Improving competitiveness through cooperation

Identifying the key drivers and facilitators for successful cooperation between stakeholders in the Rotterdam port area with the aim to reduce compliance costs

Authors

Students of MSc Business Administration 2015

Rotterdam School of Management, Erasmus University

Robert Beijersbergen
Roman Buzko
Nicole Kraemer
Maarten Hermans
Sandra Ingelson Wendell
Stijn van den Wijngaard

Academic Supervisor

René van der Eijk

Company supervisor

Albert Wiggers, Partner at Ploum Lodder Princen

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Note on competition law

Since one of the purposes of this report is to elaborate on how companies involved in a particular industry can cooperate, it is worth making a precautionary note on competition law. This latter field of law regulates, *inter alia*, agreements between companies that may restrict competition, and therefore may qualify certain types of cooperation between competitors as illegal.

While in itself cooperation between companies with the aim to reduce compliance costs should not give rise to competition law concerns, such cooperation between competitors or, even more broadly, companies in one value chain may be deemed restricting competition and thus illegal. Therefore, when a specific form of cooperation is contemplated by the companies, it is important to ensure that such cooperative arrangements (1) do not aim to dampen competition or harm competitors in some way; (2) are in conformity with the applicable competition law; and (3) are described and communicated in a clear way to avoid any misunderstanding on the side of authorities.

Although any conclusion as to the compatibility of cooperative agreements with competition law requires a case-by-case approach, certain general observations on the authorities' way of thinking can be made:

1. Competition authorities are more concerned with 'horizontal' cooperation, i.e. cooperation among companies on the same level of the value chain;

2. Cooperation involving key parameters of competition, such as price and output, is more likely to attract attention and fall under scrutiny of relevant authorities;

3. Industry concentration plays a role in assessing the impact on competitive rivalry: cooperation between companies in highly concentrated industries is more likely to be deemed affecting competition.

Finally, in addition to ensuring compatibility with competition law, companies must ensure that their assessments are carefully documented and available immediately upon first request of relevant authorities. Also, companies should clearly document the effects of cooperation on competition, as those considerations can be weighted up and, indeed, constitute important elements of evidence in the event that breaches of competition law are alleged at a later stage.

Executive Summary

Problem statement

Business opportunities in developing markets cause major shifts in the global industrial environment. For the global market, most of the growth in the past 25 years has been driven by Asia, which owns almost half of global sales. In Europe, the market is expected to lag behind global trends, a projected 30% job loss in the European chemical industry by 2030.

In this context, public and private entities want to defend the European market and improve competitiveness. Regulatory compliance is one of the main cost factors endangering profitability. Therefore, the health of the regulatory environment is crucial to the attractiveness of a particular geographical and industrial environment. This is especially true for the Netherlands, a country known for its strict formulation and implementation of environmental and safety legislation. Therefore, the aim of this project was to investigate how Rotterdam port area companies can mitigate compliance costs via cooperation, enhancing their global competitiveness. The analysis includes an investigation of authorities' attitudes towards business and how these attitudes influence potential cooperative efforts. The main research question was:

What are the key enablers of and barriers to successful cooperation between the American Chamber of Commerce (AmCham) stakeholders in the Rotterdam port area with the aim to reduce compliance costs?

Theoretical framework

In the literature, influencers of cooperation are divided into internal and external factors. While investigating internal factors, it is found that information sharing, higher trust and commitment between parties fosters cooperation. In addition, higher levels of mutuality in culture, relationship, and legitimacy enable successful cooperation. Furthermore establishing clear financing structures and a balanced distribution of risk enables cooperation.

Externally, proximity in terms of facilities and the quality of the existing local infrastructure are the most important enablers of cooperation. Regarding regulation and legislation, however, the literature is indecisive, but proactive authorities that take initiatives to stimulate cooperation are important enabling factors.

Results

Using a thematic content analysis of 21 interviewees, consisting of representatives of U.S. companies, trade associations and authorities, to validate the propositions, it was possible to identify key enablers and barriers of cooperation resulting in four main themes. Each theme had a mix of internal, external and regulatory influences. It did not seem feasible to separate these influences, as was done in the theoretical framework, as most of the factors are interrelated. Furthermore, some sections elaborated on any discrepancies between American and non-American companies, as demonstrated by the data. The four main themes are Regulation, Information sharing, Third Party Involvement, and Financial.

Although many firms seek to enter cooperative efforts as a result of regulation pressure, they do not find regulation itself burdensome to cooperation. However they did find the implementation and enforcement of regulation, such as complying with permitting process, to hinder cooperation. This is due to a lack of flexibility, the risk-adverse nature of regulatory authorities, and information misalignment both within and between actors. A recurring theme concerning the enforcement of regulations that emerged with all interviewees was the need for a level-playing field, the principle of justice and fairness that allows all parties to succeed, which the authorities should pursue. Furthermore, several diverse stakeholder groups stated that authorities should focus more on the ultimate goal of environmental regulation, which is

better industrial environmental performance. Authorities should also grant companies leeway in how achieve their environmental targets. Adding to this, the data suggested that the inflexibility of authorities could be viewed as a barrier; examples of this include noise and other operational permits.

It was demonstrated that although American and Dutch business attitudes are quite complementary, there is a clear dichotomy in their attitudes towards regulatory practice. One significant divergent view concerned liability risk, which is defined as “risk to a company arising from the possibility of liability for damages resulting from the purchase, ownership or use of good or service offered by that company”. American companies were perceived by Dutch counterparts as much more cautious of liable situations, perhaps due to differences in domestic legislation and personal litigation practices, and particularly in regard to anti-trust law.

Furthermore, one of the most commonly emphasized enablers of successful cooperation was clear communication and information exchange. This can occur both within firms on an individual level, within the cooperative as a whole and also beyond the scope of the synergy extending to third-parties such as regulatory authorities and nongovernmental organizations.

Moreover, third party willingness to assume partial risk is essential to cooperation that otherwise would not have been implemented due to unfavourable risk profiles or low profit margins. In multiple interviews, it was determined that involvement of external actors is beneficial, since companies are generally unwilling to invest in cooperation because of their high initial investment and uncertainty.

Recommendations

Theme	Recommendation
Regulation	Authorities should create a level playing field within Europe
	Regulatory predictability and stability should be pursued through dialogue between stakeholders
	Authorities should allow for flexibility and adaptability of regulations when the overall benefits are positive
	Authorities should focus on ‘goal oriented’ regulations, instead of strict ‘road’ regulations
Information sharing	Actors in cooperation should establish formal intra-firm communication channels and designated escalation mechanisms for identifying synergistic opportunities
	Third parties should survey the communicative landscape in order to assess how parties are currently receiving information and communicating with each other
Coopetition and third party involvement	External third parties, taking a more active role in order to improve legitimacy of cooperative efforts, should be involved. This should be done on multiple levels
Financial	Actors should be looking for opportunities within the existing infrastructure, this is an ongoing process and should occur at all times
	Third parties and authorities should be involved to mitigate financial risks, existing parties such as the Port Authority and the government

1. Introduction

This first chapter aims to introduce the different aspects of the project, including The American Chamber of Commerce and the study that they commissioned last year, and of which this report is a follow-up. Next, the environment in which the research was conducted and in which the report is placed is discussed, followed by its aims and practical implications. Finally, an overview of the rest of this report is provided.

The American Chamber of Commerce

The American Chamber of Commerce in the Netherlands (AmCham) is a non-profit organization of companies and individuals which wants to contribute to a positive business and investment climate in the Netherlands and a positive trade relationship between the U.S. and the Netherlands. The Netherlands is one of the most important destinations for U.S. direct investment in Europe and a major hub of American professionals living and working abroad. The AmCham Rotterdam Chapter (RAC) is a strong and engaged section of AmCham. The Rotterdam Chapter is a platform for members to make a relevant contribution to the business and social climate in Rotterdam within the broader scope of the American Chamber. Member companies that reside in the greater Rotterdam area are automatically a part of the Chapter. RAC's mission is to make a relevant contribution to the business climate in Rotterdam within the broader scope of AmCham. Recently, RAC has initiated studies with Rotterdam School of Management to help analysing and resolving identified issues.

Follow-up study

A 2014 study by students from Rotterdam School of Management investigated the relationship between the competitiveness of the Rotterdam area and the current regulatory framework faced by industrial companies in the area. More specifically, it explored how regulations could create an institutional environment that was beneficial to the competitiveness of the American industrial companies located within the Rotterdam area. As part of the report, the team researched 'economic bubbles' and 'clusterization' from both a business and legislative perspective. They highlighted firms' believes that such clustering could generate a competitive advantage for the Rotterdam port area by allowing umbrella regulations for a collection of facilities but, at the same time allowing companies the flexibility to allocate resources as they saw fit within the 'cluster'.

Environment in which the report is placed

The landscape of business is changing. In an ever more globalized environment, profitability is under pressure. To remain competitive in this context, it is increasingly important for companies to deal with differences across markets in a cost-efficient way, most importantly when it comes to regulations. In one-way or another, all industries have to comply with laws and regulations imposed by governmental authorities on all levels, from local to international. Compliance with these rules comes at a significant cost to companies, especially in heavy industries where environmental and safety regulations are particularly strict. In these sectors, compliance costs affect the companies' profitability. This is not only a problem for those companies, but also - or even especially - for the local economies and communities which depend on them. We focus on the Rotterdam Port area in the Netherlands, a country that is known for its strict implementation of European regulations, which has consequences for the global playing field and may, in some cases, put companies located on Dutch soil at a disadvantage.

For this study, we explore the possibility to mitigate compliance costs by means of cooperation between companies. Both in the Netherlands and abroad, there are examples of cooperative projects that have led to a reduction of compliance costs. We call this type of cooperation clusterization, which is one of the main dimensions along which Porter (1990) assesses the relative health of economic environments. Although the Dutch case is a perfect

example of Porter's (1979) argument that the regulatory framework is becoming a 'sixth force' that -together with the bargaining power of suppliers and buyers, the threat of substitutes and new entrants and the level of competitiveness - determines the overall profitability of an industry, the upswing of cooperation demonstrates that companies need not be powerless onlookers.

Aims and practical implications

The aim of this research is to deliver a framework covering the key drivers and facilitators for successful cooperation in general, and cooperation to reduce compliance costs more specifically. This aim is represented in the main research question of the project. Answering this question leads to a framework which shows how the regulatory framework and operational practices interact, the ultimate goal being optimization of cooperation. Whenever possible, we identify relevant actions of authorities that influenced companies' efforts to cooperate. The analysis is based on a number of comparative case studies. These studies include successful projects and best practices in other countries whenever transferring of such best practices onto the Dutch business environment would seem feasible.

We focus on the internal factors that influence stakeholders' efforts to cooperate, both in terms of capabilities and incentives. In addition, we consider the external, i.e. legal framework. In legal terms, this type of cooperation is covered by the so-called bubble concept. Although we approach the problem from a business perspective, the influence of the regulatory environment is taken into account as well. A full legal analysis of European regulatory policy would be far too extensive for the scope of this project, and thus our analysis focuses primarily on the areas of safety, environment and energy efficiency. As seen in the research question, focus is primarily on companies active in the Rotterdam port area and the assessed industries. The main stakeholders will be actors within this region, and most of them are represented by AmCham. However, other stakeholders are identified and elaborated on as well.

Overview of the report

In order to fully understand the issues voiced by AmCham, the problem is framed in the second chapter of this report. The third chapter looks at the foundation of the framework, which is embedded in scientific literature and provides a theoretical overview of known influencers of cooperation. The methodology section, which is the fourth chapter, shortly outlines how the general information gathering of the project took place, and how the propositions stated by literature were tested. The results from this information gathering are discussed and turned into actionable recommendations in the fifth chapter. Finally, the sixth chapter of this report provides a conclusion, in which the total framework is presented and the research question answered.

2. Framing the problem

This chapter starts with providing a more profound background and scope of the project in a global context. Next, the research question together with its components is clarified. Finally, a concise and high-level overview of the different stakeholders concerned with our project is provided.

Background and scope

The global industrial environment is undergoing major shifts spurred by growth and market opportunities in Asia. For the chemical sector, experts estimate that “most of the growth in the past 25 years has been driven by Asia, which now owns almost half of global chemical sales” (A.T. Kearney, 2012). Even more dramatically, this sector in Europe is expected to lag behind the global growth trends, which will result in 30 percent job losses in the European chemical industry by 2030.

In this discouraging context, both public and private entities are interested in defending the European market and improving its competitiveness. The regulatory environment is crucial in this regard, as it is generally viewed as one of the main factors determining attractiveness of a particular industry or location (Arthur D. Little, 2005). This issue of regulatory context is extremely relevant for the Netherlands, since the country ranks notably high among countries with the most stringent environmental regulations. Motivated by these considerations, this research looks at the regulatory environment, which is deemed to be a significant driver of competitiveness.

Research question

As elaborated in the Introduction, this report aims to explore how companies within the Rotterdam port area can mitigate compliance costs by means of cooperation. Therefore, the main research question was formulated as follows:

What are the key enablers and barriers for successful cooperation between AmCham stakeholders in the Rotterdam port area with the aim to reduce compliance costs?

This includes an analysis of how regulators’ attitudes towards business influence the potential of cooperative projects by, for example, incentivizing cooperation. It is important to note that, for the sake of competition law constraints, cooperation on certain levels does not imply elimination and/or infringement of competition.

Consistent with the background information obtained during this study, we define ‘enablers’ and ‘barriers’ as laws, regulations, regulatory practices and other rules of any nature that:

(Enablers) - provide incentives, facilitate, encourage or establish necessary frameworks for companies to cooperate; and

(Barriers) - prevent, complicate or make it impossible or commercially infeasible for companies to cooperate.

This approach suggests that the problem is not only due to existing regulations, but also due to regulations that do not exist (yet). Where regulations may have positive impact on the business environment, such enablers should be introduced. The opposite is true as well: whenever barriers are present, they should be put under scrutiny and their negative impact should be mitigated.

Stakeholders

This research project aspires to be a connecting bridge between two broad groups of stakeholders: (1) companies doing business in the Rotterdam Port area and (2) governmental authorities setting the regulatory tone in the area.

As previously mentioned, the project was initiated by the American Chamber of Commerce in the Netherlands, Rotterdam Chapter, which serves as a non-profit, non-governmental, voluntary association of companies and individuals who invest in and trade between the United States of America and the Netherlands. Therefore, this makes AmCham an essential stakeholder serving as a facilitator of interests of its member companies, who should be viewed as the main beneficiaries. However, not all of AmCham members are relevant to the research, making a division of stakeholders appropriate. We identify two different subgroups of stakeholders: primary and secondary stakeholders. Primary stakeholders are parties without whose continuing and direct participation or input, the research cannot be conducted. In our case, AmCham members active within the assessed industries and who have engaged, or are engaging in collaboration with other parties to reduce compliance costs, can be identified as such stakeholders. The second group of stakeholders, the secondary stakeholders, can be defined as parties that may be influenced by the results of this project without being directly engaged with the research.

On the public side, stakeholders include governmental authorities that shape the legal framework in which corporations operate. This group includes both governmental authorities officially having legislative powers and quasi-legislative bodies, such as the Rotterdam Port Authority. Figure 1 provides a representation of the private, public and mixed entities, and their respective importance based on their power and interest with respect to our research.

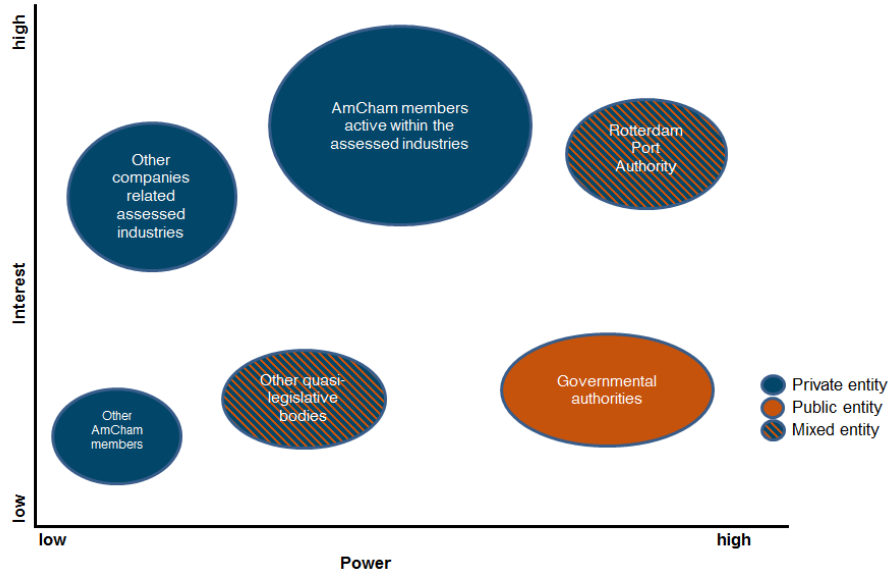

Figure 1: Representation of stakeholder mapping. The larger the circle, the higher the importance of the stakeholder.

Summary

This chapter elaborated on the global background and scope of the project, indicating the importance of cooperation. The research question clarified the different terms, of which barriers and enablers are the most important and recurring throughout the remainder of this report. Finally, mapping of the power and interest of the different stakeholders indicated the high importance of AmCham members within the assessed industries, the Rotterdam Port Authorities as well as Governmental authorities. The following chapter focuses on the theoretical research in order to frame an answer to the research question.

3. Theoretical framework

Cooperation between firms is more than a simple means to achieve shared goals to all parties' benefit. Cooperation is part of each actors' corporate social capital, which provides access to partners' various assets (Todeva & Knoke, 2005a). Collaborations provide opportunities for participants to tap into the resources, knowledge, and skills of their immediate partners in a portfolio of inter-firm agreements (Todeva & Knoke, 2005a). Investigating existing literature yields different theoretical influencers of cooperation, and this section first discusses the aim of general cooperation, after which enablers and barriers for this kind of cooperation are identified. The focus relies on three types of such barriers and enablers: internal, external and regulatory. Internal is defined as within or between the cooperating actors, whereas external is defined as factors outside of the collaborating partners' direct influence. The regulatory theme falls under the external category, but since one of the main objectives focuses on looking at competitiveness from a regulatory aspect, more elaboration on this theme is provided. Investigating all three aspects yields multiple possible influencers of cooperation. Lastly, the theoretical framework for all factors is evaluated. The most relevant findings form the main point of departure for the analysis, which is elaborated in the next chapter.

Aim of cooperation

The general aim of cooperation is to improve competitiveness of the cooperating partners

Competitiveness is defined in the literature as the interplay between the ability and performance of a corporation to sell and supply goods and services in a given market (Krugman, 1994), in relation to the ability and performance of other corporations in the same market (Maskell & Malmber, 1999). When a corporation is uncompetitive, one can say that its market position is unsustainable and that unless it improves its performance, it will cease to exist (Krugman, 1994). Improved competitiveness can be achieved through multiple paths, among which cost-reduction, easier compliance to regulation, and improved knowledge creation are the most prevalent ones (Maskell & Malmbert, 1999).

Compliance costs can be both drivers as well as objectives of cooperation

During the first problem setting, it became clear that the initial hypothesis regarding cooperation between companies was that one of the objectives is to minimize compliance costs. Compliance costs normally include all costs associated with obeying the law, including planning and administration, and the direct time and money spent on filling in paperwork (Crain, 2010). Crain (2010) identified two main kinds of legislation, international (European) and national regulations. These two types can in their turn be divided into economic, environmental, tax compliance, and safety and health. These specific types of costs can be both drivers as well as objectives of cooperation. Compliance costs have been identified as an interesting and vital objective of cooperation, resulting in the separate treatment from this type of costs from the general aim of cost reduction. Because of this, it will be discussed more in depth in the regulation section.

Changes in the international economy have shifted the basis of competitiveness from static price competition towards dynamic improvement

This shift towards continuously ongoing - and thus dynamic - improvement allows actors that are able to create knowledge faster than their competitors to benefit (Patchell, 1993; Porter & Linde, 1995). This shift is visually represented in ***Figure 2***. The competitive edge of an increasing number of firms is no longer primarily obtained by cost-reduction, but rather by

the generation of so called entrepreneurial rents (Spender, 1994). Entrepreneurial rents are surplus values added by an innovation, such as cooperation in the production process, to a company's business value, after all costs and normal returns have been accounted for (Hotelling, 1993). In other words, the difference between the price at which an output from a resource can be sold and its respective extraction and production costs, including normal return (Spender, 1994).

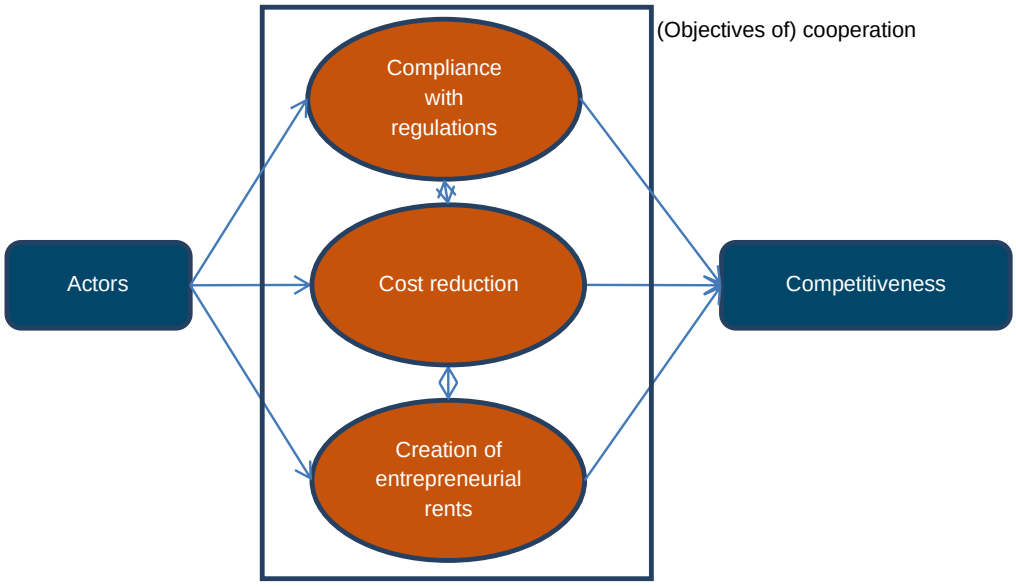

Figure 2: Representation of the objectives of cooperation

Social relations and institutions promote both collective learning, as well as cooperation between actors

The generation of entrepreneurial rents depends on a firm's ability to create knowledge (Maskell & Malmbert, 1999; Spender, 1994). This knowledge creation primarily takes place within firms, but interaction with related firms can be just as, or even more beneficial. Such interaction is called collective learning. Hakansson (1982) and Storper (1993) argued that social relations and institutions at the local, regional and national levels promote knowledge creation between firms. This process of interaction between different levels of the economy leads to the emergence of specific national and regional systems of knowledge creation (Lundvall, 1992; Nelson, 1993). Collective knowledge creation as described above can therefore be seen as an important driver of regional competitiveness as it supplies regionally active companies with a competitive advantage (Spender, 1994).

These knowledge-creating systems retain their role as key factors in the ascending global knowledge-based economy and influence a firm's competitive position (Maskell & Malmbert, 1999). Firms locate and build their competitiveness in interaction with so called localized capabilities (Mariotti & Piscitello, 2001). Localized capabilities are the ability to locally perform or achieve certain actions or outcomes through a set of controllable and measurable faculties, features, functions, processes, or services (Mariotti & Piscitello, 2001). These capabilities are primarily based on four features, which can be identified as enablers of knowledge creation (Mariotti & Piscitello, 2001):

- The region's infrastructure and built environment;
- The natural resources accessible in the region;
- The region's specific institutional endowment;
- The knowledge and skills available in the region.

The localized capabilities are all moulded by historical processes. The currently established environment and infrastructure can often be traced back at least a century, while the natural resources typically are from prehistoric times (Maskell & Malmbert, 1999). Furthermore, the resources available in the region consist of both the region's own resources and the ones available through trade (Mariotti & Piscitello, 2001). The extent to which firms may access resources has great influence on their competitiveness (Krugman, 1994). The relations of causality between localized capabilities and localized knowledge creation function both ways and form a decisive element in the formation of the competitive advantages experienced by firms in some regions and not in others (Maskell & Malmbert, 1999). When investigating the competitiveness of the Rotterdam Port area, these localized capabilities should be taken into account. The influence of localized capabilities is visually represented in Figure 3.
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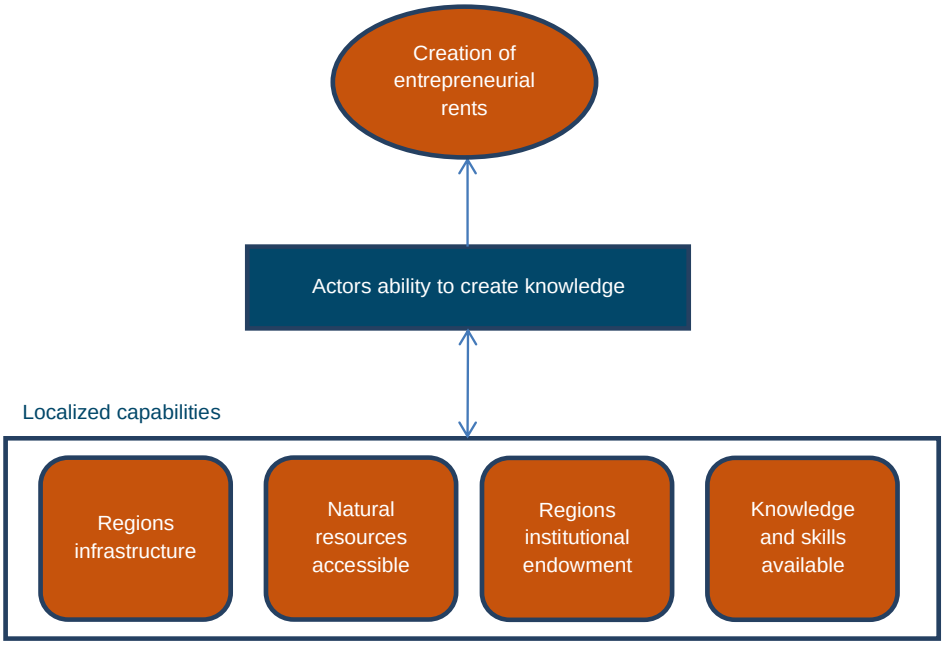


Figure 3: The influence of localized capabilities on one of the objectives of cooperation, the creation of entrepreneurial rents.

The previous part shows that the main aim of cooperation is to improve competitiveness of the involved companies. This can be achieved via two objectives: cost reduction and the creation of entrepreneurial rents. These two objectives are interlinked as the creation of new knowledge through cooperation can lead to cost reduction and vice versa. Because of this, measures that enable more cost reductions through cooperation might also lead to more creation of entrepreneurial rents, leading to the fact that the enablers and barriers are not identified for both groups separately in the following, but rather investigated simultaneously.

Internal influencers

After investigating the aim of cooperation, the enablers and barriers should be identified. The first area of interest is the 'Firm' building block as represented by Figure 4. This building block is influenced by internal factors. The internal factors relevant to cooperation are defined as factors within or between cooperating firms, such as a company's culture, relationship, and so forth. The subsequent part will explain multiple factors as identified by the available scientific literature.

There exists a clear need for the exchange of appropriate and reliable information

In a cooperation, there exists a clear need for the exchange of appropriate and reliable information about the extent to which each member benefits (Bidault, Despres, & Butler, 1998). Sharing logistics information is important from a costs perspective because it can replace unnecessary costs for transport and storage of goods (Lee & Whang, 2001). Generally speaking, information can be subdivided into two categories: proprietary and shared information (Lee & Whang, 2001). Proprietary information is necessary for a company to manage its internal processes and should only be accessible to a company's own employees (Stefansson, 2002). The shared information should however be available to all participants in a cooperation (Stefansson, 2002). If partners do not share these data, they will lack knowledge about each other's plan and intentions, and their activities will thus therefore not be adequately harmonized. This will result in suboptimal benefit to the cooperation (Simatupang, Wright, & Sridharan, 1997). These arguments suggest that although uncertainty may be a strong initiator of cooperation (Pfeffer & Salancik, 2003), it also promotes diverging views and conflicting interests about the better course of action to accommodate those changes for any single firm, and should therefore be lowered (Stefansson, 2002). A lack of information sharing can therefore be considered as a barrier to cooperation.

Partners in a cooperation must act harmoniously and align their incentives to achieve joint goals

As with virtually every business decision, entering a cooperation is founded on the belief by a company's management that the individual company will benefit from it (Bidault et al., 1998). The obvious result of this entails that in a cooperation there are multiple companies striving to optimize their own profit. However, actions and decisions by one member will often result in costs or benefits to other participants as well (Porter, 1998). It is important to remember throughout the cooperation that the core reason for each company to join will always be of a selfish nature (Bidault et al., 1998; Contractor & Lorange, 1998). However, in order for the cooperation to succeed, the partners must act harmoniously to achieve joint goals. In other words, there must be a strong sense of having shared costs, risks and benefits (Bidault et al., 1998). This cooperation alignment is one of the key enablers of cooperation (Contractor & Lorange, 1998).

Things get more tricky, however, when we have a closer look at cooperation between competitors. The main finding of numerous authors is as important as it is obvious: successful cooperation of this type is only possible if close attention is paid to all projects' reciprocal benefits, which also holds for information sharing (Miller, 2003). Kock, Bengtsson, & Slotte-Kock (2000) synthesize the complexities of this type of cooperation by identifying four types of 'horizontal relationships' in which a company can be involved, i.e. competition, cooperation, more ambivalent coexistence and competitive-cooperative relationships dubbed 'coopetition'. The latter relationship is characterized by a balance that has to be found between trust on the one hand and power on the other, most likely on the basis of a formal agreement (Kock et al., 2000).

Both commitment to the project and the cooperation and the trust between partners are vital. Trust can be partially replaced by control mechanisms

The two most important concepts associated with aligning individual and joint goals are commitment and trust (Contractor & Lorange, 1998). Trust is a vital facilitator for cooperation and can be described as the extent to which it substitutes for more formal control mechanisms, such as written contracts (Gulati, 1995). Increased trust can reduce or avoid the payment of several types of transaction costs, such as searching for information about potential partners and monitoring to ensure that each party meets its obligations (Gulati, 1995). Relying on a partner that has other objectives is a risky undertaking, and therefore trust is necessary to reach a useful level of cooperation (Kock et al., 2000). Commitment is closely related to trust and refers to the bond between companies in a cooperation and to the extent to which companies are dedicated to the cooperation.

Higher degrees of mutuality, symmetry, and strategic fit are enablers of cooperation

In addition to contractual issues, it is very helpful for efficient relationship management if the companies engaged in a cooperation show a certain level of mutuality, symmetry, and strategic fit (Bidault et al., 1998; Contractor & Lorange, 1998). Mutuality indicates that the management of one participating company is able to put itself in another participant's shoes. Secondly, partners can be considered symmetric if they have comparable market shares, financial strength, productivity, reputation and/or level of technological sophistication (Lambert, Emmelhainz, & Gardner, 1999). Finally, strategic fit between partners exists if the organizational structures and strategies are well suited to each other. A higher degree of mutuality positively influences the internal relationship between the cooperating partners, causing the objectives of the cooperation to be easier achieved.

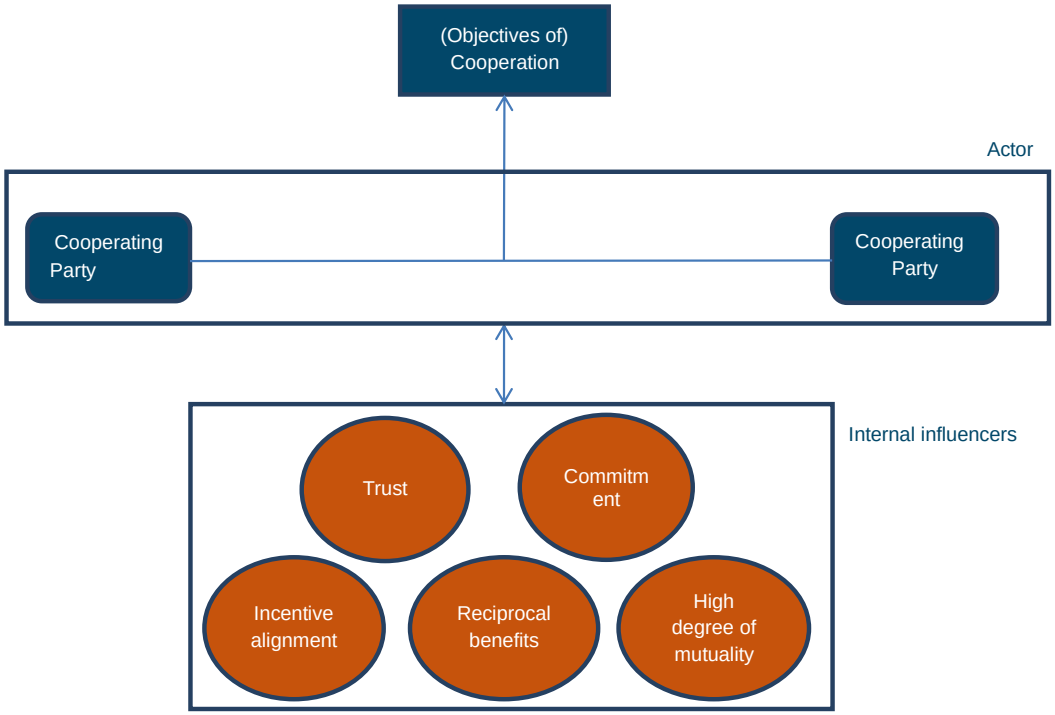


Figure 4: Summary of the theoretical internal influencers on cooperation

It can be concluded that five important internal factors influence both the degree of cooperation taking place, as well as the degree to which the cooperation is successful, and are summarized in Figure 4. The participating actors in the cooperation influence and are influenced by these five factors, which in turn affect the degree to which the cooperation and the objectives of the cooperation are being achieved.

External influencers

After determining the internal influencers of cooperation, the external factors are investigated. The external influences are defined as factors outside the collaboration, such as the industry, economic factors, third parties, and others. As mentioned before, the regulatory environment is not part of this analysis.

Upgrading the knowledge base and performance of companies and industries

The main take-away from the first part of the framework, focusing on the competitiveness of firms, is that long-term industrial competitiveness is related to the ability of firms to continuously upgrade their knowledge base and performance, rather than just to obtain static efficiency through identification and exploitation of cheap resources and economies of scale (Krugman, 1994; Maskell & Malmbert, 1999). A knowledge base consists of the knowledge to generate tangible and intangible values (Maskell & Malmbert, 1999). Upgrading the knowledge base and performance can be done in multiple ways, with collaboration between firms and actors among the most beneficial methods. Focusing on this type of value creation should therefore be considered. Improving the knowledge base will furthermore enhance the localized capabilities through improving the regional knowledge and skills.

Involvement of external factions is needed, since companies are generally unwilling to invest in cooperation because of their higher costs and risks

Alliances between private organizations on the one hand and public institutions on the other hand come with some very specific challenges, as Vagliasindi (2013) points out. Particularly discussing this type of partnership in the power sector in a study for the World Bank, she explains how companies are generally unwilling to invest in renewables because of their higher costs and risks. This calls for the involvement of public parties, although public funds alone will never suffice to forge an adequate response to the challenges of climate change and the depletion of fossil fuels. In that sense, public and private organizations are forced to embrace one another by external factions (Vagliasindi, 2013). Even though this is especially true for cooperation between private and public institutions, external factions bringing parties together to mitigate risks and uncertainties can be beneficial for all types of cooperation. Besides benefits such as improved regional infrastructure and institutional endowment, involving third parties can also reduce the impact of internal barriers. Examples of such internal barriers are a lack of trust or a low degree of mutuality (Contractor & Lorange, 1998).

More focus should be on companies' locational footprint and the investment attitude

In their EPCA Think Tank Report, Plomp, Barry, Kroon, McAlpine, & Mozaffarian (2007) argue that one of the main recommendations to cooperation is to focus more on the company's so-called locational footprint, the mark the company leaves in its direct local environment. Plomp et al. argued that companies should no longer look at it as an issue of operational efficiency, but as an significant opportunity for strategic positioning. Therefore, managers should choose a strategic position on the market that leverages the advantages of their companies' current environment, as well as minimizes the weaknesses (Plomp et al., 2007). Secondly, companies should choose locations that provide the highest value to their business. Most importantly, companies should not only invest in their own assets directly, but also in the general business environment of their locations in order to improve the regional infrastructure and institutional endowment (Maskell & Malmbert, 1999). Companies' investment decisions can have a significant impact on the microeconomic business environment (Ketels & Memedovic, 2008). This emphasis on a company's local footprint

stimulates the creation of knowledge creation, and in turn the creation of entrepreneurial rents.

The occurrence of a tipping point might tilt the cost benefit equation in favor of cooperation

A tipping point is a point in time when a variable either in the economy or within actors itself rapidly and dramatically changes (Pryor, 1971). In this case, interest is primarily focussed on tipping points that lead to decreased competitiveness of companies, leading to possible new opportunities to either reduce costs or create entrepreneurial rents (Spender, 1994). An example of this could be a sudden and permanent increase in the price of gas, leading to a cost-reducing motive for actors and companies to work together to reduce gas consumption. Tipping points are rarely correctly predicted, making new, innovative and radical changes in actors' way of doing business necessary to maintain or increase their competitiveness. Because of this, tipping points can directly be enablers of cooperation, but also barriers since previous methods such as cooperation are no longer feasible enough (Spender, 1994).

The economic climate can be either a barrier or an enabler of cooperation

For the sake of simplicity we assume that there are two types of economic climates: a climate in which the economy is growing and a climate in which the economy is stagnating. Playing mainly onto the cost reduction objective of cooperation, a bad economic climate in which a stagnation of the economy exists, might threaten the competiveness of firms (Maskell & Malmbert, 1999). Reason for the former are the margins that come under pressure, threatening a company's profitability and its ability to compete within the industry. In order to increase the margins again, and to regain profitability, cooperation with the objective to reduce costs can be more alluring to companies (Krugman, 1994). On the other hand, in an economic flourishing period, it is assumed that a company's margins are growing and the competiveness is good. In this case, cooperation might not be in the picture as both cost reduction and creation of economic rents are not a direct objective.

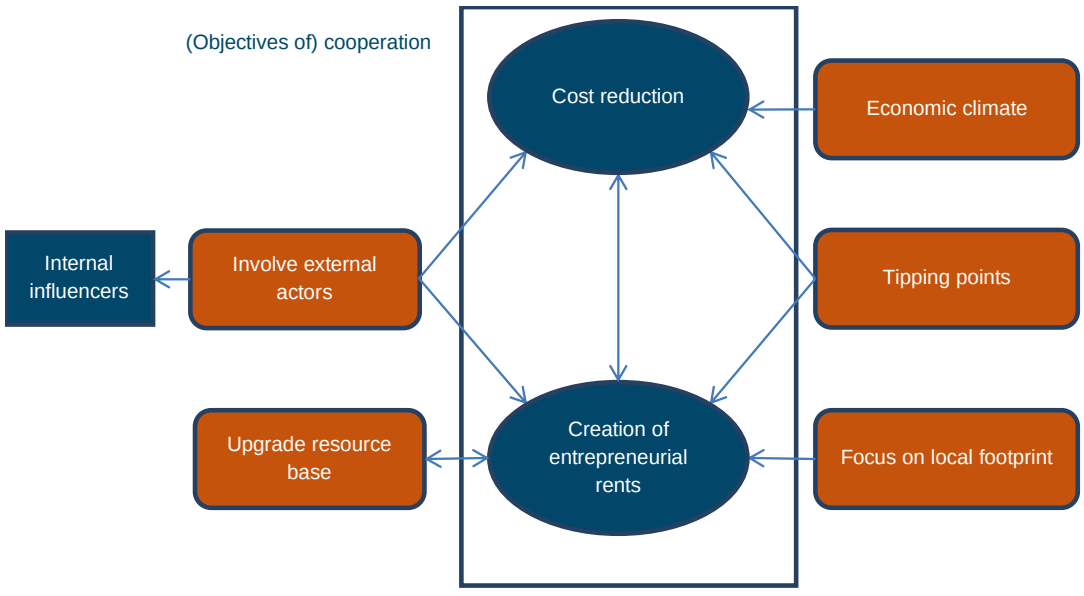


Figure 5: Summary of the theoretical external influences on cooperation

Figure 5 summarizes the external factors that influence the success and the occurrence of cooperation between different actors. It can be seen that most external enablers and barriers influence the objectives of cooperation, and only one enabler affects the internal influencers. One important external influencer has not been discussed yet, i.e. regulations. This is done in the following section.

Regulations

The final external influencer is summarized under the header of regulations. Companies in the Rotterdam port area have to comply with a number of regulations that can be divided into three main groups: International legislation, European legislation, and Dutch legislation. These different types of legislation vary per industry, alongside the so-called industry wide agreed legislation between firms, i.e. confidants. Providing an overview of all major legislation and legislative bodies that influence the stakeholders would be beyond the scope of this project, instead the influence of regulations and legislation on firms, their competitiveness and cooperation is investigated. The main focus is on environmental regulations, which consist of regulations related to emission, noise and safety.

The conventional wisdom concerning environmental protection is that it comes at an additional cost to firms that may erode their global competitiveness

Like so many issues of economic and social policy, questions about the relation between environmental standards, international competition,\ and welfare are loaded with uncertainties that data and economic models cannot fully resolve (Stewart, 1993). The conventional wisdom among economists, policymakers, and business managers concerning environmental protection was that it comes at an additional cost to firms that may erode their global competitiveness (Stewart, 1993). According to this traditional view, environmental regulations such as technological standards, environmental taxes, or tradable emissions forces firms to allocate some inputs (labor, capital) to pollution reduction, which is unproductive from a business perspective even if it offers environmental or health benefits to society (Pfeffer & Salancik, 2003). Technological standards restrict the choice of technologies or inputs in the production process. Taxes and tradable permits charge firms for emitting pollutants, a by-product of the production process, which was previously free. These fees necessarily divert capital away from productive investments, hindering not only innovations, but entrepreneurial rents creation and cost reducing cooperation as well (Rexhäuser & Rammer, 2001).

However, the available studies find that environmental compliance outlays are a quite small percentage of production costs for most industries, rising to around 3% for those most intensively regulated, and have been a substantial but not overwhelming cause of productivity slowdown (Stewart, 1993). Comparative studies of productivity, trade performance, and industry location conclude that national differences in environmental standards are not a major factor in international competition for all but a few pollution-intensive industries (Stewart, 1993).

Strict environmental regulations do not inevitably hinder competitive advantage against rivals, but might even enhance it

Michael Porter elaborates on these findings in his 1990 paper. Porter suggest that the static mind-set that environmentalism is inevitably costly has created a self-fulfilling gridlock, where both regulators and industry battle over every inch of territory (Porter, 1990). The process has spawned an industry of litigators and consultants, driving up costs and draining resources away from real solutions (Porter, 1998). Porter (2001), Jenkins (1998), and Stewart (1993) suggest that corporations need an entirely new way of thinking about the relationship between environment and industrial competitiveness-one closer to the reality of modern competition. The focus should be on relaxing the environment-competitiveness trade-off rather than accepting and, worse yet, steepening it. The orientation should shift from pollution control to resource productivity (Porter, 2000). To illustrate this, Porter came up with the Porter hypothesis.

Strict environmental regulations can induce efficiency and encourage innovations that help improve commercial competitiveness

About twenty years ago, the view that environmental protection comes at an additional cost to firms that may erode their global competitiveness, was contested by a number of economists, as mentioned before (Porter & Linde, 1995). They came up with a framework called the Porter hypothesis, which is represented in Figure 6. According to the Porter hypothesis, strict environmental regulations can induce efficiency and encourage innovations that help improve commercial competitiveness (Porter & Linde, 1995). The hypothesis suggests that strict environmental regulation triggers the discovery and introduction of cleaner technologies and environmental improvements, the innovation effect, making production processes and products more efficient. As seen before, examples of such innovations could be, among others, collaboration.

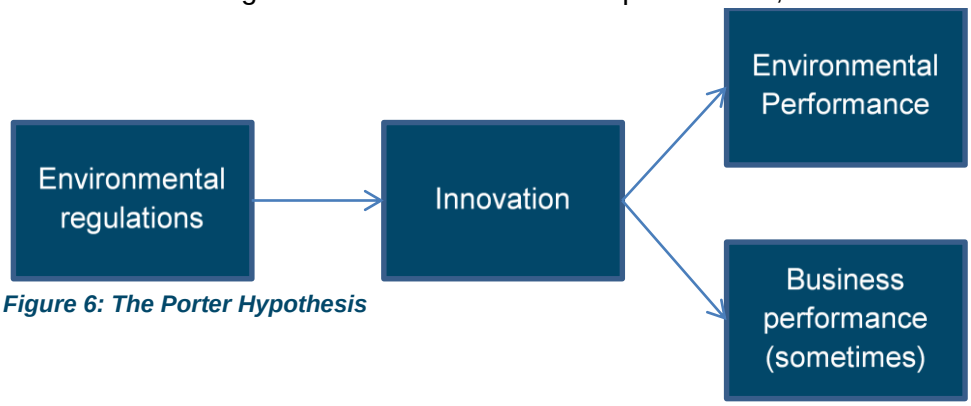


Figure 6: The Porter Hypothesis

More stringent but properly designed environmental regulations can trigger innovation that may partially or more than fully offset the costs of complying with them

Relying primarily on case studies, Porter argued that pollution is often a waste of resources and that a reduction in pollution may lead to an improvement in the productivity with which resources are used. Porter and van der Linde (1995) go on to explain that there are at least five reasons why properly crafted regulations may lead to these outcomes:

1. First, regulation signals companies about likely resource inefficiencies and potential technological improvements;
2. Second, regulation focused on information gathering can achieve major benefits by raising corporate awareness;
3. Third, regulation reduces the uncertainty that investments to address the environment will be valuable;
4. Fourth, regulation creates pressure that motivates innovation and progress;
5. Fifth, regulation levels the transitional playing field. During the transition period to innovation-based solutions, regulation ensures that one company cannot opportunistically gain position by avoiding environmental investments.

The validity of the Porter hypothesis depends on the nature of the regulation-induced innovations

Not all scholars support Porter's hypothesis. The key finding when examining the opponents of the Porter hypothesis is that the validity of the hypothesis depends on the nature of the regulation-induced innovations (Plomp et al., 2007; Rexhäuser & Rammer, n.d.). Two types of environmental innovations, plus the characteristic whether the innovations are regulation-induced or voluntary can be distinguished. The four resulting scenarios are summarized in

Table 1. Compared to firms that did not introduce any environmental innovation, both regulation-induced and voluntary innovations that improve resource efficiency increase profitability (Porter & Linde, 1995). This positive effect is larger for regulation-driven innovation. However, innovations that only reduce environmental externalities lower firms' profitability if they are regulation induced whereas voluntary abatement investments do not affect profitability significantly. Environmental regulation can, therefore, not be seen as to increase firms competitiveness in any case. The conclusion of the opponents of the Porter hypothesis is that the strong version of the Porter hypothesis (that stricter regulation enhances business performance) seems to be valid only for regulations that allow firms to reduce environmental externalities by increasing their resource efficiency.

Table 1: Adjusted Porter hypothesis

	Regulation-induced	**Voluntary**
Resource efficiency improving innovations	More profitable	More profitable
Environmentally externalities reducing innovations	Less profitable	No effect

When taking both sides of the literature into account, it can be concluded that regulations do not per se hinder competitiveness, it may even enhance it through the phenomenon known as the innovation effect. However, the focus should be on the goal of resource efficiency rather than externality reduction, in order to improve the profitability and competitiveness of firms.

A more adaptive approach to regulation could not only lead to substantial savings for companies, but also stimulate behavior in ways that are environmentally desirable

Whereas the previous part focussed on the firms and actors involved in cooperation, this section elaborates on third parties and their role in stimulating cooperation. In his 1981 Harvard Business Review article entitled *Thinking Ahead: Getting smarter about regulation*, former McKinsey consultant William Drayton, who also worked for the US Environmental Protection Agency (EPA) and served as a professor of regulatory and management reform at both Harvard and Stanford, argues that a more adaptive approach to regulation by both regulatory authorities and parties in the field could lead not only to substantial savings for companies but also create the right incentives to stimulate organizations to behave in ways that are environmentally desirable (Drayton, 1981).

Drayton's argument is that, although the quality of regulation may have improved by efforts to 'regulate the rule writers', there is still a lot to be gained. Because rules are by their very nature rigid and overgeneralized, there should always be some room for negotiation (Drayton, 1981). A 'regulatory market', on which for example emission rights can be traded, leads to the allocation of the burden of compliance with (parts of) organizations that are best positioned to address the challenges of security and pollution (Drayton, 1981). For this reason, Drayton believes that authorities, his former employer EPA included, would be open to this type of flexibility.

Since the publication of *Thinking Ahead,* other notable management scholars have written essays on the subject. Among them is Michael Porter, whose *Clusters and the New Economics of Competition* (1998) contrasts with Drayton's piece in the sense that it takes regulation less as a point of departure for the analysis and more as an integral part of the environment in which cooperation arises. This is a tension that is also discussed in the subsequent chapter when analysing the statements made by interviewees about the nature of regulation and their organizations' relationship with it. Another important argument is that within cooperation, companies can work together to develop competitive advantages with

regard to other geographical areas (Porter, 1998). This resonates strongly with the ambition of the Port of Rotterdam to compete with ports around the world and is connected directly to the notion of a worldwide level-playing field as discussed earlier.

Drivers for successful cooperation include centrality of regulatory certainty, a clear financing structure and transparent distribution of risk

In connection to what has been mentioned before, it is also interesting to note that Vagliasindi (2013) stresses the centrality of regulatory certainty as a driver for success. Further success factors as identified by Kociemska (2012) include a clear financing structure and transparent distribution of risk. In sum, she concludes that both parties should relinquish part of their competence, rights and profit for a partnership to be successful (Kociemska, 2010), an expression of the mutual dependencies identified by Porter in the article discussed above (Porter, 1990).

In contrast to this, cooperation between two private parties that are no direct competitors is relatively straightforward as long as they operate within the limits of the law. Common business sense applies, although it is interesting to note that companies tend to cooperate on specific projects. The success of such projects seldom leads to more extensive collaboration (Bourreau & Dogan, 2010).

Figure summarizes the main enablers and barriers concerning regulation as identified by the scientific literature. The abovementioned enablers are general and applicable to all industries. It should be stated that the field of regulation is an increasingly complex territory, and more legal research is needed to form recommendations and identify influencers for specific industries.

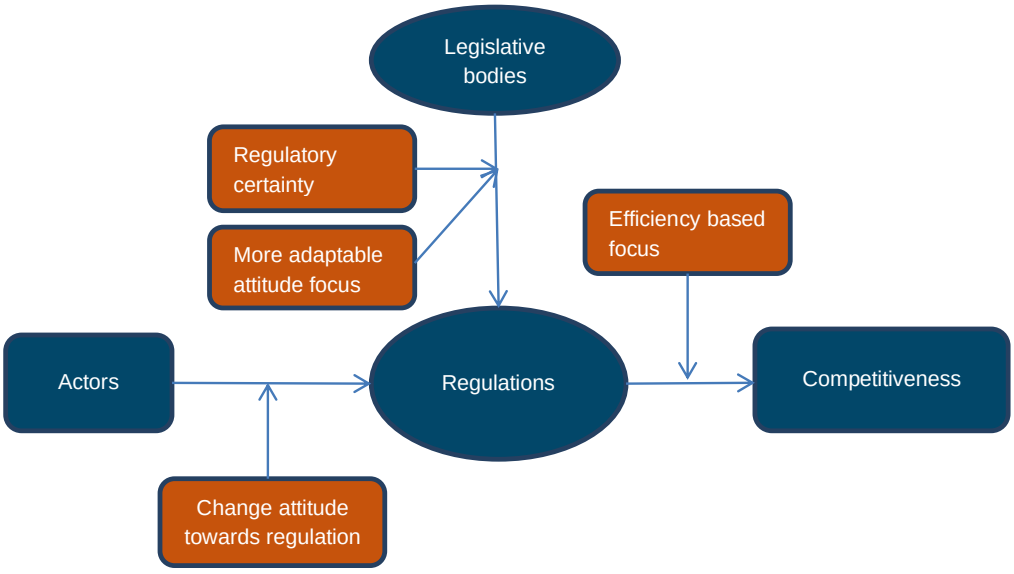


Figure 7: Summary of theoretical regulatory influencers of cooperation

Propositions

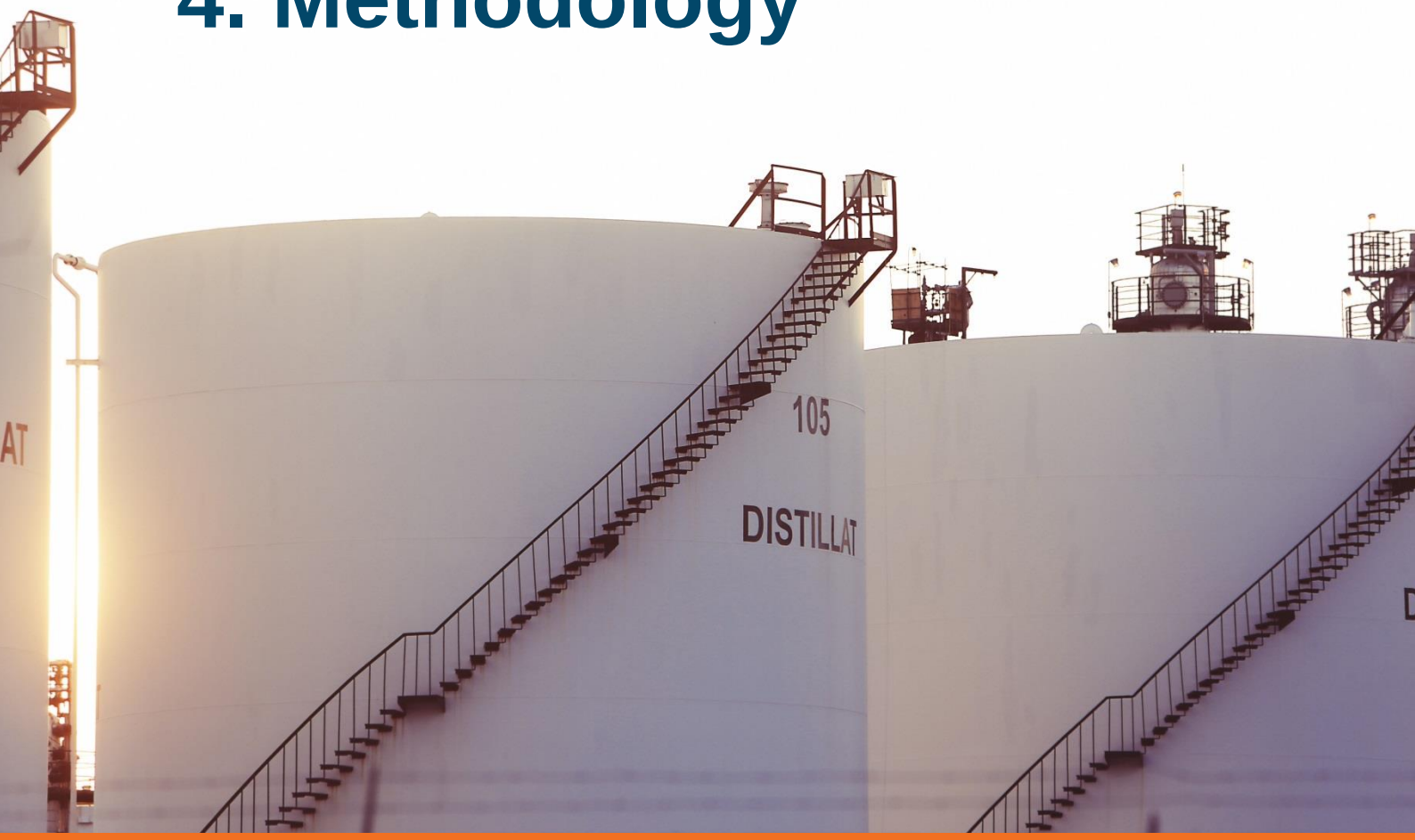
The abovementioned factors all play important roles in the success rate of either general cooperation or cooperation aimed at cost reduction. Many of the enablers of general cooperation can be applied to the latter form of cooperation, but not all influencers are equally important. The three most important factors per category were chosen on the basis of their background and importance in the existing literature. Since these theoretical enablers can be seen as barriers when negatively formulated, Table 2 only represents enablers.

Table 2: Table with the three themes and their respective main hypotheses, solely based on theory

Theme	Enablers of cooperation to reduce compliance costs
Internal	The degree of exchange of appropriate and reliable information
	The degree to which incentives are aligned
	The degree of commitment to the project and trust between partners
External	The occurrence of a tipping point
	Involvement of external factions in terms of financial risk mitigation
	The degree of the knowledge base
Regulation	A more adaptive approach to regulation by authorities
	Strict environmental regulations aimed at resource efficiency rather than strict emission reduction
	Centrality of regulatory certainty

These propositions should be interpreted such that whenever a proposition is either happening or true, cooperation is enabled and compliance costs can be reduced. The following chapter describes the methodology with which this validation is done, while the different propositions are validated in the Results and recommendations chapter.

4. Methodology



In order to investigate the research question posed in Chapter 2 and to validate the hypotheses of Chapter 3, a qualitative research method was employed. Qualitative methods are appropriate when one aims at gathering so-called 'thick descriptions', explaining the occurrence and nature of certain behaviour in its full scope (Babbie, 2008). However, this study also includes secondary data from previous studies and information found online or provided by interviewees, such as reports and legal documents.

More specifically, this study relies on a case-study approach complemented with experts in the field. In order to select cases and thus interviewees, purposive sampling was conducted combined with the snowball method since referrals emerged throughout the process (Babbie, 2008). 16 interviews were conducted with 21 individuals. The interviews were later on transcribed, coded, put in a coding matrix and interpreted. For reliability purposes, the main patterns and categories were confirmed by at least two researchers. The data from the interviews and secondary data are used when validating the hypotheses stated in the previous chapter. All data was gathered and analysed during a period between March and May 2015.

This qualitative case-study methodology was divided into four stages and is visualized in Figure 8 and elaborated on in the following sections.

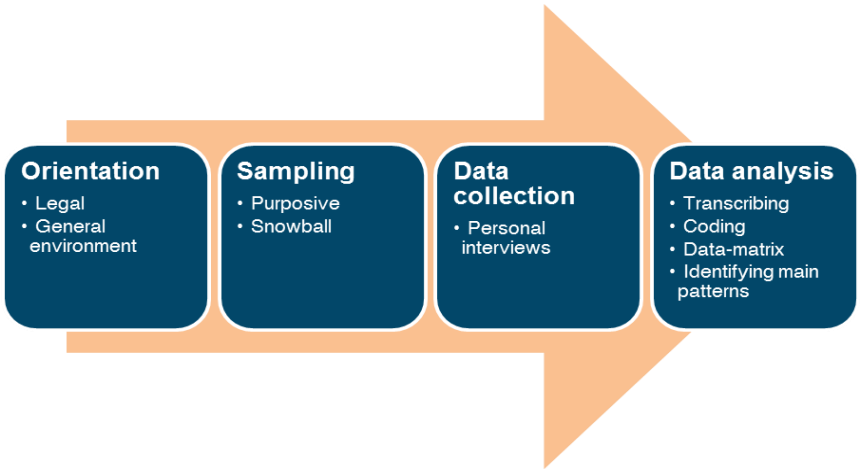


Figure 8: Different stages in the qualitative case-study methodology

Stage 1: Orientation – getting an overview of main regulations and the environment

In this first stage, the state of affairs regarding the so-called bubble legislation and related theories of cooperation was investigated. This was mainly done via contact with a legal expert at a law firm, but also through secondary data online. This step proved to be crucial in order to build an interview guide and to speak the same language as those we interviewed.

Stage 2: Sampling of successful cases, interviewees and experts

During the second stage, while becoming familiar with the regulatory environment, several interesting individuals, cases and companies were identified. The sampling method relied on purposive sampling, i.e. selective and judgmental sampling (Lindlof & Taylor, 2011). This technique is used when units reflect certain criteria that are found interesting by the judgement of a researcher (Lindlof & Taylor, 2011). Furthermore, as the units were selected, this technique was complemented with the snowball method as most of our units came from referrals from the American Chamber of Commerce and from interviewees.

The cases and experts were selected depending on the following four criteria:

1. At least one of the cases should have one partner that is a member of the American Chamber of Commerce;
2. In all cases, cooperation should be induced by the pressure of compliance costs or compliance costs should be a leading incentive that shaped the project;
3. In all cases, legal relevance should be available within the legal framework;
4. The expert, company, and/or case should be involved in the Rotterdam area, with a focus on the Port of Rotterdam.

The data collection ended with 16 interviews with 21 individuals from different firms, industry associations, the Ministry of Economic Affairs, academia, the Rotterdam Port Authorities and law firms. All interviewees had an affiliation with Rotterdam and were familiar with the energy, chemical or petrochemical industry.

The interviewees can be divided into two groups: case-study related and experts. It is however important to note that several experts also touched upon business cases. An expert therefore indicates an individual with long experience in the industry while having encountered several cases of cooperation to reduce compliance costs in the Rotterdam area.

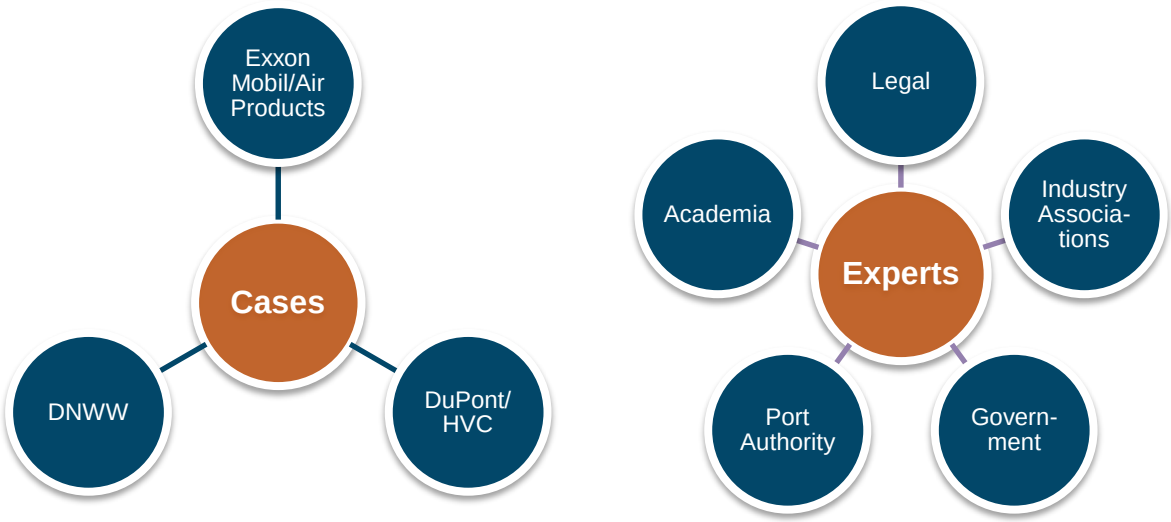


Figure 9: Overview of groups and subgroups of interviewees, with case studies on the left and experts on the right

Stage 3: Data collection

Data collection was done via interviews that ranged between 60 and 90 minutes. The interviews were designed to explore the interviewees' opinions, and hence the prepared interview schedule was merely used as a guide. The questions were related to cooperation in the specific context the firm operates in. Some questions were never asked from the guide, while many were added during the interview. All interviews were audio-recorded to secure potential loss of data. At the same time, all interviews were conducted face-to-face by two to three interviewers in order to strengthen the reliability of the interpretation of the interviews. In a few cases double interviews were conducted, i.e. two interviewees instead in one single interview.

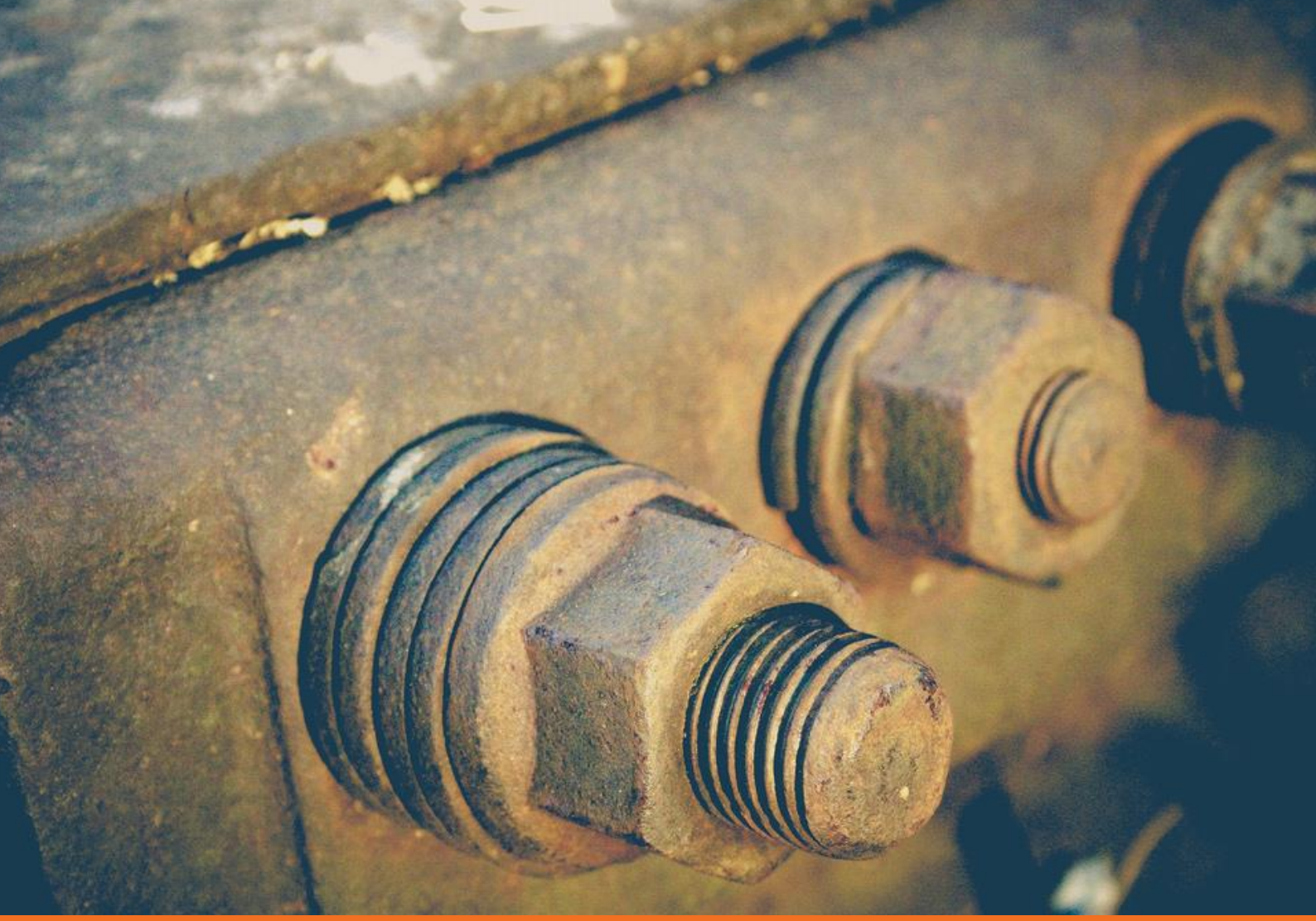
Stage 4: Data analysis

All of the recorded interviews were completely transcribed while the interviewees' names were completely anonymous in this process, and would potentially only be associated to the organization they represent. When the transcripts were finished, the analysis of the typewritten data begun. The first step was open coding, in which the transcripts were read several times and data that could be linked together was highlighted (Lindlof & Taylor, 2011). These were then grouped into categories using a coding matrix that can be found in Appendix A. Later on, broader high-level patterns were searched in which these categories could fit, while their interpretations were discussed among the team during multiple brainstorming sessions. The qualitative methods book by Lindlof & Taylor (2011) guided the process.

Four main themes/patters emerged from the coding, i.e.: regulation, information sharing, coopetition and third party involvement, and financial.

Summary

A qualitative research method was employed. More specifically, this study relies on a case-study approach complemented with experts in the field. 16 interviews were conducted with 21 individuals. The interviews were later on transcribed, coded, put in a coding matrix and interpreted. All data was gathered and analyzed during a period between March and May 2015. This qualitative case-study methodology was divided into four stages. Four main themes/patters emerged from the coding, i.e.: Regulation, Information sharing, Coopetition and Third party involvement, and Financial.



5. Results and recommendations

Using the abovementioned thematic content analysis of 22 interviewees' input to validate the propositions, it was possible to identify the key enablers and barriers of successful cooperation. During the interviews, it became clear that a separation of internal, external and regulatory influences, as was done in the theoretical framework, was not feasible. Reason for this was that most of the factors were identified as interrelated, as can be seen in Table 3. Table 3 is a representation of all the data collected through the interviews. The data is divided in the three main theoretical categories, using different subcategories to display all relevant data. Not all subcategories come back in the result chapter, as some may be combined, or altered to fit the framework.

When examining the table, four overarching themes can be observed, which cover all the categories and subcategories. These main patterns are Regulation (represented in the table in blue), Information sharing (represented in the table in yellow), Third Party Involvement (represented in the table in red), and Financial (represented in the table in green). Not all the categories and subcategories were supported by the same majority of data. This difference in analytical support is represented in Table 3 by the use of four different symbol combinations. The symbol '-' is used for weak identified barriers, thus barriers with support from some, but not the majority of data. The majority of the data did support the strong barriers, represented by the symbol combination '--'. The same logic can be applied to enablers, which are represented by '+' for weak enablers, and '++' for strong identified enablers.

In the following sections, each theme presents the results as described in Table 3. This is combined with an analytical analysis of the situation and its implications to the parties involved in the Rotterdam Port area. Furthermore, some sections elaborate more on the differences between American and non-American companies as there have notable differences identified in the data. Lastly, a recommendation within each theme is provided.

		Case Studies			Regulatory Agencies						Industry Experts		
		ExxonMobil/AirProduct (Hygrogen pipeline)	De Nieuwe Warmteweg (DNWW) / District Heating Project	Dupont/HVC (Steam Pipeline)	Port Authority	Rotterdam Municipality	Ministry of Economics	VNPI	VNIO-NCW	VNCI	Supply Chain / European Clusterization	Environmental Law	External Affairs
Theoretical Categories	**Subcategories**												
Internal	Preexisting Relationship	+ +	+ +	+									
	Legitimacy	+ +	+ +		+ +	+ +	+ +		+ +				
	Trust / Transparency	+ +		+	+ +		+ +	+			+ +	+ +	
	Communication / Reputational factor		+ +	- / +	+ +	+ +	+ +		+ +				
	Culture	- / +			- -								
	Escalation Mechanism	+ +			- -			- / +					
	Risk	- -	- -	-	-	- -	- -		- -				- -
	Leadership		+ +		+ +	+ +	+ +	+ +	- -				
External	Proximity to Residential Areas	- / +	- / + +	- - / +	- -	- / +	–						
	Existing Infastructure	+ +	- / + +	+	+ +	- -	-/+		- / +	- / +			
	Complexity of Refinery System	+ +	-	- -									
	Global Playing Field	- -	-		- / +		+	- / +		- / +	+ +		- -
	Risk	- -	- -	-	-	- -	- -		- -				- -
Regulations	Anti-Trust Laws	-			- -			- -		- -	- / +	- -	- -
	Regulation / Flexbility in regulation	- - / +	+	- -	- / +	- -	- -		-	-		+ +	- -
	External Economic Factors		-		- - / + +	+ +	-		- -			+ +	- -
	Role of Authorities / Municipalities		+ +	+ +	+ +	+ +	+ +	- -	- -		+ +		- -
	Risk	- -	- -	-	-	- -	- -		- -				- -

Table 3: Representation of data collected

Key

- Weak barrier identified
- - Strong barrier identified

+ Weak enabler identified
++ Strong enabler identified

Regulation
Information sharing and communcation
Coopetition and third party involvement
Financial

Regulation

Although many firms seek to enter cooperative efforts as a result of regulation pressure, they do not find regulation itself burdensome to cooperation. However, during the interviews it was found that firms did find the implementation and enforcement of regulation, such as complying with permitting process, to hinder cooperation. This is due to a lack of flexibility, the risk-adverse nature of regulatory authorities, and information misalignment both within and between actors. In the following section, regulations are split into enforcement, permitting and cultural differences, while actionable recommendations are presented at the end of the section.

Enforcement

A recurring theme concerning the enforcement of regulations that emerged with all interviewees was the level-playing field, the principle of justice and fairness that allows all parties to succeed. On a European level, the implementation and enforcement of regulation is of heterogeneous quality and effectiveness across the member states, or as phrased by the VNPI: "*Laws are the same everywhere but enforcement is more effective over here*". Both the VNCI, as well as DuPont and HVC urge the government to "call for a similar level of enforcement across the continent". Additionally in the Dupont/HVC case study it was noted that the permitting process was heavily dependent on the personal preferences and knowledge of individual permitting officers -- indicating a lack of uniformity in enforcement. Hence, there is still a lot of improvement needed in this area. From the interviews two possible improvements were proposed: first, other countries could adhere to stricter enforcement, and second, the Netherlands could improve their own internally consistency.

Although the Dutch government is aware of these concerns, the issue remains very complicated since in some countries there is still a lot of further development of institutions needed. Stricter enforcement also puts strains on governmental resources and some countries may be unwilling for exert such pressure. However, by improving internal consistency the Netherlands may make gains towards a more level-playing field without imposing stricter regulations. Additionally when authorities are enforcing regulation, interviewees have suggested that authorities should not focus on covenant parties, i.e. parties that are part of an alliance to share information. Currently, parties that are not part of the covenants, are not as closely inspected - or in some case, inspected at all. In order to fully impose the level-playing field, companies should therefore not be punished for joining the covenants and sharing information, but rather be encouraged.

When discussing regulatory enforcement and investment opportunities, two terms resurfaced through interviews: predictability and stability of the economic and regulatory climate. This finding is in line with the proposition related to the centrality of regulatory uncertainty. This proposition stated that if there is more regulatory certainty, cooperation is enabled, which is proven by this finding. Deltalinqs mentioned the issue of the aggregation of regulatory aspects on storage tanks, regulated by PGS29 (Publicatiereeks Gevaarlijke Stoffen), which surprised companies and put too much pressure on them regarding changing circumstances. Negotiation with the government and approaching the issue as a unified industry resulted in progress towards rectifying the situation. Currently, the NOx regulations, which are to be implemented in 2016, are pro-actively negotiated with the government in order to increase predictability and stability and to attract investments. This is an example of an adaptive and flexible attitude towards regulations, as used by the authorities. Referring back to the theoretical framework, it can be stated that the first proposition of the regulatory theme, i.e. a more adaptive approach to regulation by authorities encourages cooperation to reduce compliance costs, is supported.

Furthermore, multiple interviewees from both the industry as well as trade organizations, consisting of the VNCI, DuPont, HVC, ExxonMobil and AirProducts, stated that it is not a bad thing to have environmental regulations. They do however stress that authorities tend to overemphasize the road, or means, that lead towards better environmental performance, instead of the goal itself. Related to the proposition of different aimed regulations, it was suggested authorities should focus more on the ultimate goal, which is better environmental performance, and give the companies more leeway in how to reach this goal. A note has to be made here that regulations are often in place to prevent misbehaviour, therefore the different actors stress that this kind of regulation is needed, but with a different focus.

During the interviews and case studies, the companies have identified two specific examples of regulatory inflexibilities. First, operating permits often discourage companies to cooperate if such cooperation implies construction of new jointly operated facilities, such as pipes, engines, or other sharable structures. Under current regulatory regime, one of the partner-companies has to assume ownership of this newly built facility; however, neither of the partners may have sufficient room to adopt it into the existing permit. Operating permits appear to treat companies separately and do not take potential benefits resulting from cooperation into sufficient account. For instance, imagine that Company 1, in accordance with its operating permit, can only emit 100 units of waste, of which 90 are currently used. Let us assume that its partner, Company 2, has a completely the same situation: 100 units of waste limit and 90 of them are already used, so that two companies together emit 180 units of waste. Then, that Company 1 can build a facility that will allow Company 2 to reduce emissions by 30 units of waste. However, this facility in itself will produce 20 units of waste. This means that Company 1 will not be able to construct this facility, as it will exceed its permit by 10 units (90 + 20 = 110), even though overall impact of this project will result in the reduction of emission generated by both companies by 10 (90 +20 + 90 – 30 = 170 => 180 – 170 = 10).

This misalignment of incentives has been mentioned by interviewees and, thus, identified as a barrier. To deal with this problem, the regulatory regime needs improvement. For instance, operating permit regulations should take into account cooperative efforts of companies and be receptive to overall benefits of cooperation, instead of treating each company separately.

Another problem mentioned during the interviews related to noise limits set forth in the operating permit. In certain cases, companies had to be very cautious as to not to exceed the noise limits when engaging in mutually beneficial cooperation. Noise limits are imposed in a centralized way by the authority in charge of issuing permits. However, noise, as a type of pollutions, differs significantly from other categories of pollutants, such as CO2 or other chemical effluents. In contrast to the latter, noise only affects local communities. Despite its different nature, noise limits are set forth in just the same way as other limits. However, one could argue that local communities should be able to decide for themselves. For instance, imagine that Company 1 and Company 2 want to cooperate in order to achieve significant reduction of chemical emissions; however, they have to abandon this project because this cooperation requires construction of a noisy turbine. Companies have to quit the project without having a chance to ask local communities if they are willing to agree to have less chemical pollutions in the area at the expense of increased noise.

This second barrier can be dealt with by letting communities have a say in such local matters as noise regulation. While emission of hazardous pollutants that proliferate across borders through the air should be regulated in a centralized way, noise limits could be regulated in a more nuanced way. Companies would have greater incentive for investing in local communities and building local relations, thereby increasing their CSR, because it would also increase the likelihood of local support for noise emissions compromises on their permit.

Cultural differences toward regulatory practices and governmental interaction

The subject of culture surfaced multiple times throughout the course of the interview sessions. Since this project was conducted at the request of the American Chamber of Commerce and many of the interviewees contacted had experience working either with or for American companies, an investigation into the cultural aspect between Dutch and American companies was a main focal point. A summary of these finding can be seen in Table 4 From these discussions it was demonstrated that although American and Dutch business attitudes are generally quite complementary, there is a clear dichotomy in their attitudes towards certain regulatory and business practices.

Table 4: America versus the Netherlands table

	United States of America	**The Netherlands**
Geography/Ownership	More space → Less space regulation; Land is cheap → Companies own land and have freedom to use it largely as they please	Less space → More space/land regulation; Land is expensive → Lease-style/Landlord-style for densely populated areas (i.e. the ports)
Responsibilities to land	When done with space, just leave buildings/waste and move on	Have to clean up areas after they're done with land to make room for next owner
Proximity to others	More space → Less densely packed → Ability to spread out → Less pressure to cooperate	Less space → Densely populated areas → Easier to make synergies (interdependency) because less geographic distance between facilities
	Facilities don't have to be near residential areas; have space to spread out = fewer noise/odor complaints	May be located very near to residential areas and many more factors must be taken into account for permit
Government	Government not responsible for development of land; Companies must make their own infrastructure. Especially in very rural areas.	Landlord Model → Lease Land → Generate income for the port → Invest in the region → Better infrastructure
Regulation	Environmental regulation always correlated with individual wellness; i.e. cancer cases per year	Think of regulation more generally in terms of a community or "zones" (current system)
	Perhaps because there is more of a private lawsuit culture in the US	
	Example: LA Port subsidizing individual truck drivers in California	
Summary	More control, more ownership, more independence, more fear of person lawsuit, less regulation-enforced environmental responsibility, less incentives to cooperate, less government support	Less control, less ownership (lease land), less distance between businesses/facilities, more environmental responsibility and regulation, more pressure for competitiveness → more incentives to cooperate

According to one interview, "Some American companies are very subsidy-averse. Company X" wants to have nothing to do with government support, which means that each project should be financially viable on its own. This can be problematic when cooperating with

parties that are more dependent on subsidies". This may have been a possible deterrent for some companies' lack of participation in residential heating projects since the projects depend heavily on government support via subsidization and are "only marginally profitable".

Furthermore, it was stated regarding American companies that they were "extremely hard to cooperate with [...] because they are very afraid of liabilities and responsibilities, because they like to keep things in their own hands. I don't think that is reasonable, but I can imagine that is what they think". Here the different mindsets are very clear but what is also important to note is the clear difficulty they have understanding and overcoming these differences. This lack of understanding can cause failures in communication or negotiation and is a clear barrier to successful cooperations. Interestingly, we received confirmation that when two American companies are working with each other, it usually runs more "smoothly" as they understand each other's business cultures.

Summary

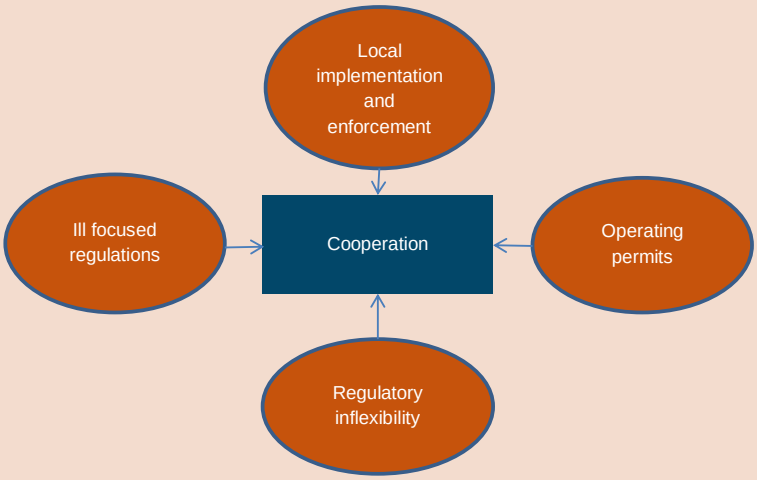


Figure 10: Summary of findings for Regulation theme

Four main barriers for cooperation were found during the interviews, these barriers are represented in Figure 10.

Recommendations

From the findings discusses above, it was suggested that Dutch regulatory authorities should "practice what they preach", i.e. enforcing regulations in such a way that reinforces the principles on which they were established. As an example, they should not punish information sharing within covenants but rather stimulate companies towards joining them by rewarding cooperative sharing information, or at the very least not punish them by subjecting them to greater scrutiny than other non-participating companies.

Secondly, regarding safety, companies could be more pro-actively involved in shaping and interpreting safety standards by aligning with neutral third parties. Third-party advisory organizations can help them to disentangle the complex burden of regulations and convey industry opinions as a unified voice. Right now, safety standards are enforced in a rather strict manner without interpretation for companies post facto, while this might be prevented a priori by the involvement of companies and the encouragement of negotiation.

As a final remark on regulations, we would like to emphasize that a world in which a pure free market without any regulations would be established, is infeasible. The tension between freedom and regulations should never be omitted but should rather be balanced in order to create the best outcome for both the economy and society. These suggestions are aimed at reestablishing an equilibrium that is currently off balance.

Information sharing

One of the most commonly emphasized enablers of successful cooperation was clear communication and information exchange, both within firms on an individual level, within the cooperative as a whole and also beyond the bound of the synergy extending to third-parties such as regulatory authorities and nongovernmental organizations. The proposition regarding information sharing limited itself to internal actors, whereas the results clearly show that the information sharing should not be limited to the actors active in the cooperation but also many external organizations and stakeholders.

Firm level

Firm level communication includes information channels and exchange within a firm. An important finding from this discussion is the importance of strong internal alignment and clear escalation mechanisms, or structural channels of quickly elevating important information to a level of management with the authority to act on such information. These findings are in line with the enabler stated in the literature review that the degree to which incentives are aligned matters greatly, this enabler was thought of to be a major variable, but when investigating the results it can be seen that this factor only has minor influence. Escalation mechanisms would allow operational managers, who are closest to projects and often in a unique position to spot opportunities for collaboration, to have a clear and effective means of bringing such opportunities to the attention of top management. Effective information exchange is a definite enabler of cooperation, however strong internal alignment and clear escalation mechanisms are more specific enablers of clear communication and information exchange, and thus indirectly, cooperation as well.

Cooperative level

Cooperative level communication includes information exchanges between participants in a cooperative venture. For example between AirProducts and ExxonMobil during their hydrogen-sharing synergy or between DuPont and HVC and their steam-based cooperation. Within cooperative-level communication, transparency was a key enabler of identifying opportunities for potential synergies. Particularly in regards to facility inputs/outputs, new facility development timelines and facility capacities. This is because any surplus capacity capabilities are potential for cooperative ventures with minimal pre-investment, implying lower risk and greater odds of success. However in practice transparency is rarely achieved, even when cooperating companies are not direct competitors.

In discussions with trade organizations and other third-party organizations, multiple interviewees expressed their belief that such information transfer would benefit everyone, particularly those involved in the cooperation, as well as their confusion as to why companies would withhold information that held no clear competitive value. Such practices discourage trust between business partners and are a clear barrier to successful cooperation. “Trust,” one interview remarked, “Is an abstract concept but ultimately is what it’s all about.” When collaborating within an industry it is important to note that such transparency and information exchange should not jeopardize competitiveness or violate any antitrust regulations. One expert expressed that antitrust regulation is much more likely to affect horizontal cooperations than vertical ones, thus looking for vertical synergistic opportunities may be a successful strategy for those companies that find antitrust regulation a main barrier to information sharing.

One interesting finding that we should note here is that the proposition that the degree of commitment and trust between partners is an enabler is only partly satisfied by the results. All parties in one way or another agreed that trust between partners enables cooperation,

but commitment to the project was never mentioned as an issue, perhaps because most cooperation require full commitment or they simply do not occur.

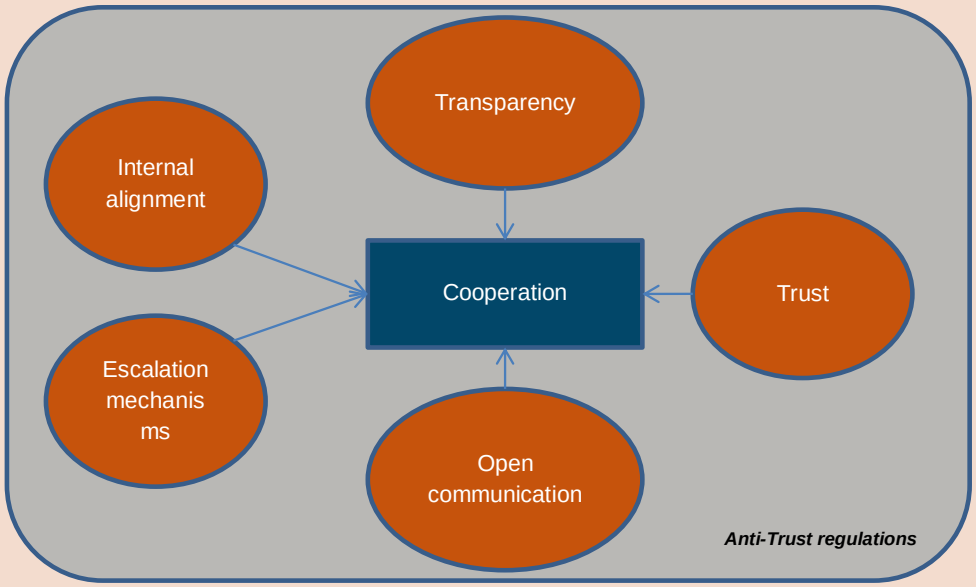
Beyond the synergistic scope - external influencers

This section discusses the importance of clear communication and information exchange with parties not directly involved in synergistic efforts but whom may still influence the success of the cooperation. These parties may include such external actors as regulatory agencies and non-governmental bodies such as the Rotterdam Port Authority and trade organizations.

Information exchange between regulatory agencies is of particular interest because interviews from multiple sources agreed that there is sometimes a clear technical and experiential knowledge misalignment between industry experts and regulatory agents. This view may be partially attributed to mere difference of opinion on what is a realistic usage of best practice techniques and further discussion is often necessary to reach a suitable point of compromise. However other interviews yielded incidences in which firm employees must educate regulators on equipment, technology, proper use protocol, and even policy. From a regulatory point of view, it seems dangerous to be overly dependent on information from the very companies being regulated, however sometimes this also cannot be avoided. In both cases, clear communication and effective information exchange can facilitate reasonable business conditions and also improve safety and environmental standards by having a well-informed regulatory force -- both factors which can act as enablers of successful cooperation.

Lastly, open communication and information exchange between cooperative parties and nongovernmental third-parties can act as enablers of synergistic ventures because they can assist in identifying opportunities on behalf of firms. Particularly with the Port of Rotterdam, where they act as a de facto landlord and install infrastructure on behalf of their “tenants”, it is important for them to be aware of the needs and capabilities of companies. The Port has an interest in increasing the competitiveness of firms whom they lease land to because this helps draw business into the area and generates more trade, which generates a financial incentive. Both the Port Authority and the Ministry of Economic were explicitly identified in interviews as being in the “perfect position” to facilitate and encourage cooperative efforts. Communication with trade organizations can also facilitate cooperation because firms can explain the benefits of a synergy and then the trade organization can lobby on their behalf to regulatory agencies, thereby increasing legitimacy of such cooperative ventures and their claims.

Summary



Five main enablers of cooperation were found during the interviews, these enablers are represented in Figure 11. All of these enablers should be considered with anti-trust regulations in mind.

Figure 11: Summary of findings for Information theme

Recommendation

In almost all interviews, having clear communication and sharing information with each other was seen as essential. However, in almost all interviews, this was not done in practice. Especially when visiting industry associations, there was a clear belief that if firms and authorities would have more open negotiations and communication with each other - as well as between the firms themselves - this could lead to more cooperation, which would in turn cut costs and improve competition. In practice firms are very cautious of the risk of disclosing too much information however, because they feel it could result in the loss of a competitive advantage.

Despite this fear, many interviewees expressed the belief that greater transparency could actually be better for the competitiveness as the companies would work together more and economies of scale would result in the cost of cooperation decreasing over time as operations expand. For example, now many of the firms are in individual negotiations with governmental authorities on a diverse range of topics -- but if they pooled their voices and lobbied as a unified force they might have a better chance at generating real change. Of course this already happens in isolated incidences, such as the NOx example explained earlier in the report, but making it common practice and having established channels of communication via neutral third parties would lend such advocacy greater strength and legitimacy.

One of our interviewees was quick to point out that concerns that firms may lose their competitive advantages by working together are not warranted because ultimately petrochemical companies compete on a global scale, working together locally does not change this. Many interviewees expressed the opinion that such cooperative efforts would yield benefits to the competitiveness of the Rotterdam area as a whole and would be the best from a long term perspective. Although improving communication flow and information exchange at all levels -- firm level, cooperative level, and beyond the synergistic scope -- appears very straightforward, the fact that this fails in practice indicates clear room for

improvement. Establishing formal intra-firm communication channels and designated escalation mechanisms for identifying synergistic opportunities could be a potential solution for improving the current communicative state of affairs.

During the course of the interviews there was also a distinct difference in how firms, governmental bodies and third parties perceived both their own role in operations as well as each other's roles. What information was disclosed, who had access to this information, what parties' motivation was for disclosing, *or not disclosing,* certain information -- every party seemed to have a different answer indicating complete lack of consensus. Before we can correct misinformation however, it may be helpful for a neutrally positioned party to survey the communicative landscape in order to assess how parties are currently receiving information and communicating with each other so that they may take the most effective course of action to rectify misinformation and improve the efficacy of information flow.

Coopetition and third party involvement

All interviewees were explicitly asked for their experiences regarding the tension between cooperation and competition. In the end, this project investigates enablers of cooperation between entities that live of each other's' failures. This may sound as a cynical straw-man argument, but it turned out to be a problem many interviewees recognized. One interviewee at the Port Authority noted that we should not be too surprised that companies often do not want to cooperate. After all, sharing the responsibility for and control over processes that are vital for their core business comes at a significant risk. Moreover, quite some actors in the Rotterdam Port area, most notably the different types of intermediaries, make their money by exploiting certain inefficiencies, such as the limited availability of certain information.

One industry association employee pointed out that it is his task to represent a group of competing companies and so determines his work to a very large extent. Conflicting private interests make it hard to agree on a shared position on certain policy issues. In addition, companies use the associations as a vehicle to address problems among themselves and manage conflicts with regulators. In the latter kind of situation, the industry association is used to 'break the bad news'. In other cases, however, the associations function as a platform where companies can engage in an ongoing conversation, which enables them to align processes. This directly relates back to the information-related issues in the theoretical framework. Industry associations add the most value when it comes to more generic issues. Most importantly, fundamental innovations take place in what another industry association representative referred to as the precompetitive phase: in the early stages of a new development, companies cannot cost-effectively develop solutions on their own. Therefore, they have something to gain from cooperation.

After pointing out some obvious hurdles that have to be overcome for successful cooperation between competitors to be possible, some interviewees shared their thoughts on a possible answer to this challenge. In all cases, these solutions were built around the involvement of some sort of neutral body, be it the government, the Port Authority or an industry association. This is not only true because those organizations can take a general perspective, looking at 'the bigger picture' rather than at the interests of individual companies. More importantly, an organization like the Port of Rotterdam can turn a mission impossible into a positive business case by taking part of the risk, because the Port Authority is less dependent on short payback times and high returns.

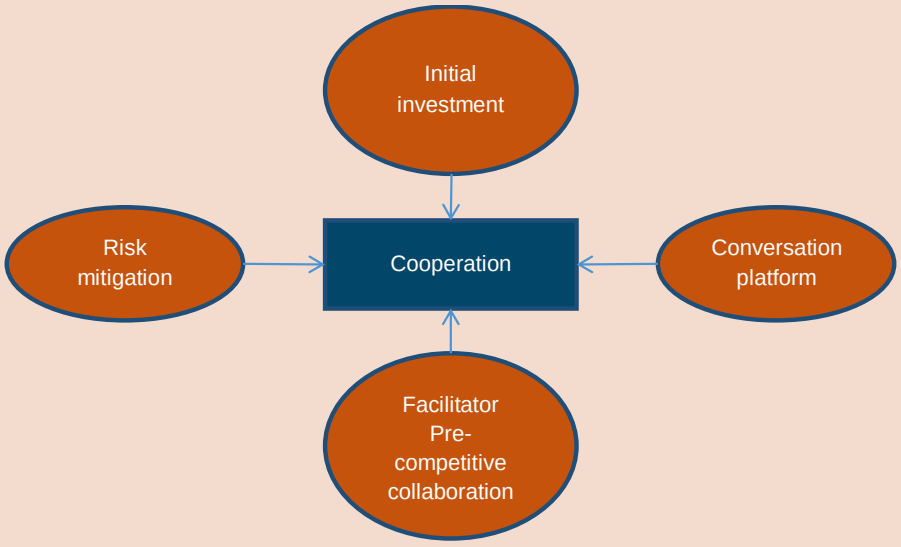
The government, and especially the ministry of Economic Affairs, could also be a great enabler of cooperation. One interviewee pointed out that the Dutch government is generally reluctant to have a policy supporting a specific industry after the failed support for the offshore firm Rijn-Schelde-Verolme in the 1960s: "It is very hard, since the Verolme debacle, to have effective industrial policies in the Netherlands. It was concluded after a parliamentary

enquiry that financially supporting individual companies when they are operating in a worldwide competitive field will ultimately always be unsustainable. Companies cannot survive on subsidies. So the Netherlands does not want to do this anymore. This reluctance also extends to good ideas, even when it is all about strengthening the whole cluster. You are not supporting a company, but an economic motor. But if this has to go through the bureaucracy… it is just too slow." Therefore, the Port Authority has taken over this role of providing the initial investment to create a positive business case.

Cultural relevance to Rotterdam Port land-leasing model

Another relevant dichotomy between American and Dutch culture pertains to the concept of ownership, specifically in regard to land, the rights versus responsibilities of being a landowner and how these factors translate into practice. As demonstrated in Table 4, the sheer relative geographic size of the U.S. (10,000,000 km²) compared to the Netherlands (42,000 km²) has shaped the development of land ownership in significant ways. For example, because of the abundance of open space in the U.S., American companies are more likely to simply leave obsolete facilities as they are and buy additional land for new developments in comparison to the Netherlands where land is scarce and therefore must be reused as efficiently as possible, requiring the safe demolition of old facilities before new ones are built. Additionally in the U.S., land ownership is the norm for companies as compared to the Dutch land-leasing model which is gaining popularity, particularly in dense industrial areas such as the Rotterdam Port area. Ownership is the U.S. grants many American companies a form of independence to use and act on the property as they want. Thus when American companies are considering foreign investment in the Netherlands and must lease land instead of buying it, it implies surrendering some of this independence and also accruing costs associated with maintaining the land and leaving it in a usable condition when they are done with it. This is relevant information if the Port Authority wishes to take a more active role in facilitating cooperation and attracting direct foreign investment from abroad.

Summary



Four main enablers of cooperation were found during the interviews regarding the theme Coopetition and third party involvement. These enablers are represented in Figure 12.

Figure 12: Summary of results for Cooperation and Third party involvement theme

Recommendations

The abovementioned conflicting private interests could be resolved by the involvement of external third parties, who would take a more active role in order to improve legitimacy of cooperative efforts. This is already done to a certain extent via some third parties conducting feasibility studies however there remains significant space for greater involvement. Third parties would also act as an intermediary and commission neutral investigative reports into best practice techniques when there is disagreement between public and private information.

With regard to the specific interpretation of an external third party, we would suggest different agencies on different governmental levels. A first level would include the Rotterdam Port area, in which the Port Authority is the primary point of contact. At the same level, firms and third-party organizations could establish or participate in informal ambassador programs where plants managers can share their experiences and advice while also serving as a cooperative model. Deltalinqs currently has such an Ambassador program and was a very effective facilitator during their residential heating project, since the focus was on long-term sustainable results rather than on short term payback and returns. On a national level, the ministry of Economic Affairs forms the most powerful enabler of cooperation, although bureaucracy limits their speed and flexibility. A particularly actionable recommendation at the national level that came as a result of the interviews was using the upcoming 2016 World Fair bid to showcase cooperative efforts such as the district heating project and highlight how municipalities can work together with private corporations to generate synergies that benefit all. This lends legitimacy to such cooperatives which do not have the strongest initial financial business case while also generating publicity for Rotterdam and hopefully attracting foreign investors.

With regard to the ownership of land in the Netherlands, attraction of foreign investment could be encouraged by managing the expectations and presenting the benefits of the land-leasing model. Right now, obscurities regarding the land-leasing model exist when foreign investors are approached, resulting in differing expectations. Since the Port Authority has established clear guidelines on this model in the Rotterdam Port area, it seems as their job to manage these expectations and present the benefits. These benefits include the long-term scope of investments, encouragement of efficiency and the prior existence of infrastructure.

Financial

Economic environment

The industry located in the Rotterdam Port area, as well as the rest of Europe, is encountering an increasingly difficult situation, as the relative operating costs, labour costs, and other costs keep rising. A modern society, with ambitious environmental and economic goals, combined with strict sustainability regulations, influences both the day to day operations, as well as long term investments. Rotterdam is no longer only competing within Europe, but with the whole world. The Middle East, Asia and the Americas are serious threats for further investments in the Rotterdam port area.

All parties try to come up with innovative solutions to maintain the competitive position of the Rotterdam Port area. Fighting the regulations, whether they are environmentally aimed or not, is pointless, as pointed out by multiple interviewees. “By the time regulation hits the port, there’s not much to be done. We can negotiate with the city of Rotterdam for subsidies and

tax relief and Dutch national government for investments, but a large part of the negotiation is already over and done in Brussels".

The point made above as described by one of the interviewees was mentioned by multiple stakeholders, with the addition that the Dutch interpretation of different regulations has often times a much stricter implementation of regulations in comparison to other countries, as mentioned before. One could say that because of this regulatory pressure companies try to cooperate and invest in, for example, energy efficient facilities. The data collected, however, suggest that this is not the case. The Port Authority, for example, tries to attract investors by advocating their energy efficiency capabilities. These capabilities are not developed to comply with regulations, but rather to try and adjust the relative operating costs of the industry and to stay competitive within the world market. Furthermore, these capabilities are developed to compete with other locations for local investments that increase the knowledge base of the region.

Could cooperation make it easier for firms to cope with this environment and to become more competitive? The data shows that the number of collaborations has been growing steadily within the petrochemical and oil industry, especially during times when the oil prices are going down, as this put even more pressure on firms to remain competitive. Therefore, the economic environment in which the firms operate can be identified as both a stimulator and a limitation to firms' competitive positions. Cooperation can be one way for firms to help each other to mold this environment into a stimulator. Examples of this are the collaborations between ExxonMobil and AirProducts, and HVC and DuPont. Both collaborations were used to reduce operating costs.

In conclusion, the macroeconomic situation can be a barrier for competitiveness, but could be seen as an enabler for cooperation at the same time, as it forces firms to be innovative and to find creative solutions, such as cooperation, to reduce their operation costs. This result, however, is a passive result, meaning that firms are not capable of directly changing this influencer. Companies should therefore take note of it, shape their strategies around it, and identify opportunities to cooperate, in order to take advantage of the economic situation.

Geographic location

There is an optimistic view presented by both experts and interviewees, that the Rotterdam area is one of the most important areas in Europe when talking about the energy and petrochemical industry (raw industries). However, as mentioned before, actors are afraid of the status of Rotterdam's future. This section will explain how the geographical elements of this area have lead, and could lead to further cooperation among different players, which could eventually lead to higher increased competitiveness in the Rotterdam area.

Proximity

At first glance, this could be seen as a main barrier for competitiveness as it requires substantial effort for the parties involved to respect the surroundings, such as noise levels and odor from example refineries from a regulatory aspect. However, the proximity to residential areas and being closely connected to the Rotterdam port and city has yield several advantages for cooperative initiatives. One particular example of this is related to the Rotterdam Heat Project. This project specially has been able to go through because of the proximity to residential areas. Houses in Rotterdam have been able to be heated up because of redundant heat provided by waste heat incinerators. Many parties are involved in the project, and they have taken a long time to coordinate.

When looking at proximity in more general terms, it can be seen that this knowledge on residential proximity can be applied to almost all proximities. Examples of this are the proximity between the cooperating partners, if the two partners are relatively close together, cooperation is almost a given and much more plausible. An example of this is HVC DuPont

collaboration, which existed mainly because of the proximity between the two partners. AirProducts and ExxonMobil prove that this criteria is not an inevitable barrier, as both parties initially were not located near each other.

Both the general proximity between parties, and residential proximity have an economic basis, as they both try to improve the profit margins of the collaborating partners. Even though the profit margin of the heat project is less than desirable for some companies, it is a way of remaining competitive through cooperation. Proximity in terms of facilities yields energy efficiency, and the data shows that the closer two facilities are located near each other, the lower the initial investment and the more likely the cooperation is to succeed.

Infrastructure and facilities

The infrastructure have, and will further be an important aspects regarding gaining a competitive advantage for companies in the Rotterdam area. Based on the data, we have come to realize that infrastructure and facilities are very important to reduce compliance costs, share risks, and much more, as argued by one of the respondents. "Suitable infrastructure is essential in the current competitive environment, and you should be willing to invest in it". Sometimes appropriate infrastructure can be very hard to provide alone. in the heat project we have seen that third party involvement, in this case the government, the city of Rotterdam, and the Port, has been beneficial to the project. Providing parts of the infrastructure, or take some of burden of the investments makes it more attractive for companies to invest and come to the Rotterdam port area. This is one example of providing a better knowledge base for companies to improve the possible returns of cooperation, or to even make the returns possible in the first place.

Another advantage that Rotterdam has is that refineries are already highly integrated in this area, as for example compared to other sides such as Singapore or the Gulf Coast. If companies re-invest in these refineries and other companies establishes in the port, the Rotterdam area may attract more investments and to build further infrastructure. This has also been referred as the "plug-and-play concept", and the Port of Rotterdam explains that without this concept, the port will not be competitive and serves as an important milestone in competitiveness. This existence of pre cooperative infrastructure enables companies to work together as it lowers the initial investments for both parties .In a few interviews it was mentioned that without pre-existing infrastructure, it was sometimes difficult to attract more business, and that was the reason the Port decided to invest in the region. A great share of risks and costs are involved when this happens.

However, the Port Authority also explain that this concept is not always favorable for all partners. Particularly American companies can sometimes be resistant to this as they like to "own" their own land, as discussed previously. The strength of the Port of Rotterdam is that it is very integrated and has been since the 1940's but this has decreased over time and made them less economically competitive and now there is push to reintegrate again. We can see here that involvement of external factors is indeed there to help, since sometimes companies are generally unwilling to invest in cooperation because of their higher costs and risks, and in this case the infrastructure.

In retrospect of the necessity of neutral third parties, the Ministry of Economic Affairs coined both the RVO, i.e. Rijksdienst voor Ondernemend Nederland on a national level, as well as the Port Authorities on a regional (Rotterdam) level to be involved in infrastructure decisions. Hence, we can conclude that absence of existing infrastructure can be a barrier for many firms to cooperate, investments in existing infrastructure by either third parties or the cooperating parties are desired.

Risk

Risk is defined in terms of a firm's perceptions of the uncertainty and adverse consequences of investing. According to the industry experts, risk entails uncertain outcomes of known probabilities, and it differs from uncertainty which entails uncertain outcomes of unknown probabilities. Risk sources are the environmental, organizational or investment related variables that cannot be predicted with certainty and that affect the outcome or success of the project. It was stressed by all three cases that risk, risk responsibility, and risk divisions were vital components of cooperation, with economic risks on the front row.

In order to act harmoniously in a cooperative arrangement driven by business interests, it is often necessary for companies to compromise when entering negotiations and remain flexible to the wishes of other parties. For example during one cooperative case study explored, one party wanted the other to guarantee security of supply for a utility. The supplying party however had a very low appetite for risk and would not agree to the project unless this guarantee was dropped from the negotiation. In order to reach a compromise, both companies looked at the cost of the next best alternative and ultimately decided it was better to enter the cooperation with the uncertainty of supply than to cancel the synergy entirely. The two parties did not reach this compromise alone, they were able to partially shift risk onto a third-party contractor, who was responsible for building the facilities and therefore assumed responsibility for their functionality, stressing once more that third party involvement is vital. According to one interview, there was a proposed district heating project in Norway involving both Shell and ExxonMobil, however the plans fell through because of the exact supply problem outlined previously. There was no backup heating capacity and no party wanted to be held responsible for the possible failure of supply. In this example, neither the heat supplying companies nor the local government organizing the project for residences was willing to compromise on risk assumption and they were unable to mitigate or diversify the risk so the plans ultimately failed.

Both risk related examples amplified the importance of clear and well-structured economic risk structures. Companies should be willing to share some of the risk associated with the project, or they should involve third parties which can take some of the burden. If this is not done, risk division can be seen as a true barrier of cooperation, making the initial negotiations more difficult.

In relation to risk, another significant cultural difference between Dutch and American parties was identified as a result of the interviews. Liability risk, defined as "risk to a company arising from the possibility of liability for damages resulting from the purchase, ownership or use of good or service offered by that company" can be identified as the significant additional difference. American companies were perceived by Dutch counterparts as much more cautious of liable situations. One possible explanation of this could be the prevalence of "litigation/claim/compensation culture" in the American legal system or the tendency to address personal grievances via lawsuit. The "no win, no fee" payment system where plaintiffs do not have to pay for an attorney unless they win a settlement has also encouraged excessive filings. One special report by the Global Competition Review states, "the US Federal Rules of Civil Procedure facilitate the heavy use of private damages actions by granting broad discovery rights to plaintiffs and by enabling small numbers of plaintiffs to pursue class action lawsuits". This would contrast significantly with Dutch legal policies that put the burden of responsibility more on the individual and also has been traditionally opposed to the "no win, no fee" payment system.

Summary

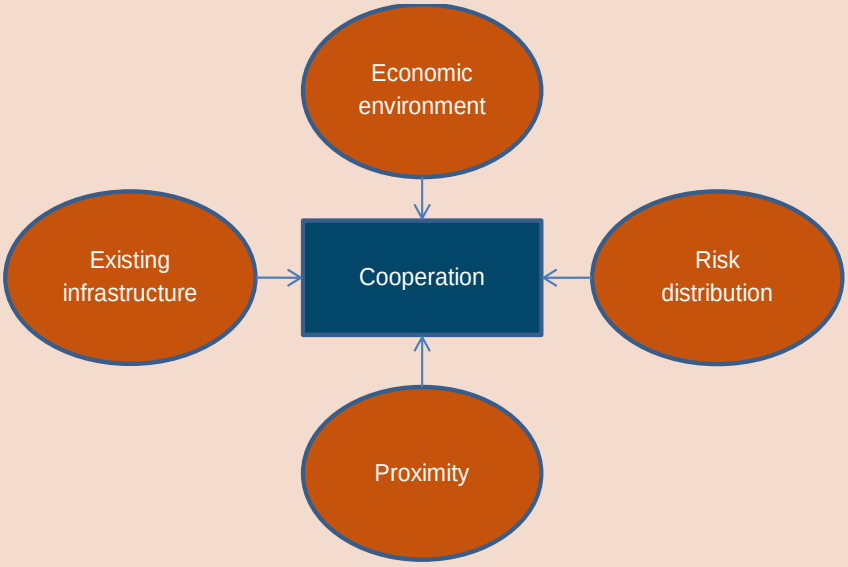


Figure 13: Summary of result for Financial theme

Four main enablers of cooperation were found during the interviews regarding the theme Financial. These enablers are represented in figure 13.

Recommendations

In order to stimulate cooperation from a financial point-of-view, many barriers must be overcome. Assurances on both the supply and demand side are ideal but in a less than perfect scenario, information sharing via neutral third party and financial risk mitigation via government subsidy could shrink the barriers enough to tip the scales for a favourable business case.

Additionally, and specifically with regard to infrastructure, utilities and the existing landlord-model, the “plug-and-play concept” can resolve the financial barriers companies are facing and should be used to promote densely inhabited regions such as the Rotterdam port area to foreign investors. The presence of existent infrastructure should be employed as a primary marketing tool with active support from governmental institutions. Furthermore, companies should not be blinded by the initial proximity of the cooperating partners. This proximity can often be altered and may actually lead to even more innovative solutions, as seen in one of the cases. Lastly, companies should try to search for cooperative opportunities during every economic climate. Unfavourable economic situations may trigger companies into innovative ways of cost reductions such as cooperation faster, but these opportunities to reduce operational costs are present during favourable economic times as well. Making use of these opportunities will yield a better chance of improving the global competitiveness.

Chapter Summary

The analysis of the different results, largely based on the thematic matrix that connected the themes with the interviewees in Table 2, yielded a set of recommendations within the four recurring themes. Table 5 lists these recommendations together with their impact and potential to implement, scored on a relative and rather subjective scale. It can be concluded that the recommendations with the highest impact and potential to implement are concerned with information sharing and the involvement of third parties. On the other hand, changes in regulations and the behavior of authorities would be most difficult to implement, although these would create most impact.

On a timescale, it therefore seems most interesting to actively stimulate cooperation with third parties, which should facilitate information sharing, communication and mitigating financial risks.

Table 5: Summary of recommendations with their impact and implementation potential

Theme	Recommendation	Impact	Implementation
Regulation	Authorities should create a level playing field within Europe		
	Regulatory predictability and stability should be pursued through dialogue between stakeholders		
	Authorities should allow for flexibility and adaptability of regulations when the overall benefits are positive		
	Authorities should focus on 'goal oriented' regulations, instead of strict 'road' regulations		
Information sharing	Actors in cooperation should establish formal intra-firm communication channels and designated escalation mechanisms for identifying synergistic opportunities		
	Third parties should survey the communicative landscape in order to assess how parties are currently receiving information and communicating with each other		
Coopetition and third party involvement	External third parties, taking a more active role in order to improve legitimacy of cooperative efforts, should be involved. This should be done on multiple levels		
Financial	Actors should be looking for opportunities within the existing infrastructure, this is an ongoing process and should occur at all times		
	Third parties and authorities should be involved to mitigate financial risks, existing parties such as the Port Authority and the government		

 Low impact
Difficult to implement

 High impact
Easy to implement

6. Conclusion

This report has looked at the competitive status of firms in the Rotterdam Port area, and how cooperation can foster the reduction of compliance costs for firms with the aim to improve competitiveness. During the theoretical exploration of the topic, the team came up with a number of propositions, these propositions were used as anchors in the interviews. The initial division of these propositions into internal, external, and regulatory factors was abandoned after the data collection.

During this data collection, a qualitative research method was employed. More specifically, this study relied on a case-study approach complemented with experts in the field. 16 interviews were conducted with 21 individuals. The interviews were later on transcribed, coded, put in a coding matrix and interpreted. All data was gathered and analysed during a period between March and May 2015. This qualitative case-study methodology was divided into four stages. Four main themes/patterns emerged from the coding, i.e.: Regulation, Information sharing, Coopetition and Third party involvement, and Financial.

These themes can be used to answer the research question. As stated in the introduction, the research question was: ***What are the key enablers and barriers for successful cooperation between AmCham stakeholders in the Rotterdam port area with the aim to reduce compliance costs?*** We have identified enablers and barriers for both general cooperation, as well as cooperation with the aim to reduce compliance costs. These enablers and barriers were identified throughout the report, compiled and are listed below.

Enablers

- Risk mitigation by third parties and authorities
- Trust within collaboratives as well as among governmental bodies and third parties
- Transparency of needs, capabilities and incentives
- Formal escalation mechanisms
- Internal alignment within and between cooperating parties
- Open communication between all stakeholders
- Third party facilitations of pre-competitive collaboration
- Legitimacy of synergistic projects
- Attractive infrastructure and willingness to invest

Barriers

- Non-uniform regulatory enforcement at the domestic and supranational level
- Ambiguous legal boundaries for information sharing
- Regulation focused on the means rather than the goals
- Contradictory collaborative incentivization
- Paradigm misalignment based on cultural norms and business practices
- Intangibility of CSR benefits versus economic business case
- Inability to guarantee security of supply and demand
- Legislative inertia based on historical dependencies

Following these enablers and barriers, actionable recommendations can be formulated for each major stakeholder group. These recommendations are visualized in Figure 14.

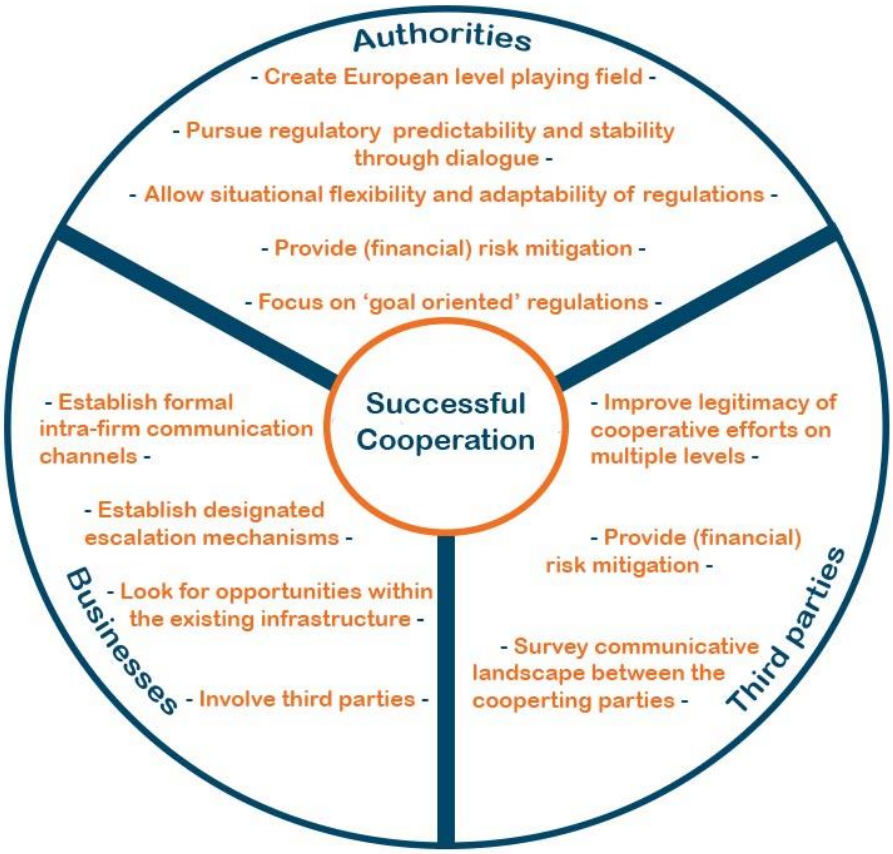


Figure 14: Summary of recommendations per major stakeholder group

Limitations

Throughout the project, the team has faced some limitations and drawbacks, of which the three most important ones are mentioned. As a first limitation, it became clear when writing the letter of understanding that the initial scope and subject of the project were too broad. This, despite the acknowledgement of the team and the coaches, still led to a delay since a lot of time was spent on the narrowing down of the problem statement. A clearer and more determined attitude from the start could have prevented this time loss as now incurred by the team.

A second limitation can be identified when looking at the methodology of the research, since halfway through the project the method of data collection changed . The switch was made from a case-study focus to an integrated whole of both cases and experts. This was fuelled by difficulties related to scheduling the interviews, such as the unavailability of certain individuals. This change of methodology has led to the lower participation of firms in the report, which were important stakeholders as earlier defined.

A third weakness that can be identified is the fact that the team simply lacked the knowledge related to the project in the beginning. This led to a delay in the project as the team only truly understood the problem after a few weeks. This lack of knowledge also prevented the team to go deeper into certain legislative areas, thereby making it difficult to pinpoint important information at early stages of the project.

Further research

Due to the general nature of this research, further research opportunities are easily identified. First of all, exploring industries more in depth will yield more locally applicable recommendations. The current research does not focus on a single industry, making for the general angle of the report. Focusing on one specific industry might yield interesting industry specific recommendations. A second further research recommendation can be to try and explore the different impact of proactive versus reactive environmental regulations, this was beyond the scope of this project, but ca be very interesting to investigate.

Learning outcomes

The team has collected a number of interesting and worthy lessons from the project. First of all, a clear and consistent role division within the team truly does foster good discussions and helps keeping the team work effective and to the point. Next to this, the team bonding experiences by the team moved the team closer to each other and made the group really a team. An important lesson learned from the project is that setting a clear scope and protection this scope early on in the project can really save time and make disputes that may arise during the group work easier to mitigate. Another lesson learned is related to the relationship between the team and the client. This project made it clear that good communication between both actors can help to align the expectations and demands from both ends with each other, also preventing possible disputes later on in the project.

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Appendix A List of Interviewees

Company	Function	Group	Subgroup
ExxonMobil	Public & Government Affairs Manager	Case study	ExxonMobil/ AirProducts
ExxonMobil	Organizational Development Manager	Case study	ExxonMobil/ AirProducts
Ploum Lodder Princen	Partner	Experts	Legal
Ploum Lodder Princen	Partner	Experts	Legal
AirProducts	Regional Manager Business Development	Case study	ExxonMobil/ AirProducts
Port of Rotterdam	Business Development Manager	Experts	Port Authority
Port of Rotterdam	Senior Business Manager	Experts	Port Authority
Port of Rotterdam	Environment Manager	Experts	Port Authority
Port of Rotterdam	Environmental Planning Manager	Experts	Port Authority
Port of Rotterdam	Economist – Corporate Strategy	Experts	Port Authority
RSM	Assistant Professor	Experts	Academia
VNCI	Deputy Director	Experts	Industry Associations
VNCI	Manager Energy and Climate	Experts	Industry Associations
Deltalinqs	Coordinator	Case study	DNWW
VNO-NCW	Senior Adviser Energy and Climate	Experts	Industry Associations
VNO-NCW	Secretary of the Policy Team	Experts	Industry Associations
Ministry of Economic Affairs	Policy Adviser	Experts	Government
Ministry of Economic Affairs	Policy Adviser	Experts	Government
DuPont	Financial Consultant	Case study	DuPont/HVC
HVC	Project Manager	Case study	DuPont/HVC
Municipality of Rotterdam	Adviser Sustainability Program	Experts	Government
Municipality of Rotterdam	Director Special Affairs	Experts	Government