinate your actions with other parties, sectoral or non-sectoral?

Yes, we do. More groups are working on this, collaboration happens with different parties in different capacities. For example, clients are very important. Orsted for example really discusses practices with us and others within the supply chain. I agree that coordinating actions make sense. In some consortiums like the one of Maersk I can imagine knowledge exchange takes place. When it comes to target implementation, this is mainly an internal process. Communications mainly take place between stakeholders and shareholders and clients. We do not punish or monitor other actors. But indeed, we are communicating with other shareholders. Some clients are very concerned about the climate. Others are not. We need to have that dialogue to the extent that we need to move them or change their actions.

Would more coordination improve the outcomes?

Coordination efforts could possibly work. Coordination of actions with some parties, such as competitors, can be a very sensitive aspect. So, that remains tricky. But other actors might be relevant. For example, I would love to get more insights from the sustainability department at Orsted. Taking this information home can help the cause as every company has 'ears' to more information about his largest clients.

In that case, must the initiative come from the SBTi or from companies themselves for coordination?

Both are an option. Perhaps the SBTi can facilitate this. The customer may be able to do this as well. Some clients like the interaction, some do not. So, we need to find that delicate balance.

The SBTi, how do you perceive it in general?

Well I see it as something positive. However, the challenge for us is the smaller workforce. We need to fill in the CDP, we need to collect data, check it and get it validated. We need to set priorities. Clients demand and ask more regarding climate change, but for us it sometimes difficult as we are mainly project based and do not have that many resources for the other projects. Internally, we need to automate the information collection. Gathering and reporting on Scope 3 emissions alone could be a year's job. How much can we tackle? It is an important question, which we deal with every day.

Do you see the advantages?

Yes, definitely, it helps us in transitioning towards a decarbonisation future.

What are the costs and benefits?

The benefits outweigh the costs. However, we need resources to make it happen and this is a challenge.

Lastly, what about accountability?

It is an internal process. We can always ask CDP not to make data public, if we are worried about sensitivity of data for competition for example. However, I do believe this lowers our credibility in the end. Ultimately, it is a combination of: (1) ambition and (2) how far you are comfortable with information published. We are stock listed, so we always need to take that into account. Information can impact the stock value. So again, we do believe in accountability, however we need to take the commercial side and the fact that we are publicly listed, into account.

A.3.2. Large Dutch utility company

Why Science-based targets?

Well we were at the start of the SBT. We asked consultants to analyze the possible agreements which focused on climate impact. This was in 2015. Afterwards, Ecofys analyzed our climate impact. Once the SBT was proposed and a possibility, we had done much of the work. In 2015 we immediately submitted our targets. The funny thing is that the SBTi itself was not ready yet and target approval took 1 year.

What are the implications of SBTi internally?

The first time that I told our CFO that we had just got approved target, he was not aware of SBTi. But still it resulted in some pride. It is a positive thing that a NGO evaluates the data. Our board believes in it as well. This is very important first step, as the senior management now clearly incorporates climate science and sustainability practices within its strategy. Our mission is: sustainable energy for everyone. Commercially, it is sound business to provide sustainable energy. Yes, actually, I am totally abundant to some extent. It is easier if more wind parks can be constructed. Our focus for the past 15 years lies in making the electricity chain more sustainable. And as of today, sustainable business is in the money. Then again, if we analyze our portfolio, we see that the largest emissions are due the burning of natural gas (clients). 50% of our business clients still need to switch to renewable electricity. Nevertheless, we cannot install heat pumps if people do not want that. Oh and finally, we are busy with a one planet plan for one year.

How does monitoring of the SBT look like?

We submit our targets and goals via CDP. Also, this needs to happen in the annual report. External verification is needed and provided. First the CDP analyses the data and second, our accountant checks our emissions statements as well. Then again, the SBTi is rated in the CDP framework which results in higher CDP scores. This is important for us as, if you have higher ESG ratings, you can achieve finance more easily. So to achieve our mission and purpose, we hope to score as good as possible on these ratings. This as with more money can be easily attracted, we can pursue better investments.

CDP is quite sharp in initial target setting. Also, the SBTi process takes very long but the founding parties are very engaged. In my view what is remarkable is that in the past 6 years we never had a question on, hey how are you doing or hey do you disclose emissions? This question is never asked from the SBTi. Of course, the alternative is to disclose via CDP. That is a well-functioning alternative. However, I am not certain whether every participant of SBTi fills out the CDP questionnaire. Then again, SBTi and CDP questionnaire would be too much. Some disclosure must be required [which is required by the SBT], but two disclosing systems will not work. If I think about it, maybe this system works in the end.

So to summarize: 1. We commit due to our status 2. Hereby, we can get better investments (and

lower interest rates) 3. We disclose our emissions via the CDP, which is again incorporated in the SBTi.

How do external actions look like? Do you coordinate your actions with other actors?

Well, we are developing plans and consul internal or external stakeholders. Externally, we have continuous dialogues with parties such as the Consumentenbond or business clients. Without stakeholders we will not achieve our targets as we are only suppliers. They need to demand renewable electricity or energy from us and then we can supply them with that. Then again, we try to learn and share our dilemmas and knowledge and discuss it with them.

Oh and internally, we have just been acquired by a large Japanese conglomerate. We share our best practices with them, which is beneficial for all parties involved I feel.

Can you tell more about that latter point of best practice sharing?

So we have feedback conversations. Actually this goes for both internal as external people. My colleagues of public affairs have extensive contact with sectoral partners. This line of communication takes place via Energie Nederland. We know the targets of our sectoral counterparts. We know where we stand as compared to other partners. We look at them. Sometimes we cooperate based on sectoral interest.

What is the impact of monitoring?

I think the development regarding monitoring is a positive one. The largest parties report via CDP, and hereby transparency is created and we can compare ourselves with other parties.

Finally, do the benefits outweigh the costs?

For us there are mainly advantages. In the beginning these benefits were lower, but due to the fact that we were committed early, we are now in the headgroup. Especially because of that we are frontrunners. I primarily see benefits. Costs are costs of consultants for example. At this point we need to pay for setting a target. In the new plan we hope to aim for 1.5 degrees and that we were waiting for approval.

Thus, there are primarily benefits, but this took a while to reveal themselves so to say.

A.3.3. Financial organization 1

How do you perceive sustainability and climate change?

Well first of all we asked ourselves, what is the impact of our company, via its own operations and moreover ING's lending portfolio? This answering process has happened in all openness. Within the banking sector we very much have reached consensus on what responsible banking should look like, including our approach to climate change (see UNEP FI Principles for Responsible Banking). We do have similar dilemmas. Of course, the SBTi has to do with climate impact, and we were the first mainstream bank which committed to aligned its landing portfolio with Paris agreement. However, to do this successfully, we needed a lot of research.

First, we are setting a 'north star', but then the question arose how we were going to do this. In the end, ING is a financial institution. We are an enabler for companies which really pursue actions. Still, a science-based approach was chosen. A real commitment was chosen. We created chose sector-based climate alignment scenarios on how to reach our goals, but in the end we are of course also dependent on our clients and our landing portfolio. Nevertheless, before finalizing our targets and committing to such an agreement as SBT, behind the scenes a lot already happened. After our commitment we tried to be really transparent as we truly believe that transparency is key (see ING's approach to climate change/Terra).

We view the SBTi platform as unique as it builds on has setting science-based targets. Yes, we have wanted that since 2015. We decided that once a suitable methodology was published or created, we were going to commit. However the current method (= SBTi Guidelines for Financial Institutions) is in our view not fully developed. This method is the first draft. The SBT for companies has already had 15 (many) iterations but the Guidelines for FIs are, in our opinion, is still not an optimal fit yet for the financial sector. Logically, this first pilot is not optimal and perfect. From the banking perspective, the method does not always suffice (e.g. because certain methodologies are not acknowledged yet and also we have questions about the feasibility of scoping and coverage).

To overcome this problem with the target setting methodology, we share best practices and exchange our problems with the SBTi and founding parties. In all openness, we want to share our dilemmas and problems. For example, what needs to be in scope and what does not? Or, what is the precise problem? At this point we might not have officially implemented the SBTi miss the target yet, but we need to discuss sector per sector which targets are realistic feasible and make sense for us. Even if all data is present, do we really need to have and analyse all this data before we can name ourselves SBT aligned? At this moment we use science-based scenarios for alignment of our lending portfolio with the goals of the Paris Agreement. We are talking with SBTi to set banking sector targets. We expected that the newest version for SBT does suffice herein.

How does the SBT commitment affect your internal processes?

Well, the SBTi is in principle an initiative by well-known and established companies. It is a de facto standard setting body without being that precisely. However, other agreements can also be used such as the WBCSD UNEP FI Collective Commitment to Climate Action or PICAF or financial disclosing. In the end, and that is more important in my opinion, we think that the commitments and methods provide a framework/input for recommendations. These recommendations probably be used by policymakers.

For us, we were steering on science based scenarios before SBTi existed. For example, the approach for climate alignment of financial portfolios developed by 2 degrees investment initiative is also science based. If you in the end set climate targets, then that is a very nice extra step, where we definitely want to commit to. If we zoom out, we see that multiple countries have already set targets. As this is the case, people often view and think that financial institutions need to finance the transition, which makes sense. And do to so, we have multiple methods (toolbox approach), which are known to you. However, to fully reach our goals, more and more questions arise. How much euros do you have in sectors, which is difficult to calculate. Also estimates need to be used, which are not the best either in our view.

Do you see 'free-riding' as a problem within such an agreement?

Coming back to the SBTi, it provides a framework for companies. This Being transparent about real action and progress based on these frameworks/commitments is how free-riding can possibly be prevented. However, free-riding or even greenwashing exists. To overcome this problem, we as ING can scan company statements such as net zero. Some companies commit, but to what extent do they have plans or committed to methodologies? For example, we recently discussed a case with stakeholders wherein a company has set net zero targets. However, they did not have any methodologies or frameworks in place. Then it immediately is more difficult to measure such commitments, which makes free-riding easier. Luckily, we see that NGOs push back and enforce more transparency. Transparency is highly valued, and we see this as a very positive thing, the same goes for accountability..

How do you perceive the current level of monitoring or sanctioning?

Of course, the disclosing of emissions via the CDP is some sort of monitoring. Then again, in our view, the first steps of commitment must be transparent but also must be in relative innocence (i.e. openness without being criticised immediately). Thus, monitoring alone is needed, but no immediate sanctioning please; the first steps are transparency, being open about dilemmas and accountability. Harsh sanctioning does not work as we view it a barrier for setting transparent goals. So I would argue

that it is best to be honest and portray where the financing happens. Also speak with governments which role is taken by whom. For every company this is difficult, but governments create and we anticipate on regulation, We can demand from companies to take action. We are all in this together, so to summarize we feel that monitoring is good, that we can demand much of the moral, but that sanctioning above what the law requires will not work. If a higher level of sustainability is required, regulation should provide clarity. Responsible banking is very important, but the systems need to work as well.

Yes, we can expect people to be strict if we report and say we set goals, but we do not execute them; in the end its our clients who act in the real economy. We must expect that companies set targets or goals and that we are steering towards them. To reach them we can be transparent and show that we will apply this and this strategy. However, if indeed nothing happens than we need to explain what happened. In this way we can be strict and sharp. Of course, an commitment is not without any obligation. However, I like to stress again that we must trust other parties that we are not punished for being transparent, even if our first results are not that good. I feel this is sometimes forgotten. Lastly, we know and knew that legislative measures where on the way. It is a conscious choice of ING to take that flight forward. At first, that story needed a lot of persuasive power. However, we were one of the first and that's why a strategy has been chosen to be very open about dilemmas and best practices. Just as I do with you, we want to just share them: e.g. there is a partnership and this and this is the result. Dilemmas can be sketched per sector. And the same holds for expectations for other actors. If you sign an agreement, you must commit, but please be open and transparent.

The largest advantage of cooperation and coordination?

We are only one bank; thus cooperation enlarges the impact. Our sustainable basis is not only based on the SBT but due to the fact that we signed 5 other commitments which together support our overall commitment to steer our portfolio in line with the goals of the Paris Agreement, so both our individual goal and collectively. For example, the Katowice commitment is the heart of the UNEP FI Collective Commitment to Climate Action climate commitments. To come back to your question on cooperation, I think it enlarges credibility. Important advantages are resources and wisdom of the crowd. Indirect this means standard setting and learning from each other. Also, we can make a fist if a policy decision is made and discuss what does not work, with more actors. If more banking actors can tell you this does not work due to a particular reason, this strengthens the argument.

Disadvantages are that it slows down the process. For instance with the implementation of the UNEP FI Collective Commitment to Climate Action. Okay, this is also as we ideally, we do this [have meetings on sustainability and learning] three many times a week. This is a democratic process, which sometimes makes it very lengthy and slow.

Besides policy influence are their other coordinating efforts?

Well, we are transparent and share our best practices. This as sharing is precompetitive and separate of course takes into account the rules of competition authority law. However, if we cross that line than we possibly have trouble with the competition authority. As an example, we can refer to 'de kip van morgen' (chicken of tomorrow). They poultry sector wanted to make rules regarding more sustainable chicken meat themselves, however this was not allowed, and everyone got with the risk of huge fines. So, we really need to focus on what is allowed. We do analyse subsectors, but always need to be aware of competition law and the competition authority. What can be shared on the street can be shared. But that's where it ends.

In the end, we are trying to do something good, but do not risk a fine as the Dutch government does not have the right institutional arrangements in place (clear regulation). We ask the Dutch government to really set the boundaries via a correct legislative form.

A.3.4. Financial organization 2

Unfortunately, this organization did not want to check the transcript, hence we decided to exclude the transcript.

A.4. Interviews for the INA method data-collection

A.4.1. Farm-Frites

What are the reasons to commit to such a voluntary agreement?

That is due to two reasons, but primarily based on the wishes of clients. We are joining CDP & Sedex. Often, a client asks what you are doing concerning the case of sustainability. We have a large set of customers, like McDonalds, Metro and Kellogg's. We see that these companies attach value to knowledge and information offered on the topic of sustainability. In the end we see that in this reporting to the CDP/SBTi helps in the scoring. We primarily use this for clients, to show how far we are. So to recap and answer your question: CDP reporting is useful as a comparison, but also it serves as an transparent insights towards our clients.

Is there a difference last years?

Throughout the years, clients and society attach more value to this. For example, with Kellogg's we have tight connections. Every year a questionnaire is used to see what our performance is. However, we do not feel this is an obligation from our clients, but we want to commit and we want to show to clients we are seriously committed. In my view we have an active sustainability program ourselves were we can be proud of.

What are the implications of SBTi? what is the added value?

The added value of the SBTi is related to targets. In 2050 we want to be carbon neutral. In 2030 we want to have halved our CO₂. This is inline with SBTi goals. Only what we do and pursue is more difficult than just setting a goal. These goals are for example in the far future. We are formulating a goal which is located in the distance. People need to believe and trust us that we pursue our goals. To do so, the SBTi ensures accountability and due to reporting we can also be held accountable. In this manner, we can show commitment.

What are the reasons of disclosing?

One of the reasons to disclose data is to make sure that we are transparent. But also, in our sustainability report we present numbers of carbon and carbon reductions. We do so in a truthful manner. SBTi control also checks assumptions and build-up of numbers. Is the sample size large enough to make validated remarks? This check by the SBTi improves credibility of the numbers.

What are the internal implications?

Well, we are a relatively flat organization so this communication and selling process of SBTi was relatively easy. As Farm Frites we have four goals which we cascade downwards with the help of so-called strategy in action (SIAs). This cascading strategy translates the larger goal to the subgoal downwards. Sustainability is an important pillar. And therefore, what happened is that twice a year there were meetings with plant manager and specialists. They presented best practices and triggered each other to cooperate and work together towards more sustainable processes. In these meetings we also discussed the reductions and see and check whether we were on track. Admittedly, some of the best practices are a challenge. In the end to reduce so much is very easily said, however 2030 is already in 9 years and this is relatively fast. So parties really need to take action, which also holds for us. And yes, sharing best-practices internally helps towards this.

Coordinate actions with other actors?

Yes, we do so for sure. Why? Because in some cases we have large questions which we cannot deal with ourselves. Green circles for example are a working method where we cooperate and set a goal with governments, knowledge institutes and companies. Then we work together cooperatively to reach our goals. Due to cooperation, we are busy with also taking the desires of other parties into

account. Functional aspects then translate to more a societal aspect, which we might not have reached without these coordination efforts. Also, for larger questions, such as how to get rid of natural gas we try to possibly work together. Of course, these projects are so large, we need governments, provinces.

Is there cooperation with other sectoral counterparts who have committed to the SBTi?

We do have some contacts, but not via me. We combine our knowledge with local and national governments. That is what we often do. Governments want advice as well and share practices and information. Yes, we coordinate actions with other parties. During these meetings we primarily share best practices and challenges. We are searching where our actions and deeds are complementary. In our case, we make very nice fries, but in case these are not sold, we are out of business. What do our clients want. In the end we are a commercially operating firm. Sustainability is very important, but commercial balance is perhaps even more important. No commercially operating party can be very sustainable without having any business, if you understand what I mean.

Differences between government and commercial parties during those meetings?

Well, It took a while before we understood each other language. A government is more focused on vision and policy, while we are a company that is focused on today. Tomorrow is another day. This is a process to combine the force of planning and vision by the government, with our more commercial knowledge. For example, I want to incorporate small action points in our meetings. At governmental level, paper and vision statements are more important. For us that is different, we need concrete things to show to our clients and stakeholders.

Is this a Government blockade of development?

Sometimes in the pace of realizing actions. However, the government also helps to structure our lines of thought. Then again, it is only cooperation and learning, there are no strict formal notions where we commit to.

Is there coordination with competitors?

No, we will not do that as at this point sustainability is an aspect which improves our competitive position. At this point we see that sustainability differentiates us from the mass. It is an obligation but is not a cost-price plus aspect. This is a so-called all-in concept. So we can not discuss whether we opt to do it or only pursue some aspects. We need to incorporate this in the strategy, but all our competitors do so. This is primarily the norm. And we will not share our ideas with them as far as I see right now.

Are there any formal regulative problems?

Sometimes, something is not competitive, like food safety. This is general and holds for the whole sector. We can learn from each other herein, as this is equal for everyone. However, some practices such as sustainability are competitive. This is a thin line, and therefore we sometimes are also cautious. In case there are actions possible where we could help each other with, we can maybe help. But at this point sustainability is a very competitive topic.

Especially when placing and relating ourselves to the context. For example, the industry expected an increase in growth, however covid disrupted this. We need to differentiate ourselves more and more.

Would you like to coordinate with STBi parties committed?

Yes in the end we are all inventing the wheel to some extent. To some extent this is to show and differentiate yourselves from the larger market. Sometimes it is very useful to discuss those practices with other actors. In Green circles (exemplary project) we also do this. A problem or challenge for me is perhaps already covered by another party.

Do you expect sanctioning within the SBTi? Or does the current form suffice?

Difficult to say. I think that the SBT in the way I currently look at it, the way you gather, collect, report and analyse data is the most important thing. Whether you comply or not comply is more difficult. For example, every entrepreneur needs a sustainability plan. This is obliged by the government. However in some cases, consumers and clients will demand that from other actors and some consumers or clients do not. But to come back to your question, no I don't think the SBTi needs sanctioning.

Would you sanction each other? So in case a party does not comply, would you name or shame these parties?

The organisation itself should coordinate this. And every party is responsible for its own commitments. When you commit to this and do not make that you should underpin this why you do not. However, we will not name or shame or punish other actors for not fulfilling their commitments. Then again, a possible role lies in this for the SBTi. But I do wonder, what is SBTi? Is it a monitoring agency or is it a label which make sure that data are gathered and collected sufficiently? It is also difficult. Our CO2 emissions are totally different than before due to COVID. A lot of standing still. Adhoc production. But this is life.

It is very important that this way of gathering and reporting data is now common. This is the most beneficial. You need a clear target and goal. To achieve your goals, underlying this needs to be project plan. That is the power of the SBTi, not only the final goals, but also display a certain strategy. That higher goals needs to be approved by the board. In the end that is the higher-level target. But then the operational level needs to take over.

In the end we committed even though there also is formal legislation in place. I think it is effective as it helps to show to our clients what we are doing. I agree, formal law is important and we will always follow that. However, in some occasions, a question or demand of a customer can induce particular actions, which are currently not induced by law.

A.4.2. Corbion

What are the main implications for committing to SBT for Corbion? What are its main advantages/ disadvantages?

From the beginning we had both environmental related targets and GHG reporting, but we never had set targets. We are very science-based company, so it was a very logical step to pursue that commitment. It was a very simple step. After the commitment, we really had to set the targets. So, we had to complete the screening. As we are very engineering and science-based company, you had to show how to do it, implying to have the company to set a target also to show they could achieve it and how. Some companies accepted to set the targets, but had to show it was feasible, both technical and financial. So internally we worked with consultants to achieve the requirement. This requirement concerns understanding the SBTi criteria including the level of ambition required, boundaries, and measures that are eligible as reduction measures. We had to show to do and that it was possible.

Perceptions of results so far?

This is an ongoing process, as we now have a target, the most recent report from IPCC is 1.5 degrees. 2 degrees is not ambitious enough anymore, at least not according to Paris. SBTi has also raised the ambition and minimum requirements. We are already striving to see how to raise the ambition of our targets. Again, we have to go through the same process. Also, we have to justify that it brings value to the company. For example, we'll have to go through the validation process with SBTi again before 2024.

What is your method of disclosing?

Annual report and CDP. We were doing this reporting, and we will keep doing that. The first step is always the annual report. Every annual report we also have the assurance by external auditors, in

our case KPMG. They are the entity that checks what we are reporting and our progress towards our targets is checked during our audit process. So actually, this did not change much as we are already doing that. Also, we were already in CDP. The SBTi is the most credible approach to set science-based targets. If you want a good rating in CDP, you need to have SBT. The bar is lowering which makes it more difficult though. The external pressure is always present if you want to be sustainable you need SBTi. If you want green loans etc, you will need SBTi. First it was an advantage it is becoming more and more a requirement.

Other factors to disclose the data?

It is also a lot about the collaboration between us and our customers and other stakeholders. If you want to be a sustainable company, you have to be transparent and open the books. Otherwise, no one knows. This contributes to trustworthiness.

So if you go back to the moment we have set targets. What were the main implication of committing?

The next step was really to start acting and developing the detailed roadmap to achieve the target. We really started having internal programs both in operation and R&D, looking at both short and long term projects. For scope 3, since most of our emissions are related to RM we need innovations and work together with suppliers. We also have targets as related to transport etc.

After setting the targets the most interesting part was as we need to start acting. If we want to meet our target we have to monitor progress and have control about how to reach targets. To have the support from business and investors we need to have the good performance in sustainability ratings. At Corbion we don't have the ratings as the end in mind, more of a way to show our efforts in a credible way. Only recently we have a colleague that tries to improve different ratings. We did our best to comply to ratings. I want to stress though that it was more of a purpose and mission to be a sustainability company. That is what I really like about Corbion. It really came from the passion to improve the purpose, that came first. I am quite proud that we started with a purpose and then we could get the medal (the positive ratings). We are really intrinsically motivated.

Is there monitoring?

Yes this is growing. Well clients, I don't see this much, but it is appreciated [if you commit to SBTi]. Customers have some distinguishments for contribution. So that is very nice of course. What I feel for example is that CDP, we worked on it for a few years. We have the highest rating for the first time. Which was an achievement. We did our best to fill it in. We prepare a lot and hope this pays off in the rating. But now of course we are a bit 'nervous' as we want to keep having that highest rating. As from the moment on you have such a high rating, more pressure is created. When it goes down, we have to explain it.

What are the consequences of this monitoring?

They believe us, but we always have to show. That is with everything. It did not happen yet, but in principle we need to achieve our targets. It might be possible that a customer goes from A to B rating when you do not comply. Again, as of today this did not happen. It is probably more at investor relationships [of Corbion]. It is always important to have a good story and be transparent. We have different sustainability targets. Some of them we did not achieve. Then we need to explain the reasons.

Do you expect that accountability plays a role and how?

I assume they will hold us accountable if they are interested in our progress. Then it is always a bit of a concern. Can we do it? If we cannot do it, how can we deal with it? This is a concern. If we go back and set the targets and if we commit, we will work for it. Of course, there already exemptions. Transparency when you do not achieve anything is very important.

Do you feel that the SBTi at this point is monitored sufficiently or do you expect that the levels of compliance are low?

I find that what we report for CDP is for me something that is already done CDP does not verify our data in detail. they check if it is consistent, the progress, the reductio measures we have. But they do not check whether the energy we have reported is done correctly according to the actually consumptions Your auditor for annual report does this. The auditor, the assurance part of the annual report, does check if the inputs and calculations are complete, accurate and consistent They verify also the progress towards targets. CDP trust you to report that data correctly. They check thing if things are consistent, they check completeness.

Do you expect from CDP to analyze more thorough?

I believe we only need to do the verification of the reported GHG emissions once, as long as it is a thorough process. th. What I would like to have more is a standardization and harmonisation of the report. Energy is relatively straightforward. Challenge starts in scope 3. Scope 3 can all be characterized in very different ways, for example, with generic data and data from suppliers. However, there is not clear comparison methodology. Auditors check whether what we do is consistent, complete and accurate. But a distant company can do it differently. The system boundaries are not clear. SBTi provides the criteria for a target to be science based and validates the targets submitted by companies. SBTi does not monitor the progress towards the targets or checks if companies meet the targets.

What if another participant does not achieve it, would you sanction them? and what about helping them?

Every company pursues their own targets and has their roadmaps. However, some companies might work with the same consultant. It is a small world. We do try to share best practices. Especially on scope 3 we try to do this, as it is very challenging. With other companies/network communities we discuss the best practices and methodologies and share experiences. Scope 3 targets are s lot about collaboration and. Sometimes companies have different challenges. or even share the same value chain so we can share efforts.

Is such an agreement in need of sanctioning mechanisms or does this way of the current set-up suffice?

The SBTi is not doing anything towards that respect (yet). Mechanisms at the moment are our reputation and the reaction from investors or customers. Carbon tax is becoming more expensive in Europe and is being implemented in other areas, pushing companies to reduce emissions. The Netherlands is a pioneer in that area. Not just with ETS but in their own carbon tax. Then we also have the European commission that offers subsidies or loans for companies, projects or investments related to the green deal.. So for me the question is, are we going to sanction or are we going to incentivize good behaviour/rewards?

So, are there any interrelations between adopting SBT and overarching European agreements?

No interrelations between SBTi and EUC. In the end, if we reduce for SBTi, we will also reduce for European programs. Everything has its own requirement and the SBTi looks a company level. Tax is also at company level, but scope is different. There is a lot of room for improvement here still. Perhaps we can push more? Not from SBTi part, SBTi does not set taxes or funds CO2 projects. But in a sense that is a lot of bureaucratic work that everything has its own rules and guidelines. Therefore, harmonisation of the more formal rules (European) and also with SBTi and CDP would be beneficial. We often discuss this with other companies as well.

Should the SBTI have more stringent enforcement mechanisms?

No, I like more of rewarding the best performers. This is the best way I think. Every year, when

reported in a standardized way. We can compare them and possibly reward them.

What are the suggestions to harmonize it? Who must do so?

I think it would be good. EUC has a project to harmonize product and organizations environmental footprint. A first step would be that harmonisation of emissions monitoring and more clear guidance on how to track progress towards targets. Well, if you are in the Netherlands. In you look for a company position which is the best for the competitive position. So yes, carbon tax is one. If you don't need the SBTi, it is not clear what would be done. For us, we are a company listed in the stock market. Reactions from the market if we do not achieve it [the targets]. Shareholders exert pressure. Companies to want to be sustainable leaders need to set SBTs climate is high in the agenda and SBTi is the most reliable and ambitious initiative. Then again if reducing CO2 emission can avoid tax, even more in the future and this will help companies. Most prefer to invest in lower CO2 technology, than to pay taxes. Because then it can fit in the business case.

NL will also set carbon tax, even though not all details are already clear. We are already thinking forward. This gives us time to prepare. This is also one of the nice things from SBTi: we had to set long term targets. This is a way to steer innovation for long term CO2 reduction projects. Very new and positive development. This helps to strive towards and achieving that target.

Effective in its current form?

SBTi are in a way a guidance, so to say. This is an initiative that we have to work with if we want to do more for climate and if we want to have company committed to sustainability.. If this is sufficient? Well, I think when looking at the data is seeming effective yes. It is a very good step. Because they set the level of ambition and the criteria for targets they help companies to be ambitious and go beyond. In the end if we have a customer prefers to buy from a supplier that has SBTs t, this helps. Even if the GHG emissions are not the goal, just because we are doing this and we talk to them, this is very often appreciated. Also, to speak about the new business etc.

Are their rules or is it from a competitive perspective that you do not want to share the ideas with competitors?

We try to be as transparent as possible without sharing the core processes of Corbion. Also we cannot share our new technologies that will enable our future competitiveness. In other aspects such as utilities, energy sources, energy reduction or optimization strategies we are very likely to collaborate. For example, heat pumps. We collaborate with different companies; some may be our competitors because we want to have the best technology. The It is every clear for us and many companies that to achieve the SBTs we need to collaborate; no company can do it alone. You see it in every conversation. The technologies need to be discussed and further developed together. We need our suppliers to do their part as well. You need to create momentum also. Solar panels is an example. When you have momentum, you will have a snowball effect.

A.4.3. Heineken

Why commit?

In 2018 I have started at Heineken. At that point Science-based targets were already a thing. We were already committed. I think that, based on Heinekens competitive position and goal, we are a product that goes to consumers. Therefore, consumers and investors are important to satisfy herein. Also, an important role for commitment lies in the aspect of being more sustainable regarding ratings. Then again, it is also a societal thing. A company is a collection of people. Also, I think we see more societal attention for sustainability. For new talent, we want to have a sustainable company. In the end, multiple aspects come together and driven our commitment.

Oh and also a driver is what happens around us. What the SBTi has done very well is that it has created a snowball effect by making sure that many international companies have joined this agree-

ment. And as a large company looks at what its peers do, this impacts each other. It is important to look at what ABinBEV does for example in our case. They moved towards science based targets. And while we were already busy with this, this push made us do that as well. In the end There are multiple reasons to do commit. Lastly, from an internal perspective, we always had sustainability goals for 2020. They were already installed in 2011. So, this was also a moment to think about what our targets would be beyond 2020 and to 2030. At that point SBTi offers a possibility or maybe the possibility to set valid targets. Heineken also has the ambition to operate sustainability, this is at the core of our mission.

What are the main implications for committing to SBT for Heineken?

In 2018 I have started to analyse the logistics aspect. What can we achieve in 2030 and 2040?

Also for other aspects like breweries, packaging or cooling, analysis has taken place. This meant to connect a lot of suppliers for example. We analyzed Scope 1,2,3. For Heineken, a large emission factor is based on agriculture. All people made plans regarding the possibilities of becoming more sustainable. How can we do this, what are the costs? These analyses resulted in a report to the CEO and CFO. However, before you are there you need a lot of people to align your ideas with. While you understand everything other people internally see something different. This process took 1 year. And now based on your question, what happens next? First a lot of communication happens. Internally, things need to be explained. What did we commit to? For example, Scope 1,2 emissions are primarily in the brewery. We aim to go carbon neutral in 2030. This is easy to be explained. We just go to zero emissions. However, for our whole scope 1,2,3, our emission needs to be reduced with 30%. This is more difficult. Who is going to do what? A lot of interdependencies exist within the supply chain.

At this point we are in the middle of this. Besides communication it is very important to establish how to track such targets. Looking at the company structure, we have a national office and below there are many offices as well. All have their own profit and loss account. They operate almost autonomously. All these individual companies need to be steered in the right direction to achieve the goals. We need a lot of communication and lots of tracking need to occur.

This is very difficult. At this moment we are not able to show the results of 2020. We need so much data from countries and suppliers. And that takes so much time. Those pieces need to be aligned. What I want to stress though is that despite these difficulties, the commitment is nevertheless present.

Do you cooperate on or coordinate your carbon reduction efforts or actions internally or externally with other actors?

There is cooperation. But is difficult to provide a structured answer to this question. These cooperation modes are namely very ad hoc. For instance, these SB targets are set by corporate affairs. They are responsible for policy etc. And this department also speaks with Pepsi, Nike, Mars etc. However, in the end, where it must occur is not at corporate affairs but at the operation. So practically speaking, like in in my case a buyer needs to look for example at greener trucks.

Operation-wise, there are cooperative agreements like hydrogen Europe. That's where we also see other companies who encounter the same problems. I assume this also holds for agriculture and packing. Ultimately, This is on a different level. Corporate affairs is meta level. What is the message? Operational is more practical. But we do have discussions with Nike for example where we focus on the best practices.

Coordination with direct competitors?

No we don't do that directly, yet we do so via the industry associations. Internationally there are international competitors like ABinbev, Kierin. Among others. I do not think we speak with them. We look at what they do. These lines are present, but we will not go into one room.

Why is that?

Well first of all, if I have an idea to reduce emissions, I will not share it with ABInbev. This concern and contributes to Heineken at first so I will not discuss this with my direct competitors.

On the other hand, I do meet them at platform meetings. For example, we are members of the clean carbon working group. This group focuses on shipping. All large carriers are within this program. Also the Worldbank and policy makers. Moreover, there are companies like Heineken or ABInbev. So that is where we meet. But in these meetings, there is a very stringent anti-cartel atmosphere. We speak about the topic with each other, but we make sure that we do not share sensitive information. I don't want to discuss this with my competitors. Both to not cross formal laws as I don't see this a beneficial.

What is your method of disclosing?

If it is about carbon footprint, we have an internal dashboard. We use this since last year. Underlying this dashboard is a calculation tool. Often this needs manually gathered data. This is very time consuming. Like, we did this for 2019 and this took 1 year to collect and analyse all data. We present all these data with internal data. We publish this in annual report. Then we have more reporting options for companies, like CDP, or DOWjones sustainability index. We are member of different initiatives, like RE-100. SBTi. There are different locations.

What is your vision on the chosen form of disclosing and on disclosing within such a voluntary agreement in general?

The underlying reason is that we want to be a sustainable company. To track this, we need to know the carbon footprint and also report this. We need to explain this to the outside world. Then, CDP is also linked to investor relations. Investors look at how well a company performs in CDP or Dow-JONES index. The better your efforts there, the lower your interest rates are for example. This process is more difficult, but better green practices contribute to this. Moreover, you also want to show this to consumers. In case people want to know people can find that there. In case these monitoring mechanisms are not present than we will still publish these data, as we truly want to be transparent and green.

Do you look at competitor data?

Yes, we look at that data. But this is an 'apple with oranges' comparison. First it depends on what a company has in scope. If you look at our own supply chain, we have logistics and emissions everywhere. It is very relevant where the system boundaries are. Moreover, besides system boundaries, it is dependent on the country where you operate. In case you are located in Brazil the distances are much larger. This makes it very difficult to compare. For example, in a country as France, the carbon footprint is lower due to that large amount of nuclear energy. Operating in different markets. Comparing the numbers 1-1 is arguably possible, but actually it is not as you do not know the full story behind the data.

Do you monitor or sanction other parties who do not pursue efforts?

I do not know. This is not on the agenda. My expectation is that we will not do that if this arises. We stick to our own activities and we expect that from others as well. For example, if company x does to little. This is not up to Heineken to flag this. It is up to consumers and investors in my view.

Is there a role for SBTi monitoring?

Yes, indeed, I do expect that the initiative takes care of this. It must not be free for all. I expect that they also watch this. They are also a sort of environmental label. As a label you carry the responsibility to create and maintain value. So yes in the end I expect that the SBTi contributes to this.

Is such an agreement in need of sanctioning mechanisms or does this way of the current set-up suffice?

Well, monetary punishments... I don't think the sbti is able to do so from a judicial point of view. They will not do that I think. Naming and shaming, possibly. I can imagine that they do this. But I don't think this is very helpful to be honest. I expect from sbti that in case companies are not pursuing their targets they have conversations with the SBTi. In case companies do not fulfil their commitments, the SBTi can remove companies from the agreement. However, real sanctioning is not the role of SBTi, nor is it something for us, but more for consumers and investors.

Are these agreements effective in this form?

First of all, the SBti outline helped to structure and formalize processes. It helped to internally make this topic more neutral. Let's talk about two hypothetical situations. Situation 1, there is no method to aid us in setting the right level of ambition. Situation 2: SBTi is there and help to commit to similar methods and targets. So it sets that this is the level of ambition you want to pursue as a company. This helps to have a goal where to aim at. In case this is not present, setting the level of ambition is much more difficult. Is the right level 20%, 25% or something more or less? The clear goal of the SBTi helps us to decide upon the direction.

As we have a level or goal where we need to go to SBTi helped to structure this. Also, for explaining this to senior leadership this is important. It is a very powerful tool to go through this process and set a correct target. What occurs next is that we need to have different action. And then we have to make particular choices. Which is sometimes difficult. Alike, an electric truck is maybe more expensive than diesel. A Cheap energy contract versus a more expensive, renewable one. Well the SBTi does not help with finding the right balance between commercial activities and sustainability. That is the difficult step, once it will cost money this becomes more difficult. CEO Heineken always says: get the balance right and this is a struggle, but I am certain we will get there.

From the top and one layer down, and one layer down. Again, this is broader then sustainability, also diversion and inclusion. What are the goals there? Etc.. It helps to set the right level of ambition. Now we need to incorporate that in the corporations policy and the way we do business.

Would you still cooperate with you peers in case there is no competition law?

Okay, well yes this could be interesting and to some extent is does exists, but than I talk more about governmental lobby with the competitors. We are part of platforms and hydrogen Europe. Also included other fmcgs. For example, my vision is that we will need hydrogen. Electric for heavy transport possibly will not work (as beer is too heavy). Thus, we meet our competitors and make a joint statement to eu commission. We think it is good to develop hydrogen trucks for example. I think we can maybe do this more.

One level lower I also see this. For example, we can match lanes with Unilever. We can combine our operations. E.g. use the empty truck of Unilever to drive back. In the end, cooperation exists, but only to some extent. I do not see this happen that we work together with ABInbev. That's where it is real competition.

Formal rules exist and voluntary agreement are two separate issues. A voluntary commitment is different as we want to become climate leaders and go the extra mile. Also do a little storytelling. Beer is a consumer product. We want to incorporate that in the message and marketing.

Final remarks to me, the interviewer?

1. Science based targets does not allow offsets. I am curious how sbti sees this as in some cases this might be the only solution. 2. Also I am curious how sbti sees it role in the next steps of the commitments. What are they going to do?

A.4.4. Dutch Ministry of economic affairs and climate policy

What is the position of the Dutch government with respect to voluntary agreements, like SBTi?

Well, at this point we are busy with a study which in turn is conducted by the New Climate Institute. Different subjects are being discussed and explored there. They are going to analyse the private NSAs processes of setting of net zero targets. Of course, NSAs are setting these targets. From the perspective of policymaking this is a very interesting yet difficult challenge. How ambitious is this target setting?

And to be honest, it shows that we as government not very close to the core of these initiatives. An initiative as SBTi, I do not notice its effects directly. This is something for private NSAs among each other. From that perspective I find it difficult to provide you with data.

Okay yes that is clear, however we do see more and more companies adopt, what is your perspective on that increase?

First, before I forget: In the past, Nationally, we have installed the Dutch climate coalition. This has stopped. It was an initiative which started by the Dutch government. It was thus created and set out by the Dutch government. What it wanted to achieve was to make binding targets.

To come back to your question: That is right. We see this happening. This trend in reporting. Also, from society the pressure has become much larger. How do we make this measurable? At that point Dutch climate coalition was too early. Internationally speaking, we saw that these voluntary actions and reporting as something which played for very long. For example, before the Paris agreement and before the COP Cancun, we have already made initiatives for involvement of NSAs at this COP. After Marrakech this is formalized by the president of the meeting at that time. Marrakech partnership also focused on local climate action. ICIS have been developed. As a result, coalitions were formed which aimed at connecting different actors supportive of sectoral climate action. The partnership then wanted to give it a stage at UNFCCC. There are nevertheless high-level events and forms of reporting.

This is Classic UN, as it is often focused on (government) Parties. However, this has changed since Chili. Cop 2019. Gutierrez [VN secretary general of UN] organised action summit in NY. The so called: Climate ambition coalition. And within the Annex, NSAs were included. And as many NSAs as possible actually. In the beginning primarily developing countries participated, but G20 countries did not. To come back to the Annex, this has resulted in increasing attention. As part of Marrakech partnership. Since 2016, a new institute has formed. These are the 'high level champions' of climate action. These high-level champions rotate and were in the past private actors, such as Nigel Topping. The high-level champions created the initiative race to zero. They are primarily focused on private sector. They want to connect as many countries as possible. However, the feedback on this race to zero has thus far been both negative and positive. Also, we as the Dutch government feedbacked this: But hey please look at the transparency part. This to make sure we can state this at Mondial level. How ambitious are these statements? Today, they are working towards this. New norms and new rules as work in process.

Do you want to enforce these agreements like SBTi?

Multiple answers are actually possible. This has to do with that there are multiple and many initiatives. We think it is really good that there is measurable data right now. This also helps the countries. As they can better state what their potential is. The information that companies have and have to provide e.g. to CDP is sensitive. This makes transparency difficult, next to the administrative burden. From a nation perspective, at CDP this works a follow: As a government we can also check this. We are busy with becoming a member and I think can then also see the data. This is important for us to make a sensible judgement.

At this point we do not see as companies do not give that to min EACP. We have consciously let this to society as we find this is as of today their responsibility. At this point, we don't see (from a policy context), the large advantages of such voluntary agreements. Of course, at this point we see a lot of programs. We as ministry do not see hard position as government to take in. We find transparency very

important and good and it must be made sure that good ambition is incentivized instead of sanctions. We take in a position of learning and facilitator of best practice sharing herein. Regarding sanctions: We as a government will not put sanctions in place.

How do you see sanctions?

I (interviewer) see this very broad from naming and shaming towards material sanctions Okay well I do see that monitoring provides this possibility for naming and shaming. However we will not install material sanction. I don't think this is beneficial for parties committed. As said we do see much value in monitoring an being transparent. But no sanctioning, this is up to society

What do you expect why parties comply?

We think this is also mainly due to the societal tendency of company shareholders etc. Among other reasons, which are harder to define.

A.4.5. CDP

How do the founding parties see their role in the SBTi?

Well first of all I think it makes sense to talk about the governance structure of the SBTi, The SBTi consists out of a partnership of 4 organizations. Internally we have different teams and structures which steer the SBTi day to day. Our governance model comprises a board, a steering committee and core team, and different advisory teams that help make technical decisions.

Basically, our governance structure allows to represent the different partners. Therefore, the SBTi is now a decision body which focuses on pursuing initiatives on the environment. We try to make decision on the consensus of the different partners. However, this is sometimes a challenge due to the various perspectives. For some of us, climate is main topic and for others it is one of many topics. Therefore, we have multiple perspectives which we like and have to address. Ultimately, we want to provide technical and programmatic decisions for stakeholders. Not alone, but together with all experts.

Why not provide more help after target setting?

Well, I would say it is more due to an evolution of the types of interventions we have. We have to prioritize as initiative. To have an idea, when we started this project, the landscape was very different than today. There was no Paris agreement and generally we did not have faith in science. A lot of scepticism with respect to climate science. The world barely agreed upon imposing limits. In this different world, companies primarily did not have public climate targets. Even if they did have reduction targets. they were not ambitious enough. Considering the landscape, the first thing we need to do is to make companies explore the approach to setting climate targets.

Therefore, the first step was to commit to SBTi, and that is why we have to model that today. We want to try to change the corporate sector. Therefore, they needed to commit to something different. And this was then also our prioritization at the beginning. All our effort should concern that call to action. Some companies argued that setting these targets makes sense. Then the Paris agreement came into place, which had the potential to change everything and to some extent also did. However trump also came into place. Which created a lot of scepticism.

Still, a lot of companies started to shift focus. We needed to make sure companies go through that robust target setting process. We need to make sure that there was an infrastructure for target setting. We have started with informal criteria and procedures, and they evolved over time to this pretty robust framework we have today.

Still, I think, we have a very robust target setting framework. Most of the targets in the pipeline are end year targets. Most companies are setting 2030 target for instance. And we have the first companies that joined the initiative that have reached the target year. Most of them (not all of them) have also renewed their targets. We have now a lot of companies that are in the implementation phase. There-

fore, we have solved the target setting phase and now we have shifted attention to the next phase which is implementation. Now the infrastructure is needed for the implementation. It is a result of the involvement of our prioritization and steps.

What is the vision or perspective of the CDP/SBTi on the current level of reporting and monitoring?

The answer to this has two components in my view. One of them is the reporting itself, second is the quality of the reporting. That is the core of what CDP does of course.

Now we did already perform an initial assessment of the current monitoring progress. It has been published in the progress report 2021. The progress report basically stated 80% or something companies are publicly reporting and disclosing the progress against their targets. Still 20% are not fulfilling that requirement.

For those that disclose, the question is yet different. The question is how you actually assess whether companies are truly decarbonizing or not. That is a different question that we try to solve. Infrastructure that exists in the corporate climate action space was not designed to assess climate action in this manner. It currently is in place to evaluate the footprint of companies.

To assess if a company decarbonizes or not, we need different assessment, also as there are several loopholes in the carbon accounting phase. Therefore, we needed an innovation. In the end, there is a lot of creative accounting. That is why it is important to have robust frameworks and ways to assess whether companies are actually decarbonizing or not.

What if parties do not fulfil their commitments or satisfy steps within the documents?

First, I like to stress that this is a personal perspective. In the end the sbti provides a certification mechanism for corporate climate ambition. I think ultimately, the label SBTi provides something for the companies. And of course the first step is to gain access to the label by having the right ambition. However, that ambition of the SBTi can only subsists if companies deliver. In case they do not, the company could probably be delisted (however that is not happening yet).

So what happens today when they are non compliant?

So that is part of what we are developing right now. Has not been launched yet. We need to explore what this possibly means in practice. One thing that is important to mention is that it is difficult to assess prematurely companies. Because companies commit to achieve emission reduction in a certain timeframe. What the court mandated to do by the way [refers to Shell case].

However, this does not mean that the company is going to reduce 4-5% a year. We are talking about radical transformation and this change is not linear. We cannot say that that a company is not on track when it does not linearly decrease its emissions every year. It is simply not linear. During the target period we need to incentive actor to be transparent. Then in the target year we need to judge whether companies reach their targets.

Understanding the pressure. It is fine that there is pressure. However, we cannot build a framework on that pressure alone. When you talk about marginal improvement, you can talk about energy efficiency for example. A company may have efficiency improvement in terms of light use. However, transformation are step changes.

Also, suddenly the companies can switch the energy supplier that may require investments or the signing of ppas [power purchase agreements]. Once that happens all of their scope 2 emissions can disappear from one day to the other. The grid does not decarbonize overnight. But it is incremental and transformational. That is why we want to keep companies on the hook, but we also want to be respect how to make the transformation successful.

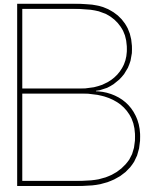
Did you not install sanctions or stricter formal institutions based on the fact that you want

society to hold actors accountable?

Well that is part of the new MRV strategy that we try to figure out. There are several expectations from stakeholders. Different expectations on how stakeholders are using validation mechanism the SBTi uses. For instances, financial instances are making capital decisions if companies have a SBTi or not. Of course, there are capital things. For other stakeholders this is not solely the case. Aligned touch approach to this so this does not become a to actually set targets. We have to figure out a model which incentivized actors and creates transparency to make sure companies reach their targets.

Is the SBTi in its current form effective?

Yes and no. It has been successful in changing the paradigm of how companies are setting a target. Now they are science based and with the net zero momentum it is ultimately a change of paradigm. Companies are now using science to inform climate targets. That is good. Lot of growth on companies participating as well. However, when looking at the bigger picture, in the corporate sector there is still a massive gap. Analysis on progress is on its way. It is still only 20% that has set targets. That is just ridiculous. Considering the pressure from investors; society; and policies; there is still quite a big gap. In that perspective we still have a long way to go. We can only succeed if all companies move in that direction. Otherwise, we will not be able to transition



Results of desk-research analysis: context & case-studies

Figure B.1: Global F& B sector analysis

F&B sector	
Global turnover	The global F&B sector turnover is estimated at 7 trillion dollar.
European statistics	Within Europe, it provides almost 5 million people with a job and has a turnover of 1.1 trillion euros. On the contrary, as a negative externality, the European F& B companies were responsible for 30 MTOe CO ₂ (in the EU) (Odyssee, 2016)
Dutch statistics	The Dutch sector provides an added value of 15.7b euros, around 6000 companies and a provision of 136.000 jobs..
Challenges	The global sector needs to grow with another 50 % to secure enough food supply for the whole globe in 2050. It is profoundly ethical to have all mouths fed, but the downsides of such a large food and beverage system are immense. As argued for by PWC (2020) agricultural- and water resources are experiencing harsh times already today, let alone when the system grows with another 50 %. Besides, these two components are only a part of the 'regular' food and beverage value chain.
Environmental challenges in more detail	Reducing carbon emissions is not an easy tasks within the F&B sector. Engie (n.d.) presents three main challenges for F&B companies aiming to reduce their climate impact: <ul style="list-style-type: none"> •The difficulty of transforming the food production, due to the large but difficult to tackle impact of Scope 3 (supply-chain) emissions •The problem of having a very large water and energy intensity •The question on how "to show how they [companies] are supporting their customers to live according to their environmental and ethical values"
Proposed Solutions	To overcome these challenges, Food & Drink Europe (2015) proposes to focus on technological & behavioural change, adopt standards & agreements and optimise processes. PWC (2020) proposes contextual analysis: a sectoral overview and company case-studies. Both can be seen as sector-wide holistic approaches including investigation of the internal impact and external opportunities. Bottomline, measuring, analysis, reporting, monitoring and communication of climate action are key. If F & B actors want to successfully execute climate actions, actors must focus on aspects which are located both in the internal as external dimension.

Figure B.2: Heineken, mainly based on the annual report of 2019 (Heineken International, 2019)

Heineken	Status: target 'well-below two degrees' set
General company information	Heineken, with an active presence in more than 190 countries and over 84000 employees worldwide, is one of the most famous beer brewers in the world. Also, this family owned business is operating for more than 150 years.
Type of good or service	Beer or alcoholic-beverages in general. A private good in Ostroms terminology
Plant characteristics	Heineken main production units comprise brewing facilities. Brewing facilities range from kettles to fermentation units. Emission-wise, the brewing process nevertheless only accounts for 10 %. The main emissions in the value chain are caused by packaging and agriculture (29 and 23 % respectively (Heineken International, 2019)
Mission statement, purpose or company values	Brewing a better world. Heineken states to "brew the highest quality beers, build globally loved brands and strive to do both of these things as sustainably as possible"
Perception and efforts regarding environmental issues	Heineken's strategy 'flywheel' focuses on 3 aspects: "accelerated investment and resource allocation, continuous productivity improvements and superior growth". By leveraging their core capabilities, this flywheel aims at creating long-term value. Concerning climate action, Heineken aims at raising the industry standards bar. Heinekens former CEO states that Heineken only wants to focus on 'real' green energy and that "Beyond production, distribution and cooling, we are also going to take a close look at our packaging, because it represents a significant portion of our carbon footprint"
Reasons to commit to SBT	"HEINEKEN wants to drive a real change towards renewable energy and will therefore not purchase unbundled certificates to meet its reduction targets. In addition, new emission goals will be set for distribution and cooling and, for the first time, also for packaging. "

Figure B.3: Heinekens revenue, operational profit & emissions development [2015-2019]

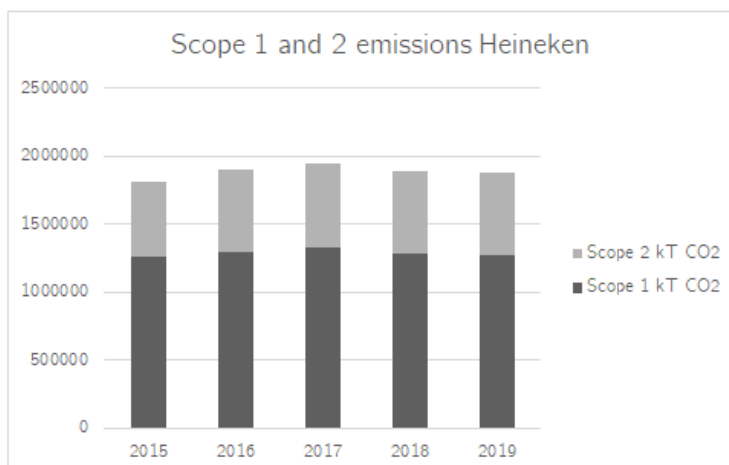
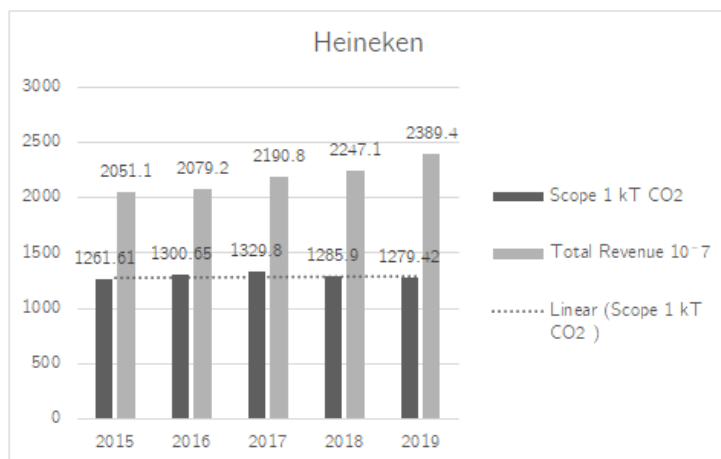
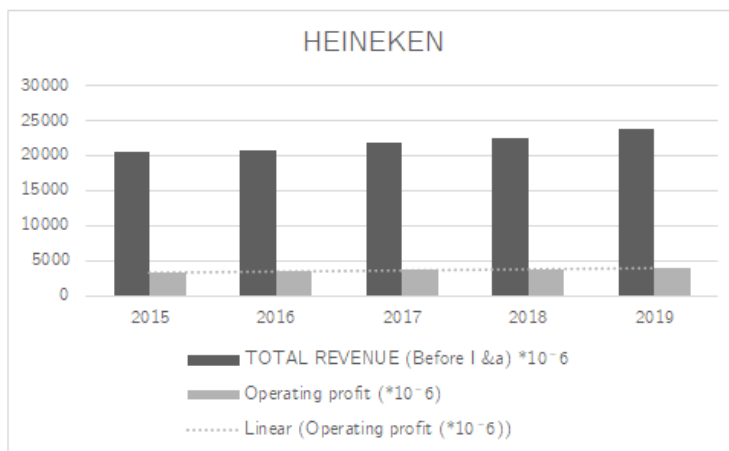


Figure B.4: Corbion, mainly based on on the annual report of 2019 (Corbion, 2019)

Corbion	Status: '2 degree' target set
General company information	Corbion is the global market-leader in "lactic acid and its derivatives, and a leading supplier of emulsifiers, functional enzyme blends, minerals, vitamins and algae ingredients". Corbion is especially known for its expertise in fermentation processes and employees approximately 2500 people.
Type of good or service	Lactic acids and derivates. Private goods in Ostrom terminology
Plant characteristics	Their main product: lactic acid is based on fermentation processes. . The input for the fermentation process is heat, which today is mainly still produced from fossil-fuels.
Mission statement, purpose and values	"At Corbion we preserve what matters. We champion preservation in all its forms: Preserving food and food production, health, and the planet." The values are collaboration, care, commitment and courage.
Perception and efforts regarding environmental issues	Corbion states that their strategy is built around advancement of sustainability and high ethical standards. This core-focus on sustainability is displayed in supply-chains, raw materials as well-being of their people. Also, Corbion produces this lactic acid to create bio-plastics.
Reason for commitment to SBTi	Corbions CEO states the following with respect to SBT: "We must all become leaders in climate action, and do all we can to inspire each other to make a sustainable difference." The reasons why Corbion has committed to the SBT are 1. Increase credibility of carbon reductions 2. Demonstrate leadership 3. Get long term guidance

Figure B.5: Corbions revenue, operational profit & emissions development [2015-2019]

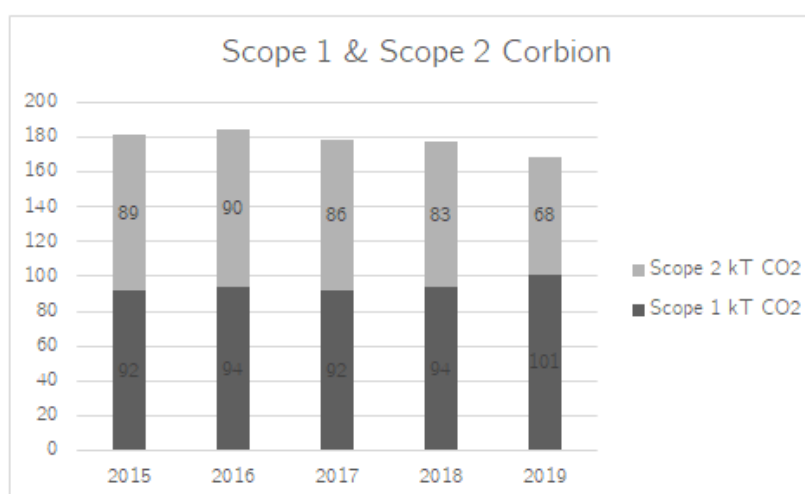
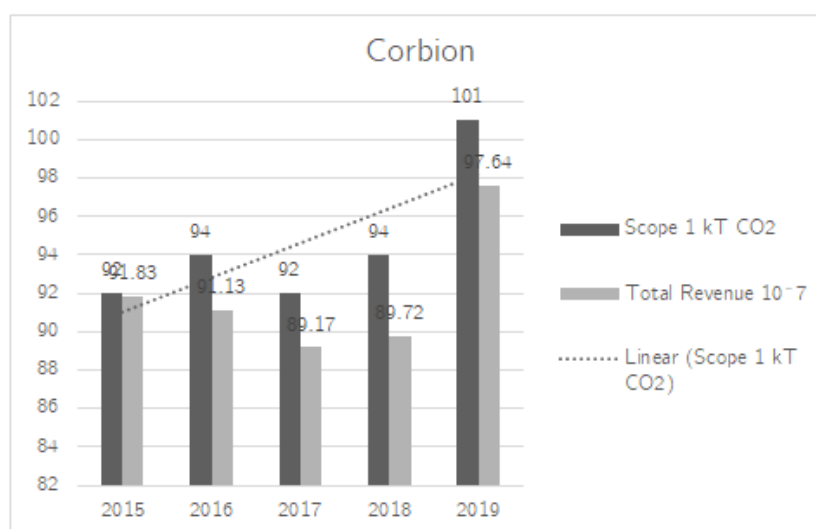
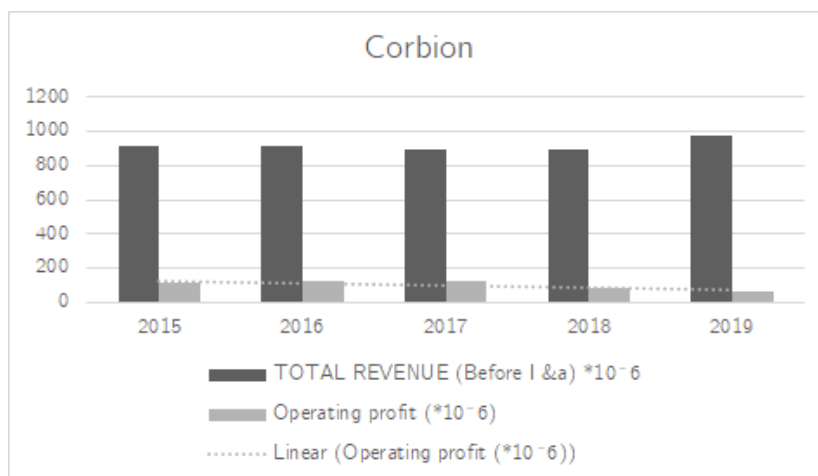
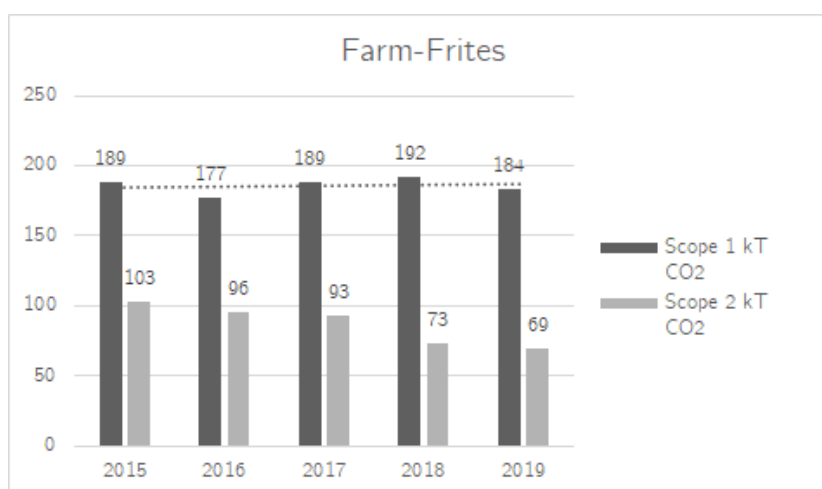
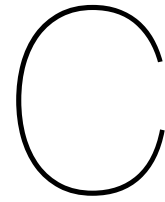


Figure B.6: Farm-Frites, mainly based on the annual report of 2019 (Farm-Frites; 2019)

Farm-Frites	Status: committed
General company information	Farm-Frites describes itself as an independent family-business while being active in the global market as well. 1500 employees are currently working at Farm-Frites. In business for over 45 years, their focus lies on the cultivation of potatoes and production of potato-related products. They have production facilities in 5 different countries, ranging from Buenos-Aires to Wudan (China).
Type of good or service	Fries and potato-related products. Private goods in Ostrom terminology
Plant characteristics	During production, they mainly make use of cutters and cooking facilities. While the first requires electricity, the cooking units require heating, which is mainly derived from natural gas
Mission statement, purpose or company values	"We are dedicated to focus on our colleagues, customers and partners to build loyalty, maintaining a commitment to innovation, and striving to constantly exceed expectations of our stakeholders internationally."
Perception and efforts regarding environmental issues	To achieve their ambitious strategy goals, they strive to innovate continuously. Some of the ambitions are: 1. Reduce energy used per tonne product with 10 %, 2. Reduce their carbon footprint with 50 %. Both are aimed to be achieved by 2030. The base year for these reductions is 2018. 3. Zooming in on the SBT, they stated the following: "it is worth mentioning that in our sector of Food and Beverage Processing there are 66 entries, and Farm Frites is the only Potato Products Manufacturer".
Reasons to commit to SBT	"By committing to setting a science-based target, Farm Frites shows its continued leadership on sustainability."

Figure B.7: Farm-Frites & emissions development [2015-2019]





Interviews: organizational aspects

C.1. Arranging and conducting interviews

To have the best chance of obtaining useful data, the right persons needed to be interviewed. Therefore, we have drafted three criteria to select the right participants. We like to emphasize that these criteria can be seen as providing some sort of direction. After all, not all criteria have to be met.

- The interviewee (person to be interviewed) works at a company or organization who has committed to the SBTi (inside and outside of the F & B sector)
- The interviewee is responsible for sustainability, energy, climate or (even better) science-based targets
- The interviewee displays a clear affiliation with climate action and the role of NSAs herein

After selecting interviewees, they needed to be contacted. The goal of this contacting process was to find a date on which the interviews could be conducted. To contact the interviewees, we have made use of our own three-steps plan of attack. First, we have contacted the employee meeting the selection criteria via LinkedIn. If we were not able to settle a date for an interview, we have proceeded with step 2. In step 2, we have called the company to try to speak with the employee as found on LinkedIn. If this was not successful, we have tried to speak or reach out to other sustainability or environmental managers & employees within the company. In case this was all not successful, step 3 was executed. In step 3 we have send e-mails to the employees expected to be responsible for these subjects. In the end, these three steps have been sufficient to come to interviews and reach the right participants.

After having established a connection via one of these steps, the next advancements took place via e-mail. Within the send e-mail, the research purpose was explained and time-slots were proposed for the interview. All interviews have been conducted online due to the COVID-19 virus measures in place. When the interview took place, the interview audio has been first recorded and later transcribed. As noted, all transcripts can be found in appendix A. These transcripts have then been used in the coding & clustering (step 2) and later in the formalization steps (step 3).

C.2. Questions

In this section, we will provide an overview of the questions which have been used within the semi-structured interviews. As has been noted before, the interview questions supported us during the interviews, but were not strictly followed.

Following Mesdaghi (2020), we have categorized the interview-questions based on:

1. Action arenas identified.
2. The 'level' of the institutional statement. As discussed these are constitutional, collective-choice or operational. Within our case, we decided that the constitutional layer mainly comprises the

written agreement and thus institutions of the SBTi agreement. Collective-choice layer focuses on the cooperation between actors, while the operational layer concerns the individual actions by actors.

3. The functions of the statement. More specific, their theoretical foundations based on the seven rules surrounding the action situation

Table C. 1: Questions for Action Arena 1

ACTION ARENA 1: Commitment & Knowledge gathering	
Constitutional	
Boundary Rules	Are there any binding regulations which oblige parties to gather knowledge for climate mitigation efforts?
Position Rules	What is the role of the SBTi within the process of companies weighing costs/benefits of committing and providing knowledge?
Choice Rules	Are there other ways to commit? Are there other ways to reduce CO2 emissions?
Information Rules	Is the SBTi leading and why?
Pay-off	What happens if after commitment nothing is done?
Scope-rules	How is the quality of the commitment process safeguarded? What are the implications of commitment?
Collective-action	
Boundary Rules	Which parties are allowed to commit to a SBTi?
Position Rules	Which positions can actors take in, are there different possibilities? Is there a maximum number of parties who can commit?
Choice Rules	What must an actor do to commit?
Information Rules	In which way is the commitment communicated to the SBTi?
Pay-off	What are the expected benefits of the cooperation between SBTi and you as company X?
Operational	
Position Rules	What are the actions needed on an operational level to commit to a target
Choice Rules	What are the possibilities for gathering knowledge?
Information Rules	Which channels of information are in use to generate knowledge and commit to a target?
Aggregation Rules	Who decided whether there is committed to a SBTi
Pay-off	Are there specific rewards for committing to the SBTi? Are the persons in charge of commitment rewarded after this project completion?
Scope-rules	What are the desired or required outcomes of a commitment?

Table C.2: Questions for Action Arena 2

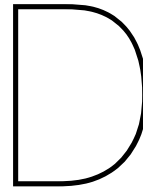
ACTION ARENA 2: DEVELOP & SUBMIT Actions, perception & Implementation	
Constitutional	
Boundary Rules	Who can develop targets?
Position Rules	What are the positions coming forth from developing targets? Does the SBTI take a leading role in developing targets?
Choice Rules	What are the different possibilities to develop targets? Is there any specific sectoral F & B activity? Are there minimum requirements for developing and implementation? Must particular reductions happen?
Information Rules	How is the development procedure communicated to actors who want to participate?
Pay-off	How are the commitments translated to actions?
Scope-rules	How can the results of development procedures be compared or evaluated?
Collective-action	
Boundary Rules	Are there particular implementation collective processes, who can enter exit?
Choice Rules	How do you decide which climate measures you give preference to?
Information Rules	What is the information as provided by the SBTI? Are development procedures discussed with other actors (sectoral/non-sectoral)? What makes a development procedure successful?
Scope-rules	
Operational	
Position Rules	Who is responsible for the development procedure?
Information Rules	How is information regarding actions spread throughout the organization?
Aggregation Rules	How is decided who is responsible for the development procedure?

Table C.3: Questions for Action Arena 3

ACTION ARENA 3: Coordination & Cooperation	
Constitutional	
Boundary Rules	What are the pre-requisites for joining such cooperative actions? Are there formal prerequisites?
Position Rules	Are there formally defined particular positions taken within such meetings?
Choice Rules	The SBTI provides best practices, can you elaborate more upon that?
Information Rules	What are the channels used to possibly share information?
Aggregation Rules	Are there formal arrangements in place which steer towards more coordination?
Pay-off	What do you expect as possible rewards when coordination occurs?
Collective action	
Boundary Rules	Who can join possible coordination efforts?
Position Rules	What are the roles during this coordinating and how do you move to roles?
Choice Rules	What are the possibilities for coordinating actions? What is currently done? How do you decide what is most valuable to do?
Information Rules	What are the information channels for coordination?
Aggregation Rules	How are decisions made on who you coordinate external actions with?
Pay-off	What are the possible rewards for coordinating actions? What are the downsides of coordination?
Scope-rules	What are the expected outcomes of cooperation and coordination?
Operational	
Boundary Rules	Is there internal division on who can cooperate?
Position Rules	Are there internal positions who determine which carbon mitigation or reduction to pursue?
Choice Rules	How do you as a company decide to coordinate your actions?
Information Rules	How are the information efforts currently coordinated within the company?
Pay-off	Why must/must not coordination play a role?

Table C.4: Questions for Action Arena 4

ACTION ARENA 4: Enforcement	
Constitutional	
Boundary Rules	Who can disclose their CO2 emissions? And what are the requirements? What is required for disclosing the data to CDP? Does the SBTi take in a leading role in making sure that actors disclose their data?
Position Rules	What are the options to disclose carbon emissions?
Choice Rules	Which information is provided to successfully disclose emissions? And which channels are used to analyse /gather the disclosed emissions?
Information Rules	What makes disclosing successful? What happens when disclosing is not done? Are there possible rewards once there are formal rules for not pursuing tasks?
Aggregation Rules	
Pay-off rules	How is disclosing evaluated? When is it required to disclose your data? Can the results of the disclosed data be compared?
Scope rules	
Collective action	
Boundary Rules	What are the prerequisites for cooperating within the SBT and disclosing the data?
Position Rules	What are the roles during this coordinating and how do you move to roles?
Choice Rules	
Information Rules	What information must be held secret, and what information must be made public?
Pay-off rules	What are the possible rewards/ expectations, among actors of disclosing? What is the perspective on not disclosing particular actions by others? The benefits or costs for such an agreement? Are there follow-ups from the SBTi regarding monitoring or progress? What are the main insights after evaluating the disclosing by other parties?
Scope-rules	
Operational	
Position Rules	Who is in charge of disclosing the data internally?
Choice Rules	How is data gathered within the company? What are the means for disclosing the data?
Information Rules	Which information is used and needed to disclose information?
Aggregation Rules	How do you decide which data to include and which way to gather this data?
Pay-off	What are the rewards of disclosing data at? What are the costs for disclosing data? What are the costs and benefits for participating in this voluntary agreement? Why disclose them at CDP?
Scope-rules	



Clusters, quotations & word-webs

D.1. Themes used in coding

CO₂ reductions, Communication, Reporting, CDP, SBTi, Food & beverage sector, formal regulation or legislation, coordination, cooperation, collaboration, framework, structure, Climate action, Climate efforts, Regulation, Voluntary, mission, monitoring, Internal stakeholders, external stakeholders, Internal shareholders, external shareholders, communication, investments, Purpose, sustainability, together, globe, climate change, benefits, awareness, clients, comparison, best-practice, sharing, head-group/leader, society, competition authority, competition law, competition, transparency, strategy, credibility, agreement, free riding, greenwashing.

D.2. Clusters and quotations

D.2.1. Utility company (36 quotations)

SBTi; mission; monitoring; targets; commit; CDP; framework; report; disclose; best-practices Benefits; communication; knowledge; investment; comparison; emissions; climate; sustainability;

D.2.2. Oil and Gas exploration and geoscience company (30 quotations)

Mission; society; coordinate; regulation; competition; mission; clients; shareholders; effort; clients; Sustainability; Voluntary; SBTi; customer; accountability; Consortium; commitment ; Sectoral cooperation; Non-sectoral cooperation; carbon; awareness; framework; report; climate; investments; sustainability.

D.2.3. Financial (39 quotations)

Climate change; sustainability; Free-riding; agreement; commitment; credibility; action; efforts; law; sustainability; legislative measures; Policy making; investment; stakeholders; monitoring; sanctioning; sanctioning; coordination; SBT; CDP; best practices; cooperation

D.2.4. Financial (48 quotations)

Climate; sustainability; climate change; communication; investments; Shareholders; awareness; vision; purpose; climate; clients; CDP: SBT; SBT: regulation; framework; agreement; strategy; society; sharing; best practices; clients; climate.

D.2.5. Scope: Farm-Frites (27 quotations)

Monitoring; Sanctioning; Clients; Agreement; CDP; Society; Sustainable; Communication; Cooperation; Commitment; Formal legislation; transparency; framework; sharing; strategy; climate; voluntary; agreement; framework; mission; sustainable

D.2.6. Scope: Heineken (29 quotations)

Monitoring; sanction; voluntary; commitment; climate leader; SBT; CDP; report; commitment; communication; framework; agreement; cooperation; sustainable; mission; purpose; comparison; competition law; transparency; shareholders; stakeholders; agreement

D.2.7. Scope: Corbion (31 quotations)

Sustainability; environment; transparent; competition; rating; CDP; SBTi; Carbon tax; Agreement; Clients; Carbon tax; Mission; External; Monitoring; Sanctioning; Competitors; Report; Best-practice; Trust; Green loans; European commission; Avoidance of legislation

D.2.8. Scope: Dutch Government (19 quotations)

Government; targets; challenge; climate; SBTi; UNFCC; government; action; transparency; CDP; voluntary; sanctioning; monitoring

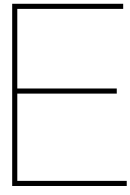
D.2.9. Scope: CDP / SBTi Steering committee (18 quotations)

Challenge; environment; SBTi; targets; approach; companies; reduction; CDP; assessment; reduction; targets; carbon

D.3. Word-webs for all interviews

Figure D.1: Word-webs derived from the interviews conducted

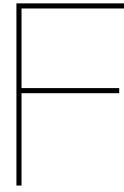




Analyzing interviews transcripts

Step
1. Analyze the sentences and identify possible statements
2. Start with identifying and marking the action or aim verbs (see figure 7) for each sentence. Additionally, mark the total action itself. <p>In case the action concerns a pronoun, try to look for the noun that pronoun is referring to. In this case, it refers to Ecofys. <i>This was since Ecofys was part of our company, we asked them to analyze the possible agreements which focused on climate impact.</i></p> <p>In case there is no action with the verb, one can identify particular information. In this case, we have refers to the contact they have with other parties. <i>Externally, we have continuous dialogues with parties such as the Consumentbond or business clients</i></p>
3. Mark the subject and attribute. In case the subject being a pronoun, specify this noun where possible. It can be helpful to analyze surrounding sentences. <p>In case of an animate noun that conducts a particular efforts, label the noun with attribute [A] and the effort with Aim [I] <i>First the CDP [A] analyses [I] the data and second, our accountant checks our emissions statements as well.</i></p> <p>In case there is an inanimate noun that conducts a particular action, we should not code it with an attribute. This is not an institutional statement. Nevertheless, this sentence can provide us with particular information. <i>Then again, the SBTi score is rated in the CDP framework which results in higher CDP scores.</i></p>
4. Mark the conditions for each sentence.
5. Mark the object in the unit of observation
6. Explore and analyze the sentence in more-depth by analyzing surrounding sentences as well.
7. Establish the deontic for every statement thus far identified.
8. Try and observe any emotional or tangible sanction in each unit of analysis.
9. Lastly, code all units of observation as rules, norms, or strategies <p>As noted before, the only institutional statement that has an Or else condition is a rule. Norms do not contain a deontic while strategies only contain A, I, C. Material sanctions should be labelled with a or else, while emotional sanctions must not. In case there is an emotional sanction, we will speak of a norm.</p> <p>Original sentence: <i>We speak about the topic with each other, but we make sure that we do not share sensitive information. I don't want to discuss this with my competitors. Both to not cross formal laws as I don't see this a beneficial.</i></p> <p>Within ABDICO syntax: <i>A member of the SBTi [A] does not [D] speak about [I] the topic [B], if competition law is possibly overstepped [C] , or else they risk a fine [O]</i></p>

Figure E.1: Complete explanation to analyze the interviews



A non-executable and a non valuable methodological addition

F.1. Identifying further distinctions between institutions

Thus far, institutions are only formalized by making use of the ABDICO syntax. Hereby a distinction can be made between strategies, norms, and formal rules. However, the line of demarcation between rules, norms and strategies is sometimes thin. Schlüter and Theesfeld (2010) therefore has expanded the three original distinctions. By making distinctions between automated-, internal emotional-, externally induced- and tangible sanctions; strategies, personal & collective norms and rules can be better distinguished.

From a theoretical perspective, we argue it necessary to explore whether these distinctions could be included when formalizing the institutions. This especially could prove beneficial when trying to derive insights whether actors break or follow a particular institution due to an (internal or external) emotional sanction or due to an automated sanction. From an methodological analytic perspective, this could for example be done by extracting the implicit sanctions from the informal institutions. This as no clear 'or else' is specified. After extracting these institutions, they could be added to the INDs.

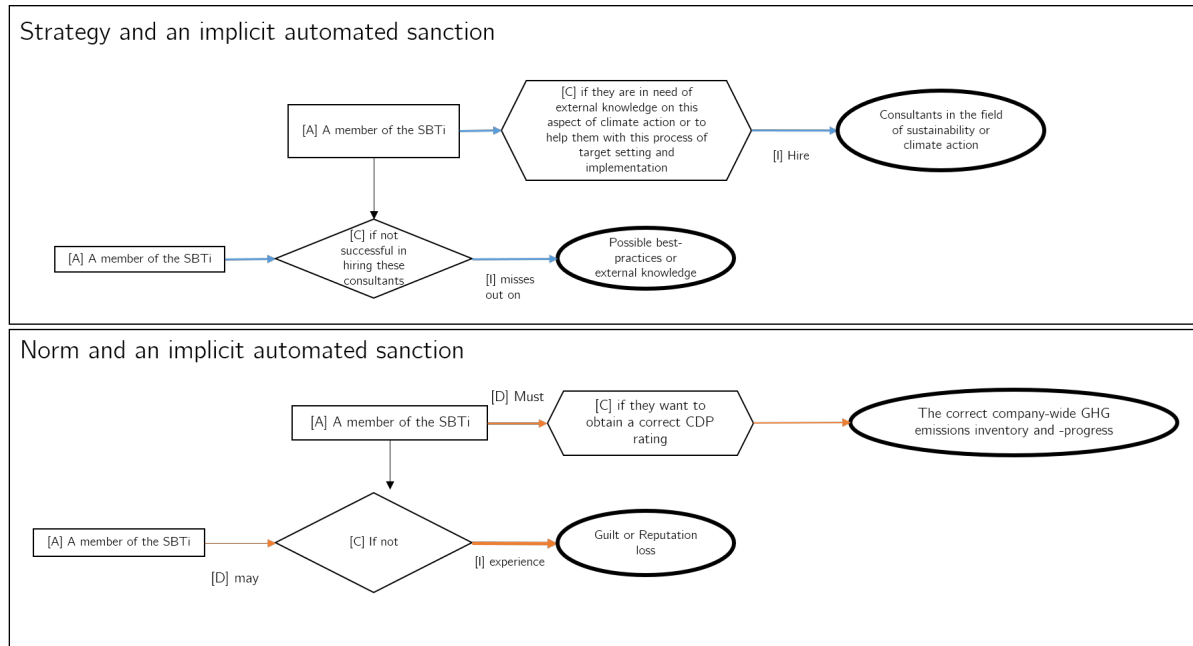
However, when depicting them in the INDs, problems occurred. As the name implies, an institutional network diagram is depicting and visualizings the institutions in place. Nonetheless, when depicting the informal or emotional sanction as an 'or else' in the diagram, these sanctions are not representing institutions. For example, in case of driving on the wrong side of the road, a possible automated sanction could be to get killed in a car accident. However, the latter would not be an institution, but more of an outcome.

In our analysis, an examples could be like figure F1 below. Again, this depicts that the or else induced by the strategies or norms are no institutions and therefore do not contribute to a more comprehensive institutional network analysis. Therefore we decided to not include this within our analysis and the INDs.

F.2. Conflicting objectives

In their current form, INDs depict how institutional statements are related to inanimate or animate objects. Accordingly, the objects and properties of the objects can activate or influence other institutional statements. However it is possible that certain objectives are also present. According to the Cambridge dictionary, an objective is "something that you plan to do or achieve" (Dictionary, 2021). Additionally, different societal, economic, and environmental objectives may be objects within institutional statements. Despite their possible relevance, Mesdaghi (2020) notes that within her study she was not able to find these dedicated elements and visualize these different objects within INDS.

Figure F.1: Implicit or elses contributing to coding and formalization complexity based on our case



Therefore, we have tried to incorporate and scrutinize this within our research. We have added procedural objectives to the presented list of objectives. For every action arena we have tried to find the objectives and analyzed whether there were possible conflicts. To do so successfully, we have first labeled possible objectives within the diagrams. In case they were either environmental, economic, societal or procedural, we have revised and adapted the original INDs if needed. The revision concerns writing the objectives as shared strategies and then aim to explore which conflicts exist. However, in the end, this strategy was not successful, hence we excluded this from the analysis.



Brief literature review on motivations and drivers

G.1. Brief literature review

Our literature review can be divided in an orientative and methodological addition phase. Within the orientation phase, we have broadly searched for intrinsic and extrinsic motivations and institutions. We have beforehand not excluded any papers within this exploration. This is different for the next phase, as the papers reviewed within that phase must include all search-terms

First, Deci and Ryan (2010) must be seen as an often referred to work dissecting intrinsic from extrinsic motivations. People are more likely to undertake actions when they perceive their motivation to come from within (intrinsic) as compared to motivation induced by an external controlling agent. Possibly, for actors to pursue candid pro-environmental behaviour, their efforts should be internalized. Nonetheless, pro-environmental behaviour is not always enjoyable and it is therefore important for humans to pursue climate action even though they do not see this as enjoyable. Having a better understanding of which institutions drive them to pursue particular actions, also provides better insights in which changes should be made to motivate actors to pursue candid climate action.

From a more institutional perspective, Reksten (2018) has designed an institutional framework which explored the decision making process of companies voluntary committed to an environmental program and the role of external stakeholders herein. Steg (2016) on the other hand has investigated the values and norms in relation to why actors pursue particular environmental actions. Besides, Reeson (2008) has scrutinized the role of intrinsic motivation and the addition of top-down regulation. "Weak regulations and small, competitive financial incentives have the greatest potential for negative effects". Hence, he argues that institutional design must be done carefully to support both intrinsic as well as extrinsic motivations and incentives. Lastly, Siddiki (2018) does provide insights on public policy compliance, yet hints more towards following top-down rules and regulatory systems. Nonetheless, she states that it is interesting to further explore "how different types of motivational factors interact or influence decisions to comply with institutional directives".

After this exploration phase, we have narrowed down our scope towards institutions and motivations. We scrutinized both developments in the field of institutional grammar as well as the relation between institutions and motivations. First of all, regarding developments in the field, we found that multiple authors within the institutional analysis field have explored how the institutional grammar can be computerized or improved ¹. Also they have asserted how different future research agendas for the grammar could look like ² or investigated institutional transitions ³

¹see S. Frey et al. (2019), Kwon et al. (2020) or Frantz and Nowostawski (2016)

²e.g see Therville et al. (2021)

³see for example Treuer et al. (2017)

Afterwards, we found that multiple scholars which had focused on institutions, motivations and corporate social responsibility (CSR). Making use of the search term CSR has broadened our scope and proven useful. In the end we have made use of different combinations of the search-terms: CSR, Institutions and motivations. From these search-terms we found three papers which were deemed most relevant. These three papers have ultimately formed the core of our methodological innovation. The paper of Campbell (2007) can be seen as a first step towards better understanding of CSR from an institutional economic perspective.

Afterwards, both the paper of Shnayder et al. (2016) as well as Li et al. (2019) have disentangled the relation between institutions, CSR and motivations. Shnayder et al. (2016), which draws extensively from the work of Scott (1995), has relate the three institutional systems (regulative, normative, cognitive) to stakeholder based motivations. As the authors links these concepts to the concept of people, planet and profit, the paper contributes the following: First, within the regulative system, motivations are induced by a regulation. Second, within the normative pillar, motivations are extrinsically, financially driven and mostly profit-based. Third, within the cognitive pillar, they argue that motivations are intrinsic or value based. Second, Li et al. (2019) has, after an extensive literature review, constructed a research framework. Despite that this framework for our study focuses too much on leadership and managerial aspects, we can still derive some insights. Namely, they distinguish three forms of institutional pressures affecting the environment. Again they classify three systems: regulative, normative and cognitive. Yet their conclusions are somewhat different as they see normative more as codes of conduct, while cognitive pressures are seen as effect of reputation on behaviour, financial performance or sustainability rankings.

All in all, within our study, we have decided to use the classification of Shnayder et al. (2016) to identify and classify motivations from institutional statements. This also implies that we will make use of regulative, normative or cognitive systems and place motivations under one of these pillars.

Example of our methodological addition applied

To show how our steps can be applied in practice, we provide an example below. This is based on the institutional statements as are presented in the IND for action arena 1 (we will later present this IND in chapter 4.4.1., also the statements can be found in Appendix K). Applying our steps will result in the following:

First we examine all CONDITIONS, assess them and label them in case they concern a temporal, spatial, procedural or process aspect:

- [C] If it wants to indicate that their company will work to set a science-based emission reduction target (process)
- [C] If it has send the commitment letter (procedural)
- [C] If knowledge and information are offered on the topic of sustainability or climate action
- [C] If value can be added to their client by developing targets
- [C] If it wants to not only state but also undertake action to be sustainable
- [C] If it wants to have a developed target validated by the SBTi (process)
- [C] If it wants to make sure companies go through a robust target setting process (process)
- [C] If potential members of the SBTi have matched all criteria and their targets are seen as valid (procedural)
- [C] If their target is approved by the SBTi (procedural)
- [C] If more value can be added to their client by announcing their approved targets
- [C] If companies targets have been approved AND their targets has been announced (procedural)

Afterwards, one can discard all the CONDITIONS labeled as procedural, process, temporal or spatial from the analysis.

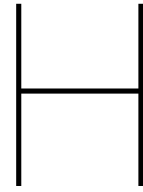
The CONDITIONS that remain are listed. Then we analyze whether a verb or action within the CONDITION either satisfies a particular regulative or normative aspect, and thereby are extrinsic motivations. In case this does not hold we examine whether the action satisfies a value, and thus is related to an intrinsic motivation. Below every CONDITION we have added our analysis on what for type of CONDITION they concern.

- [C] If it wants to not only state but also undertake action to be sustainable.

This CONDITION hints at trying to be sustainable, which at first sight can be seen as a value. Nonetheless, we view in the IND constructed that this CONDITION links to the object 'value for clients and shareholders'. Potential members of the SBTi develop targets as this will result in added value for their clients or shareholders. Hence we speak of a normative, extrinsic motivation.

- [C] If value can be added to their client by developing target
- [C] If knowledge and information are offered on the topic of sustainability or climate action
- [C] If more value can be added to their clients by announcing their approved targets

We conclude that all the remaining CONDITIONS are not related to the regulative pillar as there is no enforcement. Hence we group them under the normative pillar (still extrinsic), as they are not driven by values and are focused on creating economic value or other external payoffs.



Graphical representation of INDs and corresponding network metrics

Figure H.2: IND 2: Action assessment

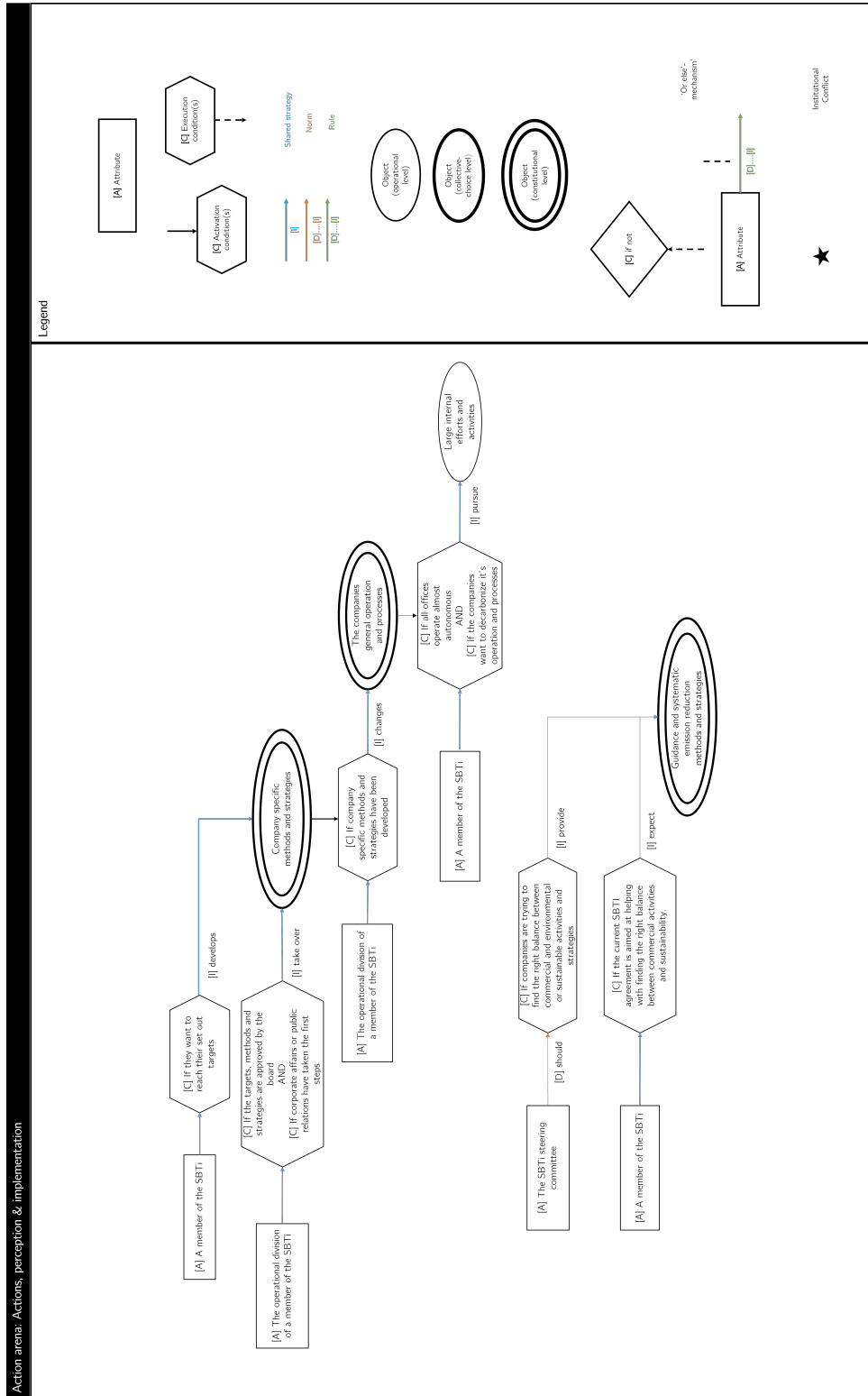


Figure H.3: IND 3: Coordination and Cooperation

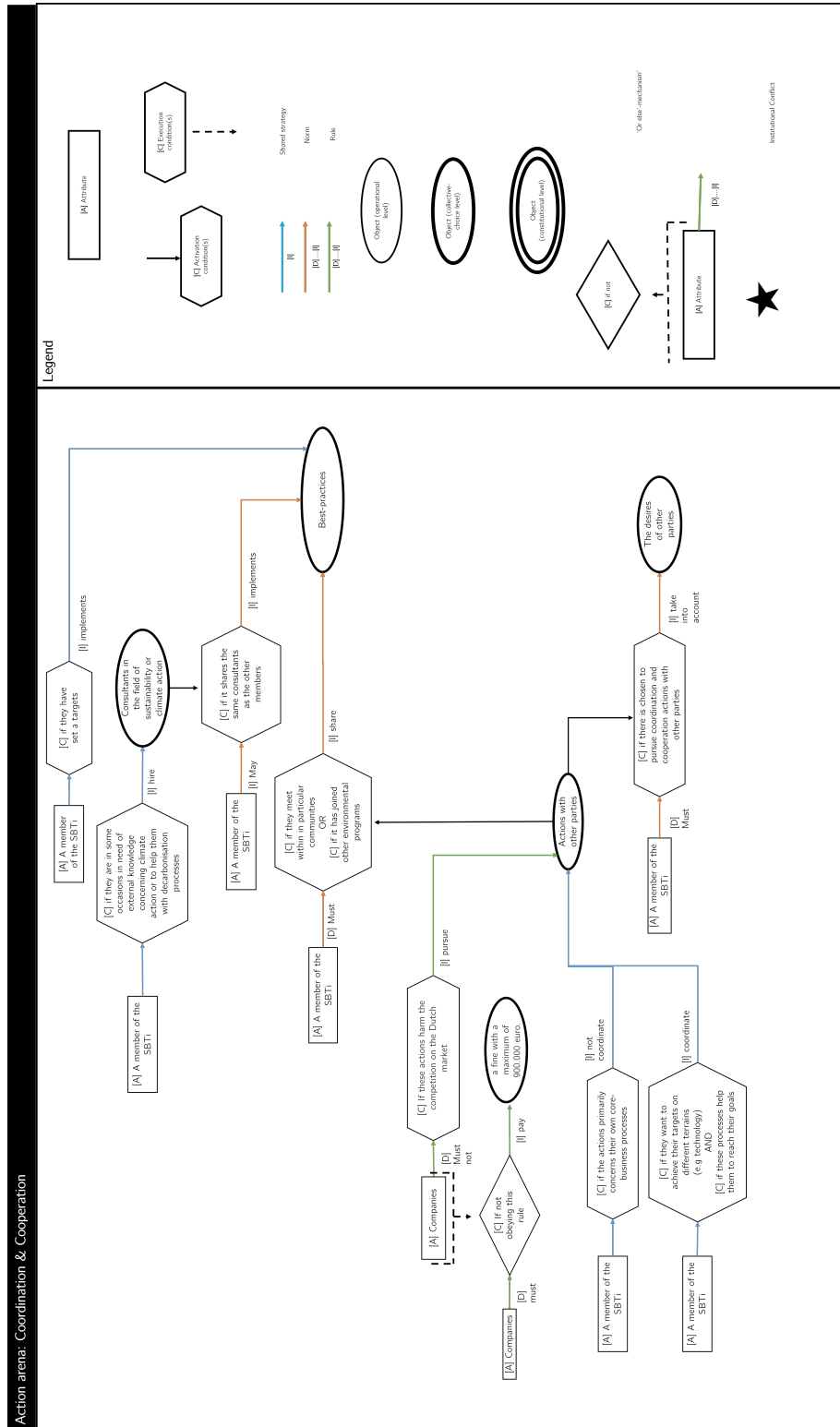
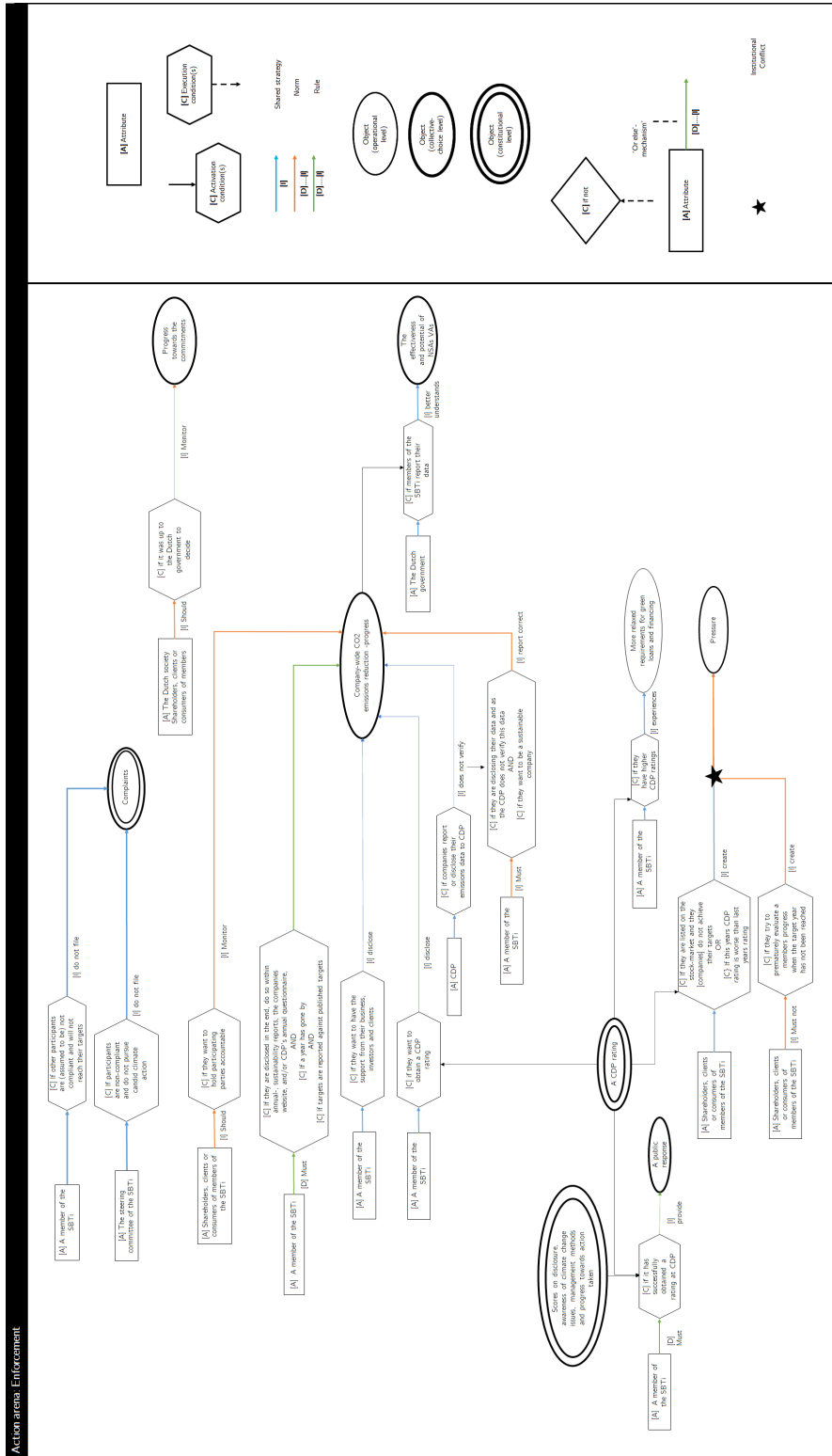


Figure H.4: IND 4: Enforcement



Metric	Value
Centrality (attribute)	Potential member: $6 / (12/3) = 1.5$ Steering committee: $2/4 = 0.5$ Member: $1/4$
Embeddedness (object)	Commitment letter $1 / 2$ Value = $1/2$ SBTi = $1 / 4$ Criteria = $1 / 3$ Target = $1 / 2$ SBTi red= $0 / 1$ Announcement= $1 / 3$ Recognition = $0 / 1$
Density (Institutional interdependency index) (object)	$6 / 12$
Institutional conformance index	$12/12$

Table H.1: Metrics for IND 1

Metric	Value
Centrality (attribute)	Member $3 / (6/3) = 3/2$ Operational = $2 / 2$ Steering = $1 / 2$
Embeddedness (object)	Company specific method= $1/3$ Companies general operation= 1 Large internal efforts= $0 / 1$ Guidance: $0 / 2$
Density (Institutional interdependency index) (object)	$2 / 6$
Institutional conformance index	$6/6$

Table H.2: Metrics for IND 2

Metric	Value
Centrality (attribute)	Member : $7 / (9/2) = 1.55$ Companies: $2 / 9/2) = 1.55$
Embeddedness (object)	Consultants= $1/2$ Best practices= $0/3$ Actions with other parties= $2/4$ Fine with a max of 900.000= $0/1$ Drivers of other parties $0/1$
Density (Institutional interdependency index) (object)	$3/9$
Institutional conformance index	$9/9$

Table H.3: Metrics for IND 3

Metric	Value
Centrality (attribute)	Member: $6 / (12/5) = 2.5$ Steering $1 / (12/5) = 0.4$ Shareholders $3 / (12/5) = 1.2$ Dutch government $1 / (12/5) = 0.4$ CDP $1 / (12/5) = 0.4$
Embeddedness (object)	Complaints: $0 / 1$ Company wide= $1 / 7$ Scores = $1 / 1$ CDP rating = $4 / 4$ Public response = $0 / 1$ Pressure $0 / 2$ Relaxed req = $0 / 1$ Effectiveness of SBT = $0 / 1$
Density (Institutional interdependency index) (object)	$6 / 13$
Institutional conformance index	$13 / 13$

Table H.4: Metrics for IND 4



Institutional Statements depicted within INDs

A	B	D	I	C	O
Rules	[A] A potential member of the SBTi	[B] A commitment letter to the SBTi	[D] must	[I] submit	[C] If it wants to indicate that their company will work to set a science-based emission reduction target
	[A] A potential member of the SBTi	[B] Science-based emission reduction targets	[D] must	[I] meet	[C] If it has send the commitment letter
	[A] A potential member of the SBTi	[B] Their science-based emission reduction targets	[D] must	[I] announce	[C] If all criteria are matched AND If their targets have been confirmed
	[A] A potential member of the SBTi	[B] SBTi target criteria and process steps for commitment	[D] must	[I] match	[C] If it wants to have a developed target validated by the SBTi
	[A] The SBTi steering committee	[B] A target as a SBTi-approved science-based emission reduction target	[D] must	[I] confirm	[C] If potential members of the SBTi have matched all criteria and their targets are seen as valid
	[A] A potential member of the SBTi	[B] Their announcement of having science-based emission reduction targets	[D] must	[I] make within 6 months	[C] If their target is approved by the SBTi
	[A] The SBTi steering committee	[B] Recognition to companies at sciencebasedtargets.org as well as on We Mean Business, CDP and the UN Global Compact	[D] must	[I] give	[C] If companies targets have been approved AND their targets has been announced
Strategies	A	B	D	I	O
	[A] A member of the SBTi	[B] more value for clients		[I] adds	[C] if knowledge and information are offered on the topic of sustainability or climate action
	[A] A potential member of the SBTi	[B] Their science-based emission reduction targets		[I] develops	[C] If more value can be added to their client by developing targets
	[A] A potential member of the SBTi	[B] Their science-based emission reduction targets		[I] go through	[C] all criteria and process steps for commitment as listed by the SBTi
	[A] A potential member of the SBTi	[B] Science-based emission reduction targets		[I] sets	[C] if it wants to not only state but also undertake action to be sustainable

Table I.1: IND 1 Commitment

Rules	A	B	D	I	C	O
	[A] The SBTi steering committee	[B] Guidance and systematic emission reduction methods and strategies	[D] must	[I] provide	[C] If companies are trying to find the right balance between commercial and sustainability activities and strategies	
Norms	A	B	D	I	C	
	[A] The orchestrators of the SBTi	[B] (scientifically based) concrete methods and strategies	[D] may	[I] provide for	[C] If companies try to find the right balance between commercial and sustainability activities and strategies	
Strategies	A	B	D	I	C	
	[A] The operational division of a member of the SBTi	[B] (scientifically based) concrete methods and strategies		[I] take over	[C] If the targets, methods and strategies are approved by the board AND [C] If corporate affairs or public relations have taken the first steps	
	[A] A member of the SBTi	[B] (scientifically based) concrete methods and strategies		[I] expect	If the current SBTi agreement is aimed at helping with finding the right balance between commercial activities and sustainability.	
	[A] A member of the SBTi	[B] Guidance and systematic emission reduction methods and strategies		[I] provide	[C] If the current SBTi agreement is aimed at helping with finding the right balance between commercial activities and sustainability.	
	[A] A member of the SBTi	[B] (scientifically based) concrete methods and strategies		[I] develops	[C] If they want to reach their set out targets	
	[A] The operational division of a member of the SBTi	[B] The companies general operation and processes		[I] changes	[C] If company specific methods and strategies have been developed	
	[A] A member of the SBTi	[B] Large internal efforts and activities		[I] pursues	[C] If all offices operate almost autonomous AND [C] If the companies want to decarbonize it's operation and processes	

Table I.2: IND 2 Action assessment

Rules	A	B	D	I	C	O
	[A] Companies	[B] arrangements between each other	[D] must not	[I] make	[C] If these arrangements and processes harm the competition on the Dutch market	Or else, if these arrangements are still made pay a fine with a maximum of 900.000 euro.
Norms	A	B	D	I	C	O
	[A] A member of the SBTi	[B] The desires of other parties	[D] May	[I] Take into account	[C] if there is chosen to pursue coordination and cooperation actions with other parties	
	[A] A member of the SBTi	[B] Best-practices	[D] must	[I] share	[C] if they meet within in particular communities OR [C] if it has joined other environmental programs	
	[A] A member of the SBTi	[B] Best-practices	[I] May	[I] implements	[C] if it shares the same consultants as the other members	
Strategies	A	B	D	I	C	O
	[A] A member of the SBTi	[B] Best-practices		[I] implements	[C] if they have set a targets	
	[A] A member of the SBTi	[B] Consultants in the field of sustainability or climate action		[I] hire	[C] if they are in some occasions are in need of external knowledge concerning climate action or to help them with target setting and implementation	
	[A] A member of the SBTi	[B] Actions with other parties		[I] coordinate	[C] if they want to achieve their targets on different terrains (e.g technology) AND [C] if these processes help them to reach their goals	
	[A] A member of the SBTi	[B] Actions with other parties		[I] Not coordinate	[C] if the actions primarily concerns their own core-business processes	

Table I.3: IND 3 Coordination and Cooperation.

Rules	A	B	D	I	C	O
	[A] The SBTi steering committee	[B] Company-wide CO2 emissions reduction -progress	[D] must	[I] remove	[C] If they are disclosed in the end, do so within annual-, sustainability reports, the companies website, and/or CDP's annual questionnaire, AND [C] If a year has gone by AND [C] If targets are reported against published targets [C] if it has successfully obtained a rating at CDP	
	[A] A member of the SBTi	[B] a Public response	[D] Must	[I] provide	in case a company is eligible for a A-level status	
	[A] Auditors	[B] The correct company-wide GHG emissions inventory and -progress	[D] Must	[I] investigate	[C] if they are auditing their audit companies.	
	[A] A member of the SBTi	[B] The correct company-wide GHG emissions inventory and -progress	[D] Must	[I] disclose	[C] If a year has gone by AND if targets are reported against published targets	
	[A] A member of the SBTi	[B] The correct company-wide GHG emissions inventory and -progress	[D] May	[I] Disclose	[C] If they are disclosed in the end, do so within annual reports, sustainability reports, the companies website, and/or CDP's annual questionnaire,	
	A] A member of the SBTi	[B] A public response	[D] Must	[I] provide	[C] if it has successfully obtained a rating at CDP	

Table I.4: IND 4 Enforcement (part 1: Rules)

Norms	A	B	D	I	C
	[A] A companies shareholders, clients or consumers	[B] Company-wide CO2 emissions reduction progress	[D] must	[I] [I] Monitor	[C] if they want to hold participating parties accountable AND [C] if it was up to the Dutch government to decide
	[A] A member of the SBTi	[B] The correct company-wide GHG emissions inventory and -progress	[D] must	[I] report correct	[C] if they are disclosing their data and as the CDP does not verify this data AND [C] if they want to be a sustainable company
	[A] A member of the SBTi	[B] A member of the SBTi		[I] hold to account	[C] if other participants are (assumed to be) not compliant and will not reach their targets AND If system boundaries of disclosed data are often different
	[A] The Dutch society	[B] Progress towards the commitments	[D] must	[I] monitor	[C] if it was up to the Dutch government to decide.
	[A] Shareholders, clients or consumers of members of the SBTi	[B] Pressure	[D] must not	[I] create	[C] if they try to prematurely evaluate a members progress when the target year has not been reached

Table I.5: IND 4 Enforcement (part 2: Norms)

Strategies	A	B	D	I	C
	[A] A member of the SBTi	[B] Complaints		[I] do not file	[C] If other participants are (assumed to be) not compliant and will not reach their targets
	[A] The steering committee of the SBTi	[B] Complaints		[I] do not file	[C] If participants are non-compliant and do not pursue candid climate action
	[A] A member of the SBTi	[B] More relaxed requirements for green loans and financing		[I] experiences	[C] if they have higher CDP ratings
	[A] A member of the SBTi	[B] The correct company-wide GHG emissions inventory and -progress		[I] disclose	[C] if they want to have the support from their business, investors and clients
	[A] A member of the SBTi	[B] Company-wide CO2 emissions reduction -progress		[I] disclose	[C] if they want to obtain a CDP rating
	[A] The Dutch government	[B] the effectiveness and potential of NSAs VAs,		[I] better understands	[C] if members of the SBTi report their data.
	[A] CDP	Company-wide CO2 emissions reduction -progress		[I] does not verify	[C] if companies report or disclose their emissions data to CDP
	[A] Shareholders, clients or consumers of the SBTi	[B] pressure		[I] create	[C] if they are listed on the stock-market and they [companies] do not achieve their targets OR [C] If this years CDP rating is worse than last years rating

Table I.6: IND 4 Enforcement (part 3: Strategies)