Towards a more connected Europe: An explorative research on overcoming interorganizational incompatibilities in cross-border railway projects

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Towards a more connected Europe: An exploratory research on overcoming interorganizational incompatibilities in cross-border railway projects

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PREFACE

I hereby present to you my graduation thesis which is the result of several months of hard work with which I shall conclude my journey as a master's student in Construction Management and Engineering.

Looking back over the last couple of years, I can see the great learning journey traveled. I must admit at the beginning of this master I wasn't sure how my calculative-oriented mentality would adopt the idea of people and organizations as key factors for success in the construction industry. It was in the past two years that I found myself quite interested in learning more about the influence these two aspects have in practice and thus decided to venture into research on it.

Coming to the end of this journey wouldn't have been possible without the guidance and support of my graduation committee. First of all, I would like to thank my first supervisor Marian Bosch-Rekveldt for the substantial feedback, constant meetings to help me to put my ideas together and dedication to guiding me throughout this research. To my second supervisor Martijn Leijten I would like to thank for constantly sharing new ideas and insightful material to refine my work and for sharing words of encouragement in these past months. To the two of you I owe you my constant renewal of motivation, I am immensely grateful for all your guidance. I would also like to thank my company supervisor Marko Marskamp for helping me shape this research since my first pitch, reminding me to keep an open mind throughout all this time and for providing me the contacts of colleagues whose input was essential for this project. To my chairman Prof. Hans Bakker, I would like to thank for asking the tough questions which helped me give direction to my research, for his meticulous reviews and precise comments which helped me improve my final report.

Last but not least, I would like to address a very special thank you to my boyfriend, my close friends and my Mexican and Dutch family who have been part of this journey for the last two years. Your support and words of encouragement meant more than you will ever know. For that, I am grateful beyond words.

Daniela Orona
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EXECUTIVE SUMMARY

Historically, Large Infrastructure Projects (LIPs) have been characterized by their technical complexity, long duration, huge investments and varied stakeholders. When referring to cross-border projects, it is safe to say complexity grows arising from the participation of organizations coming from different nations and institutional frameworks. It has been acknowledged these conditions are a source of managerial complexity for Project Delivery Organizations (PDOs) as interorganizational incompatibilities often arise and thus require a different approach for ensuring collaboration. These *interorganizational incompatibilities* often refer to conflicting logics or prescriptions for action that inevitably generate challenges and tensions for organizations exposed to them (Greenwood et al., 2011). Still, no formal addressing towards the importance of tackling these incompatibilities within the internationals PDOs collaborating has been made. Therefore, the objective of this research is to identify the incompatibilities that are most present in cross-border railway projects and provide a solution to address the issues on time so a collaborative partnership between PDOs and thus interoperability can be achieved. To achieve the mentioned objective, the following research question has been drawn:

How to address organizational incompatibilities to improve the process of achieving interoperability in cross-border projects?

In order to answer the main research question, four sub-questions are formulated and addressed in four separate stages following the Double-Diamond research method.

SQ 1: What are the interorganizational incompatibilities that can be identified from literature?

SQ 2: What are the key interorganizational incompatibilities to focus on from practice?

SQ 3: What improvements are required in the current practice to overcome interorganizational incompatibilities in cross-border projects?

SQ 4: What is the applicability and feasibility of the proposed framework for implementation?

In the first stage, a literature review was conducted to discover and collect data about interorganizational incompatibilities in cross-border railway projects. In this step, the term interorganizational incompatibility was defined and a theoretical framework containing categories of sources of incompatibilities was built after collecting those that were most commonly found across the literature. The theoretical framework included the following categories: Regulatory, Normative, Cultural, Interpartner relations and Structural characteristics.

In the second stage, two case studies were conducted along with semi-structured interviews to identify the incompatibilities present in practice and explore how PDOs deal with them. From this step, fourteen incompatibilities found within the PDOs were identified, which were then distributed into six different categories, namely: Regulatory, Normative, Cultural, Interpartner relations, Interpartner fit and Politics. This step allowed for a comparison with the findings from literature which shows out of the

five categories identified in the literature, four remained in the empirical research. Unlike these mentioned categories, the Structural characteristics variable was also brought up in the empirical research, although it was rather found as an enabler of cross-border collaboration when there is presence of formal agreements and management control. The exploratory interviews showed that aspects both internal and external to PDOs were source of incompatibilities. Furthermore, results showed that Normative and Interpartner fit categories were the variables with the most incompatibilities identified, yet, only in the Regulatory and Culture categories an incompatibility was shared in both case studies. These events being Differences in regulations and legislations and Language and communication.

In the third stage, a conceptual framework for PDOs implementation was developed to overcome the interorganizational incompatibilities that hamper the establishment of a collaborative relationship in cross-border projects. The proposed framework was designed to be implemented in the front-end phase of development as it is considered the management and initiation of a partnership relationship are suggested to start in early phases so organizations can start developing team loyalty and trust, which is considered essential. The framework addressed a total of nine incompatibilities, seven were identified from the case studies, and two relate to issues commonly overlooked that were mentioned either in the conducted interviews or found across the literature as relevant. Based on these incompatibilities to tackle, six strategies along with three factors that act as preconditions to be present throughout the establishment of a collaborative relationship were proposed.

In the fourth and last stage, the proposed framework was validated in one-on-one sessions with four experts with experience in railway management and organizational issues in LIPs. The framework was validated for its clarity, usefulness and applicability. Following the comments of experts, the content of one of the preconditions for the framework implementation was complemented with Awareness in regulatory differences. This complement responds to the incompatibility of Differences in regulations and legislations, which even though was recognized since the first stage of research, wasn't originally addressed in the framework as it was considered PDOs have limited influence on it. Other points of improvement included the wording of one strategy and phase of development and the elaboration of special points of attention for the strategies. Table I and Figure I below contain the validated framework.

Based on the findings from this research, it is recognized cross-border projects do face extra challenges than those projects of domestic nature due to their intrinsic complexities. These complexities are the outcome of a varied number of aspects that result from the necessary participation of organizations coming from different nations and institutional frameworks. Therefore, it is suggested cross-border projects do deserve a special approach to organizational management to tackle the interorganizational challenges they come across so collaboration between partners can be procured. This research implies PDOs developing cross-border projects should pay more attention to organizational aspects rather than continue focusing on technical and operational challenges to achieve railway interoperability.

In addition to the suggestions and the proposed framework for implementation, organizations and the construction industry need to make some changes. It is suggested practitioners acknowledge the importance of organizational issues and the impact these have on the performance of projects if not

addressed. Thus, once acknowledged, organizations will start claiming their importance and assign efforts and resources instead of the current practice of overlooking them.

	Incompatibility	Strategy
Preconditions	Differences in culture	P.C. Cultural and regulatory awareness
	Differences in regulations and legislations	
	Skepticism towards partners	P.C.: Trust development
	Overlooked responsibilities of top management	P.C.: Top management support and leadership
Phase 1 – Establish a level of organization	Language and communication	S1:Define a common language and communication channel
	Divergent interests	S2: Design governance structure S3: Develop a common integration plan
	Lack of a common integration plan	S3: Develop a common integration plan
Phase 2 – Implementation	Differences in practices	S4: Set harmonized work practices
	Decision-making avoidance by subordinates	S5: Procure information flow and transparency
Phase 3 – Review	No collaboration improvement	S6: Feedback and capturing lessons learnt

Table I: Validated strategies for framework

Preconditions

- Cultural and regulatory awareness – If overlooked or ignored, differences in these aspects will lead to misunderstandings and conflict. Acting in awareness of differences will facilitate collaboration as there is mutual understanding between partners.
- Top management support and leadership – The role of managers involves more than being coordinators. Top managers should also have a social role as consensus builders, leaders and ensure that those involved in the project buy into its purpose.
- Trust development – Considered an antecedent to commitment, trust is essential throughout the whole lifecycle of a partnership as it allows partners to cope with unexpected situations.

Strategies

- Strategy 1: Define a common language and communication channel – Essential to ensure effective communication. When coupled with language qualifications for employees, language misunderstandings can be avoided.
- Strategy 2: Design a governance structure – A governance structure should be put in place to ensure collaboration between actors and progress. Aspect to evaluate when designing the structure are related to the level of control partners will have over decisions, the composition of decision-making body, differences in corporate culture, level of trust between partners, procurement strategy and motivation for learning from one another.

- Strategy 3: Develop a common integration plan – To ensure a common goal, the interests and objectives of each stakeholder should be taken care of. The present strategy is more likely to succeed if the precondition of trust is present.
- Strategy 4: Set harmonized work practices – Compatible practices can facilitate partner learning, knowledge sharing and effective interactions. Once the mechanisms are dominated, they provide consistency across organizations and save time and resources.
- Strategy 5: Procure information flow and transparency – By allowing information flow partner organizations can discard the feeling of mistrust and encourage decision-making at all levels. The present strategy is more likely to succeed if strategy 4 is in place.
- Strategy 6: Feedback and capturing lessons learnt – A process of review to benchmark the previous strategies is encouraged so organizations can evaluate their efforts and either continue their collaborations as such or make improvements if necessary.

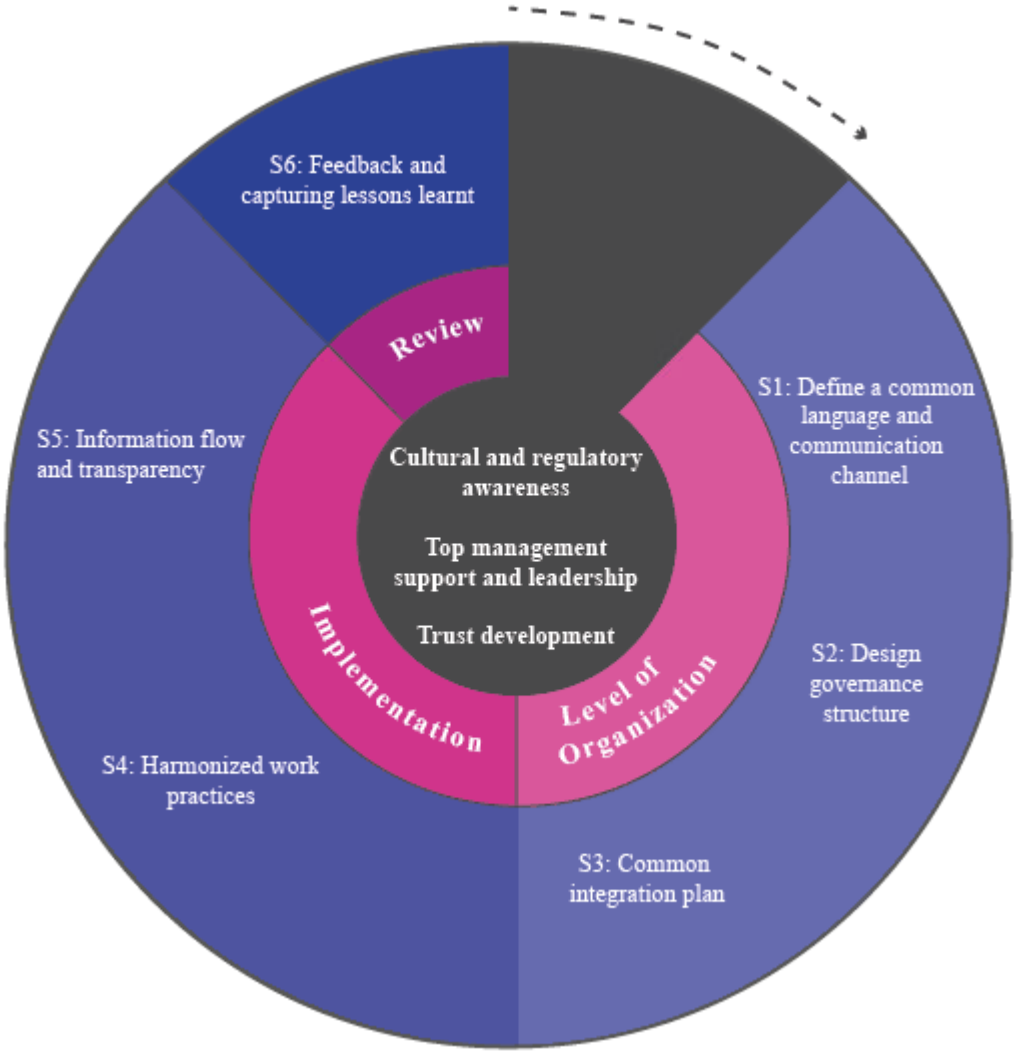

Figure I: Validated framework for partnership implementation in front-end phase

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LIST OF ABBREVIATIONS

PDO	Project Delivery Organization
EU	European Union
TEN-T	Trans-European Transport Network
CEF	Connecting Europe Facility
LIP	Large Infrastructure Project
IJV	International Joint Venture

1. INTRODUCTION

1.1 CROSS-BORDER TRANSPORT PROJECTS

In today's world, the drive to increase efficiency and productivity in construction projects while also sharing financial risks is becoming more routine within firms, organizations and governments that aim at working together to develop an initiative in close cooperation. This cooperation becomes even more important when projects go beyond national borders and different organizations gather to develop and deliver a cross-border project. These ventures also called global projects, are then defined as a temporary endeavor where multiple parties from more than one country seek to optimize outcomes by combining resources from multiple sites, organizations and cultures (Scott et al., 2011).

In the European Union, cross-border mobility and transport policies allow individuals, goods, and services to benefit from free transit thanks to the abolition of border control between the Member States, which results in making transport quicker and a central role in the social life and economy. As part of the EU transport policy, it is recognized the Europe-wide network between countries strengthens territorial and economic cohesion. However, to improve and further develop the integration of the region, better infrastructure connections are necessary to live up to the EU objectives of a fully connected European core network by 2030 (European Union, 2021).

To develop and deliver these large interventions and projects seems no easy task considering the long duration of the projects, the spatial dimension, the large investments needed and the numerous stakeholders and shareholders involved. Due to the complexity present in large infrastructure projects and cross-border projects, the combination of different organizations and their resources is necessary and beneficial as it enriches the project and prepares it to endure the challenging conditions of these type of interventions. Although this interorganizational collaboration is crucial for the good development of projects, often incompatibilities arise in the form of differences in normative, cultural, regulatory aspects which leads to circumstances of institutional complexity (Greenwood et al., 2011) causing interaction problems that adversely influence the project performance. This interfirm collaboration has then become a crucial point of attention since overcoming the different management practices and organizational processes of partners has been deemed essential for the development and success of cross-border projects.

In view of the above, several recent projects could serve as an example of the importance of aiming for interoperability and addressing institutional aspects as crucial for accomplishing the purpose of cross-border projects. A particular complex case could be that of the Brenner Base Tunnel (BBT) which is currently under construction in the Eastern Alps and will serve as a major passenger and freight connection between Austria and Italy. Given the importance the project has on trans-border mobility for the EU, and the relief it would represent for freight transport, the BBT has acquired immense attention from contiguous and distant regions and many stakeholders. Among the pool of stakeholders, contradictory needs and conflicting interests have been present which has made the consensus building of the project much harder and demanding than initially thought of. As a result of this, the PDO has been undergoing a process of strengthening the organization to face these external forces which heavily weigh on the decision-making. Thus, even though strategies for improving

collaboration within the PDO and external groups have been appointed, the current practice still presents weaknesses for aligning global interests and goals. As a result of this mismatch, the project has continued suffering in the decision-making process by failing to reach agreements or come up with extreme solutions that hamper the forecasted costs and time. (Fabbro, 2015)

1.2 PROBLEM ANALYSIS

Attending to the objectives of the EU, policies such as the TEN-T and funding instruments as the Connecting Europe Facility (CEF) for Transport, aim at supporting improvements in cross-border projects by upgrading the nine network corridors and facilitate access to all European regions (European Commission, 2019) (European Union, 2020). And although the rail network has significantly improved, there is still a lot of work ahead when trying to cope with the different technical and operational characteristics and administrative procedures of each nation, plus to address the interoperability problems.

Infrastructure cross-border projects by nature rely heavily upon the interaction and cooperation carried out by the different parties involved. This cooperation is necessary to close the gap in distinctive challenges posed by distance, dispersion and network complexity. Distance referring to the difference in how institutions or organizations operate, their beliefs, traditions and rule systems. Dispersion referring to the geographic spread of the different parties involved, and network complexity dealing with interconnected and complex webs of formal and informal relationships among participants (Scott et al., 2011). In particular, and according to the European Union Agency for Railways, the railway form of transport is the only out of all the modes that do not have global rules and where procedures may vary from country to country adding extra complexity to the management of projects. This then creates a large interoperability problem which affects the efficiency of transport by entailing delays and costing large amounts to companies who need to seek authorization for rolling wagons in different countries (European Commission, 2008, p. 59).

The European Directive 2008/57/EC defines interoperability as *the ability of a rail system to allow the safe and uninterrupted movement of trains which accomplish the required levels of performance for these lines.* However, according to the European Commission (2008), this ability only regards regulatory, technical and operational conditions as essential requirements for achieving interoperability. Nonetheless, added to the need to tie regulatory, technical and operational aspects to reach interoperability as considered by the European Commission, the present proposal argues we must also address the organizational aspect so compatible procedures can be implemented among the Project Delivery Organization (PDO) involved in the development of a joint venture.

Across literature the term of *collaborative relationship* or *partnering* has addressed the several forms on which an interorganizational collaboration can be established, ranging from long-term purchasing agreements, supply-chain partnerships, R&D teams, strategic alliances, coalitions, joint ventures and consortia (Spekman, 1998; Suprapto, 2016). In the construction industry the term partnering can be differentiated depending on the longevity of a project, either long-term partnering lasting the duration of several projects or a one-off project partnering. Regardless of the duration of the partnership, this union is recognized as a commitment between two or more organizations for the purpose of achieving

specific objectives (Ingirige & Sexton, 2006). Since this collaborative relationship of multiple organizations is deemed to be essential in cross-border projects, differences in organizations' sets of institutional aspects become relevant as organizations have to deal with multiple and sometimes contradictory logics or ways of thinking (Greenwood et al., 2011) for achieving their objectives. Trying to reconcile these differences may be problematic as the conflicting parties – even if engaged in a partnership relation - are usually not willing to relent on their set of beliefs and adopt new ones, which in turn ends up affecting the project in extra costs, time, quality, (Mahalingam & Levitt, 2007), and damages in relationships among the different parties. In light of the above, it can be seen that different sources agree that to achieve interoperability and succeed in the management and development of cross-border projects, different aspects besides the technical feature need to be tackled as well.

1.3 RESEARCH OBJECTIVE

The present research has the objective of addressing the importance organizational differences has in a cross-border project so PDOs can acknowledge it and tackle it as part of the strategic repertoire of organizations rather than just an operational convenience. Therefore, the aim is to identify the different interorganizational obstacles railway cross-border projects can encounter during the execution phase and explore how these are handled by organizations. Hence, similar projects can learn from this experience and approach the interorganizational incompatibilities with a clear strategy.

1.4 RESEARCH SCOPE

This graduation project is conducted in collaboration with Netlipse, a network consisting of various independent public partner organizations involved in the development and delivery of Large Infrastructure Projects (LIPs) in the European Union. Among the interest of Netlipse, the development and dissemination of knowledge in particular of topics of organizational and managerial nature are relevant so organizations can learn from a varied set of infrastructure projects.

The current research will focus on railway cross-border projects within the European Union borders and the interorganizational challenges the multiple Project Delivery Organizations from across countries often face during the execution stage of a project. According to Hertogh & Westerveld (2010), to define the term of Project Delivery Organization within LIPs seems difficult as these type of groupings are organized in different ways across the industry ranging from public to private and function in a wide and complex system of stakeholders. To offer a basic definition of the term, the PDOs can be seen as the parties who undertake the management of a project on behalf of the client. Given their position of serving the interests of clients and being intermediaries between their parent organizations and external stakeholders, these teams tend to experience organizational complexity in LIPs. Thus, in cross-border projects where usually there is more than one PDO coming from different nations, these national implementing bodies seem to encounter an extra layer of complexity as organizations have to also cope with the different interests and practices from a partner organization.

In order to explore the challenges multiple PDOs encounter across the EU, different cross-border railway projects are looked into. For the purpose of this research and its findings to fit into a broader perspective across projects in the EU, the selection of projects is not limited to specific countries but

is rather encouraged to embrace different geographies. Further project selection criteria can be found in section 4.1.

1.5 REPORT STRUCTURE

The present chapter contains the Introduction to the research. Chapter 2 continues with the Research Design and the explanation of the Double Diamond methodology. Chapter 3 contains the Literature Review. Chapter 4 elaborates on the Case Studies. Chapter 5 contains the Cross-case Analysis. Chapter 6 continues with the elaboration of the Framework. Chapter 7 presents the Expert Validation on the proposed framework. Chapter 8 elaborates on the Discussion and Limitations of research. Finally, Chapter 9 ends with the Conclusion and Recommendations for further research.

2. RESEARCH DESIGN

Chapter 2 is divided in three sections. Section 2.1 presents the main research question and sub-questions to be addressed in the following chapters to achieve the research objectives. Section 2.2 explains the research methodology to carry out and how each research question will be addressed. In section 2.3 the scientific and practical relevance of this research will be described.

2.1 RESEARCH QUESTIONS

Having set the objectives for the current research, the main research question has been formulated as:

How to address organizational incompatibilities to improve the process of achieving interoperability in cross-border projects?

To facilitate answering this question, a set of sub-questions has been formulated:

SQ 1: What are the interorganizational incompatibilities that can be identified from literature?

SQ 2: What are the key interorganizational incompatibilities to focus on from practice?

SQ 3: What improvements are required in the current practice to overcome interorganizational incompatibilities in cross-border projects?

SQ 4: What is the applicability and feasibility of the proposed framework for implementation?

2.2 RESEARCH METHODOLOGY

The research project is practice-oriented; hence this research will aim to contribute to an identified problem to improve the existing condition (Verschuren & Doorewaard, 2010). The research method will follow the design process of the Double Diamond method designed by the Design Council to explore an issue by emphasizing first divergent thinking and exploring an issue deeply, and then convergent thinking by focusing and taking action (Design Council, 2019). This research has followed the theoretical line of the method as seen in Figure 1 below.

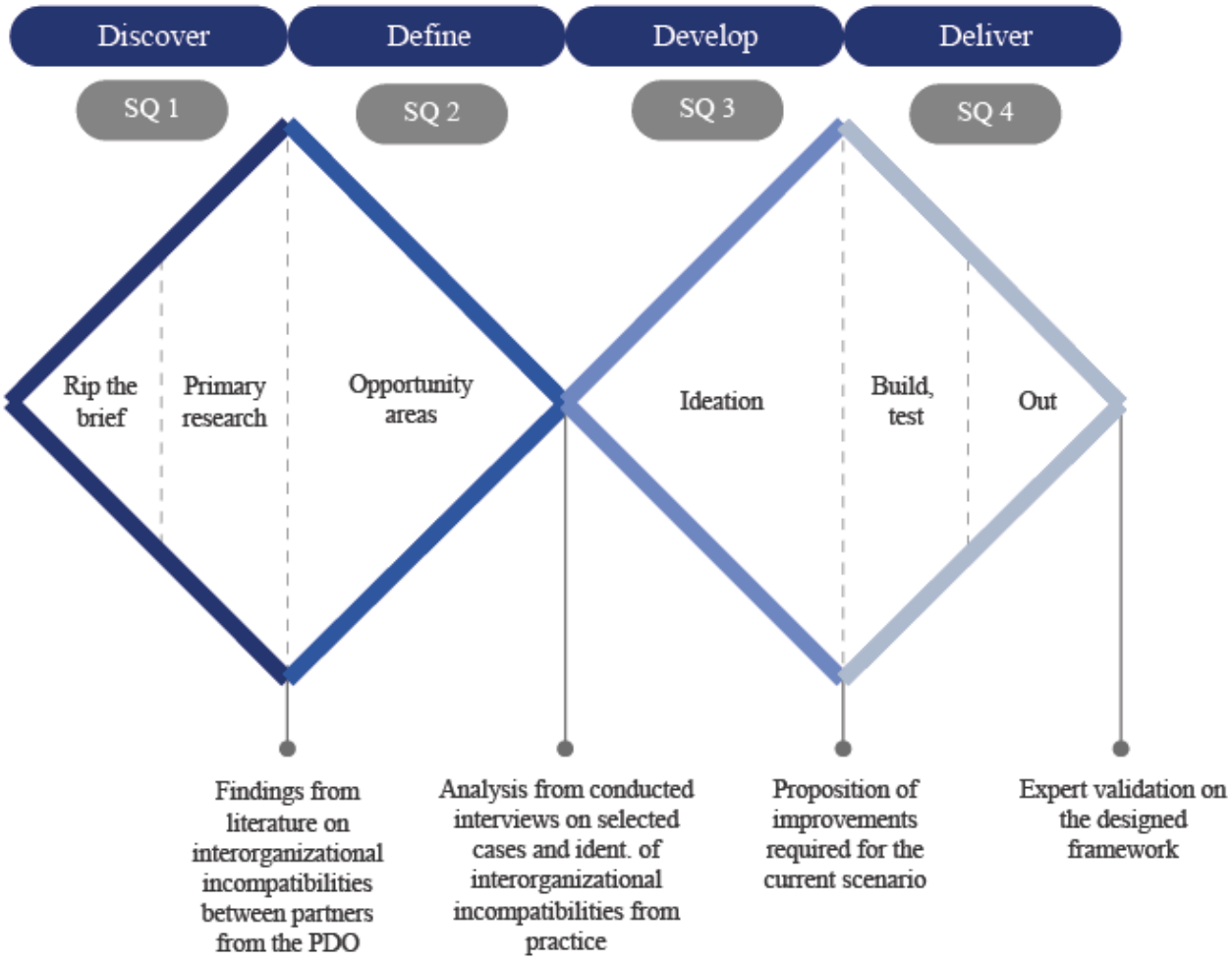

Figure 1: Double Diamond research method applied

This process model is represented with two identical diamonds which connect in one of their corners, in each of them the dual thinking of divergence and convergence occurs through four stages to either think broadly and expand possibilities or more narrow and bring back focus when necessary. As a general overview, in the first diamond, the focus is on the problem, first, a discovery stage occurs which consists of gathering data and learning more about the problem. The second stage is about defining the problem and synthesizing the findings from the first stage so we can formulate our questions of interest. The third stage is about developing or ideating a solution by putting together all the findings from diverse sources. The final stage is delivery, this stage aims at building a final solution, test it and to improve the strategy as necessary. Following the very nature of the design approach method, one sub-research question will be addressed in each of the four phases.

2.2.1 DISCOVER STAGE

The first stage of the research method is focused on a literature review to collect relevant information available regarding interorganizational incompatibilities in cross-border projects. The aim of this step

is to explore the challenges that are often faced in these type of projects and how these broadly affect the development and management of a project. The study began by making use of Scopus and Google Scholar platforms where key words such as "Cross-border projects", "Global projects", "Organizational incompatibility" and other were used to explore on the topic. Despite the topic of interorganizational incompatibilities is shown to have received little attention, this exploratory stage allowed to provide a theoretical framework to be the base for the following research phases and so answer the first sub-question of this research.

2.2.2 DEFINE STAGE

In tune with the nature of an exploratory investigation, the second phase of this research will be carried out through case studies and semi-structured interviews. As Yin (2003) highlights, the use of case studies in exploratory investigations is adequate as this type of research usually addresses contemporary situations that have not been studied in depth before.

As a first step in this define stage, desk research was performed on the selected case studies. By doing this, comparable information was obtained in matters of the projects' facts and figures, organization and the main objectives and goals of the project.

As a second step, six semi-structured interviews were conducted in two case studies with experts who were involved in the selected cases as part of the PDO. As interviews had an exploratory character, their aim was to investigate the interorganizational challenges present in practice and delve into how different PDOs deal with them. This step in the research is considered to be of importance as the qualitative data obtained brought focus into confirming the presence of challenges in practice and observing similarities or differences across the case studies. In turn, this collected information across case studies served to complete a cross-case analysis and in this way lay the foundations for the subsequent stage of the research. Using the interview data, the second sub-question is answered.

2.2.3 DEVELOP STAGE

The third stage of the research method focuses on the actual ideation of a solution to the problem discovered in the first two stages through diverging thinking. The question addresses what changes are necessary to be put in place to overcome organizational incompatibilities in an international PDO. Hence, based on the results from the Discover and Define stage, a framework has been developed so PDOs can use it as a guideline to establish a collaborative relationship in cross-border projects. The framework consists of a set of strategies designed to tackle the identified challenges PDOs regularly face in matter of organizational issues, so these do not negatively affect the established performance of the project. The set of strategies are formulated in clusters that reference the process of evolution of strategic alliances, thus, each strategy is suggested to be implemented in a particular stage. Having developed the framework, the third sub-question is answered.

2.2.4 DELIVER STAGE

As a last stage, convergent thinking is used for the Deliver phase where the proposed framework is validated through four individual expert meetings. The expert sessions were held with professionals from the industry including project managers and academics with experience and knowledge in international projects and organizational challenges The sessions were conducted online with a semi-

structured format mainly divided in two segments. The session format used can be found in Appendix D.

The first step of the session started with a brief introduction of the research followed by an explanation of the results obtained from practice and the proposed framework. As a second step, the researcher addresses open questions regarding the usefulness and applicability of the framework. Having conducted the expert validation by professionals involved in the industry the framework acquires a level of legitimization (Dul & Hak, 2007, p. 47) and thus avoids one common disadvantage of the case studies research method. With this last step sub-question 4 is answered.

2.3 RESEARCH RELEVANCE

According to Durand and Thornton (2018) recent emphasis has been put on how organizations respond to the multiple and even conflicting institutional logics that lead to institutional complexity, yet the subject has not been studied in depth in cross-border projects or in the construction industry in general.

2.3.1 SCIENTIFIC RELEVANCE

In today's ambitions towards connecting nations across borders while collaborating with multiple entities, this study investigates empirical data of organizational challenges multiple international Project Delivery Organizations face in cross-border projects. Although current literature has displayed the effects multiple logics and management styles have on organizations working together, less attention has been paid to how these organizations respond to the complexity that arises from interorganizational incompatibilities (Greenwood et al., 2011). Further, the current research will focus on the organizational process of how certain effects occurred and under what conditions rather than solely targeting the impacts of such effects. Moreover, despite the little empirical data that can be currently found in literature, the present project will aim to share what firms or organizations have learned as they continue to accumulate global experience and so unpack the black box that the topic currently represents.

2.3.2 PRACTICAL RELEVANCE

This research aims at being a stepping stone that will help enhance the understanding of the unique issues organizations face in cross-border projects. Likewise, it is expected this research opens a new discussion in the Netlipse network on interorganizational incompatibilities the Project Delivery Organizations often encounter, rather than continue focusing on the relationship client-PDO in domestic infrastructure projects.

3. LITERATURE REVIEW

As the first stage of Discover in the Double Diamond research method, this chapter provides a literature review regarding the most frequent interorganizational incompatibilities and provides an answer to the first sub-question formulated as:

What are the interorganizational incompatibilities that can be identified from literature?

The keywords used to find the literature were "Cross-border projects", "Global projects", "Organizational incompatibility", "Institutional complexity" and "Organizational complexity". However, since the number of articles of interest seemed pretty limited, to broaden the results the keywords "Megaprojects" and "Railway projects" were also used. By using these keywords the results expanded and after a close inspection, it was observed some cross-border projects are catalogued as megaprojects and not as cross-border. Digital platforms as Scopus and Google Scholar have been used to gather literature of interest.

In order to answer the first sub-question, Chapter 3 is structured as follows. Section 3.1 aims at defining the concept of interorganizational incompatibility. Section 3.2 explores state of the art literature on the topic. Section 3.3 gathers the findings of different authors on interorganizational incompatibilities in cross-border projects. And section 3.4 presents the proposed theoretical framework.

3.1 INTERORGANIZATIONAL INCOMPATIBILITY

In this section the concept of interorganizational incompatibility are addressed. Various definitions from literature are discussed and a definition of the concept are determined.

3.1.1 DEFINITION OF INTERORGANIZATIONAL INCOMPATIBILITY

The term *interorganizational incompatibility* refers to the extent to which logics from different organizations provide contradictory prescriptions for action (Greenwood et al., 2011). Other researchers like Qiu et al., (2019) highlight that when organizations are confronted with incompatible cognitive systems, institutional complexities arise due to this incompatibility of logics which then hinders organizations to reach a consensus or agreement in the matter. These incompatibilities can exist between any set of organizations working together. However, in projects defined as cross-border, incompatibilities are more likely to arise as organizations were developed in different social environments and are dealing with multiple organizational logics.

Given the nature of these projects, multiple organizations form a conglomerate of heterogenous actors which are present as a response to the specific technical and managerial requirements. As a result of this diversity in cultural and organizational backgrounds, it is common different logics exist and therefore the project organization will be subject to institutional contestations (Biesenthal et al., 2018).

3.2 STATE-OF-THE-ART ON ORGANIZATIONAL COMPLEXITY

According to Hertogh et al., (2008), the implementation of LIPs entails a greater difficulty than the implementation of smaller-scale projects since the former are usually greater in dimensions, have a larger impact on their surroundings, take longer from initiation to delivery and have a large number of stakeholders involved. These unique challenges have been pointed out as the causes why LIPs are often over budget, overtime and commonly do not fulfill the expectations of shareholders. These challenges and unique situations have caught the attention of practitioners that sought to study these projects and develop strategies to efficiently deploy LIPs. In this search to understand the root causes for the poor performance of LIPs, practitioners such as Hertogh & Westerveld (2010) distinguished six types of complexities, such as Technical, Social, Financial, Legal, Organizational and Time complexity.

Cross-border projects, as a subset of Large Infrastructure Projects, have to deal with these complexities as well, which most certainly are exacerbated as the international factor of projects brings extra intricacies on most of the types of complexities presented. Among the six types of complexities mentioned, the complexities that can have a greater impact on cross-border projects are those of Social, Legal and Organizational nature. As mentioned before, LIPs, and thus cross-border projects have to be in close contact and cooperate with various stakeholders and attend to their interests in a balanced manner so the project implementation is carried out within the legitimacy of stakeholders. As a result of the magnitude of these projects and varied interests of several parties, it is not uncommon to find stakeholder heterogeneity and social resistance due to low levels of trust on at least one of the institutional environments or PDO to develop and deliver the project, which can result in hindrance in the implementation of the project (Witz et al., 2021).

Likewise, the Legal type of complexity is considered to be of importance in case of cross-border projects, as regulatory voids can be present due to a lack or underdevelopment of institutions that can bridge and enforce regulations and laws. In most countries, institutional set-ups at a national level are traditionally inward-looking to meet their needs within the border, so when cross-border projects are introduced, institutions are not prepared to meet challenges in a cross-border arena (Hansen & Serin, 2010). This lack of a single or deficient regulatory system provokes a project to find itself at crossroads between different regulatory environments, which in turn may threaten the foundations for effective and efficient project development, increase the uncertainty of a project and its partners and increase transaction costs (Liedong et al., 2020). Similarly, the Organizational complexity is recognized as critical in the implementation of LIPs as it is the project organization who is in charge to cope with each of the identified complexities. And as indicated in the work of Hertogh & Westerveld (2010), it seems that this overall complexity present in LIPs, is usually replicated in a complex and diverse type of organization managing a project (Hertogh et al., 2008). Thus, the organization results in being a complex grouping that must be prepared to face the changing dynamics of projects by adapting and reacting to the pressures from external shareholders and partner organizations.

The Netlipse organization has researched the challenges managers of LIPs usually face. As part of their mission to be an interactive network of professionals from across Europe gathering to disseminate knowledge gained, Netlipse, identified 8 project management themes through the study of 15 LIPs through which a project can be assessed, monitored, benchmarked and evaluated (Staal-Ong et al., 2008, p. 93). These 8 themes are Objectives and Scope, Stakeholders, Financial Management,

Organization and Management processes, Risks, Contracting, Legal consents and knowledge and Technology. Relevant aspects to be handled by the PDO within the framework of this research being Stakeholders, Organization and Management, Contracting and Legal consents, as will be portrayed below.

The themes of Stakeholders and Organization and Management are closely related to the social and organizational aspects studied by Witz et al., (2021). However, from the research performed by Netlipse, the Contracting and Legal consent themes turned out to be influential on the PDO for carrying out a successful project. Coincidentally, in these two themes, the best practices include the Oresund cross-border project between Denmark and Sweden. Regarding the theme of Contracting it was found that it is essential that the roles of all involved parties are clearly defined so a strong and open relationship can be maintained. However, due to the complexity of projects and the seldom perfect contracts, it was found that the attitude and quality of relations of the PDO towards the contractor and external parties influenced positively the compliance to contracts and the emergence of organizational issues within these parties. So forth showing a positive correlation between the established quality of relations between parties and the compliance with contracts. As regards to the theme of Legal consent, it was considered overriding for the national governments and the PDO to aim for recognizing their differences within the legal framework and trying to synchronize them rather than seeking to change basic laws on the two nations developing a cross-border project (Hertogh et al., 2008).

3.3 IDENTIFICATION OF INTERORGANIZATIONAL INCOMPATIBILITIES IN CROSS-BORDER PROJECTS

As mentioned, infrastructure global projects by nature rely heavily upon the interaction and cooperation between the different parties and countries involved. In cross-border projects, this cooperation is necessary to close the gap in distinctive challenges posed by distance, dispersion and network complexity. However, challenges do not end with physical distance, interorganizational incompatibility also poses a special set of barriers that are deemed essential for different partners involved in the development of a cross-border project.

As Biesenthal et al., (2018) claim, megaprojects have different variables to be considered when managing than those of conventional or domestic projects due to their embeddedness in particular institutional frames. Similarly, other authors argue that challenges for cross-border projects do not end with physical distance, but rather get more complex due to institutional differences between organizations. These institutions or organizations are comprised of regulative, normative and cultural-cognitive elements, which on their own, embody different logics and mechanisms to operate (Orr & Scott, 2008; Javernick-Will & Scott, 2010). Table 1 below presents the institutional differences from their research.

Institutional element	Factors	
Regulatory	• Laws and regulations • Operating laws	• Design and construction standards • Approval processes • Knowledge of government
Normative	• Work practices • Relationships • Market knowledge	• Social norms, expectations and local preferences • Industry organization (professional roles and unions)
Cultural-cognitive	• Local cultural beliefs	• Language/concepts/meanings

Table 1: Types of institutional knowledge (Javernick-Will & Scott, 2010)

Delving into these layers, regulatory elements include formal regulations and rules that govern behavior such as laws, building codes and permits, approval processes and monitoring and sanctioning activities. Regulations may be created by transnational authorities, nation-states or else, likewise individual organizations such as firms also issue rules, monitor the behavior and attempt to enforce compliance by their participants. Normative elements include the formal and informal norms, values and practices that introduce a prescriptive and obligatory dimension to social life. They set the expectations for codes of conduct and behavior and define the legitimate means to pursue desired ends. Cognitive-cultural elements refer to the shared beliefs, identities, logics of action and mental models. Individuals and collectives who do not share the same set of beliefs will frame events in somewhat different ways and will assess and respond in different ways (Orr & Scott, 2008; Mahalingam & Levitt, 2007).

As a result of this variety and heterogeneity of logics it is not uncommon to experience struggles when different actors interact. These struggles are often provoked by institutional entrepreneurs which are actors who are able to mobilize resources to realize their interests by aiming to break existing rules and practices and impose their own (Garud et al., 2007). The presence of institutional entrepreneurs is one of the reasons why megaprojects – and in that sense cross-border projects – often fail to meet their goals. Widely spread actors, each with their own resources that are critical to the project, bring with them a specific set of logics which they are not willing to relent, and instead of joining efforts and cooperate with one another, they obstruct the decision-making process of projects and their governability (Biesenthal et al., 2018).

Similarly, Qiu et al., (2019) elaborated on the complexities emerging from multiple partners collaborating on the development of a cross-border project after studying a case study in Asia. He found that conflicting organizational logics and complexity came to being because projects are highly embedded in a diverse set of sociopolitical environments and because they are also closely associated with multiple actors within one single project organization. According to him, incompatibilities arise from the external or macro-level environment and internal actors or the micro-level environment. Incompatibilities are then caused by six aspects: Cultural complexity, Relational complexity and Evolutionary complexity belonging to the micro-level environment, and Political complexity, Social

complexity and Regulatory complexity belonging to the macro-level environment. The identified categories of complexities are presented in Table 2.

Level	Category	Outcome
Micro-level	Cultural complexity	• Conflicting attitudes
	Relational complexity	• Interactive uncertainty from multiple organizations being involved in the project
	Evolutionary complexity	• Hindered cooperation with new organizations joining the project
Macro-level	Political complexity	• Conflicting demands for the decision-making process
	Social complexity	• Constrain decision-making as to how to respond to the public
	Regulatory complexity	• Incongruent regulations among the region's project standards. • Constrain to the project's scope and actors' behaviors

Table 2: Institutional logics (Qiu et al., 2019)

Ozorhon et al., (2010) through the surveying of 68 professionals from 28 companies researched the aspects that influenced the performance of a joint venture where at least two partner organizations were working together in an international environment. The concept of performance encompassed the extent to which the project objectives were realized, the effectiveness of management control and the perceived satisfaction by the PDO partners. The study recognizes that the projects managed by more than one entity must be addressed and researched separately since partner organizations usually have different managerial systems, philosophies, attitudes, and may be competitors as well as collaborators. In this research, it was hypothesized that the project performance was influenced by internal and external factors, and that these either directly or indirectly impact each other. The focus of those internal factors were on the quality of relations between partners and their organizational fit, while external factors focused on foreign conditions to the PDO and their partners. Table 3 below presents the variables researched and the key factors included.

Level	Category	Factors	
Internal	Strategic and organizational fit	• Goal congruency • Host country experience • Similar project experience	• Managerial skills • Size of partners
	National culture fit	• Power distance • Individualism • Masculinity	• Uncertainty avoidance • Long-term orientation
	Organizational culture fit	• Process versus results-oriented culture • Employee versus job-oriented culture	• Open versus closed system • Normative versus pragmatic orientation
	Interpartner relations	• Commitment • Communication • Cooperation	• Previous cooperation • Conflict resolution • Trust
	Structural characteristics	• Extent of management control • Distribution of ownership	• Completeness of joint venture contract
External	Host country conditions	• Political stability in host country • Macroeconomic conditions in host country	• Strength of the legal system in host country
	Familiarity with conditions in the host country	• Familiarity with language • Familiarity with business practices	• Familiarity with political and legal system • Familiarity with culture
	Project-related factors	• Relations with other project parties • Competence of other project parties	• Completeness of project definition

Table 3: International Joint Venture Performance (Ozorhon et al., 2010)

The criteria for determining the variables that influence an International Joint Venture are seen as multidimensional and variables show a high level of interrelatedness which results in an overlap of dimensions. Due to this overlapping, the study then segregates the eight determinants of IJV performance into five multidimensional groups, these being Interpartner fit, Interpartner relations, Structural characteristics, Host country-related factors and Project-related factors, pictured below in Figure 2.

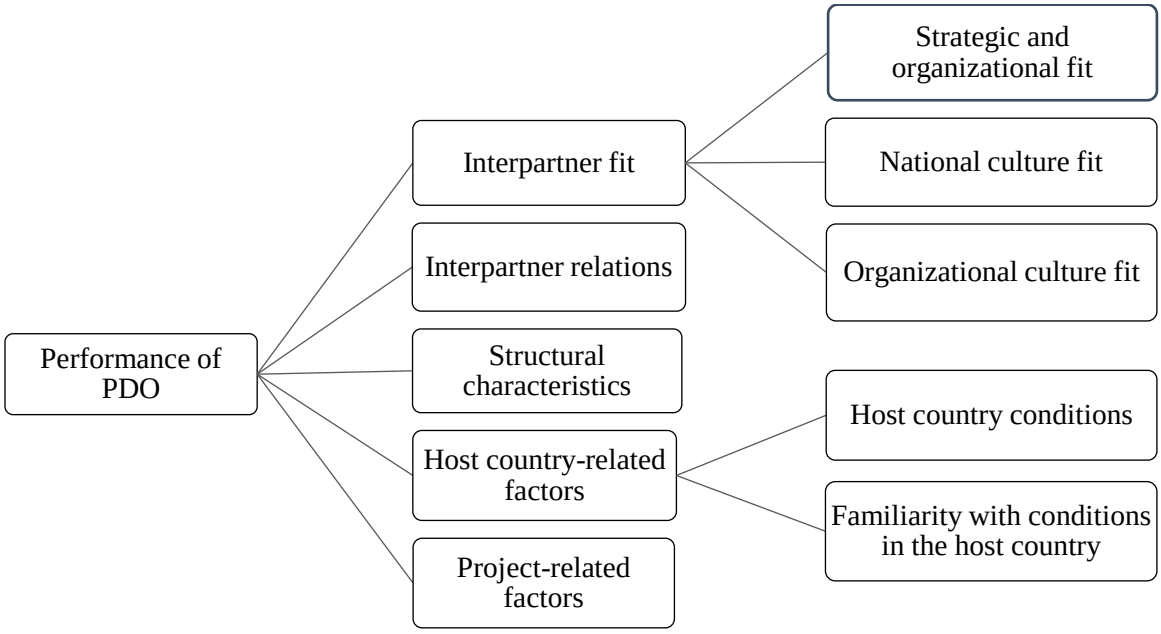

Figure 2: Five major groups for performance of international PDO (Ozorhon et al., 2010)

Researchers found that the variable of Interpartner relations was the one that influenced the performance of an international venture the most. It was identified that by addressing the potential misunderstandings and coordination difficulties that can arise from the differences in managerial or organizational practices, organizations can work better on the joint goal set. This is because it appears having compatible resources enhances the relationship between partners. In addition, it was shown that within the Interpartner relations category, the factors that had more influence were cooperation, communication and trust. The second most influential variable was Interpartner fit through its sub variable of National culture fit, and the third most influential variable was Structural characteristics. On the other hand, no significant influence of Strategic and organizational fit, Host country conditions, and Familiarity with conditions in the host country were found.

Among these different researches presented, Table 4 below contains all categories causing interorganizational incompatibilities, and their presence across authors. Likewise, those categories that are more commonly found across literature are highlighted.

Categories for interorganizational incompatibilities	Orr & Scott, 2008	Qiu et al., 2019	Ozorhon et al., 2010	Mahalingam & Levitt, 2007	Hertogh et al., 2008	Hertogh & Westerveld, 2010
Regulatory	✓	✓		✓	✓	✓
Normative	✓	✓	✓	✓	✓	✓
Cultural	✓	✓	✓	✓		
Evolutionary		✓				
Interpartner fit			✓			
Interpartner relations		✓	✓		✓	✓
Political		✓				
Project-related factors			✓			
Host country-related conditions			✓			
Structural characteristics			✓		✓	

Table 4: Matrix of categories for interorganizational incompatibilities

3.4 THEORETICAL FRAMEWORK

Based on the findings, a theoretical framework has been developed by selecting those variables with a higher presence across the literature so there are further looked at in this study. Considering some variables are more commonly found than others, these then take a more leading role to focus on as their presence in the literature could indicate also high frequency in practice or high impact when these incompatibilities are found. Despite the varying naming of categories across literature, it is seen there is a match among the different researchers about what they consider influential interorganizational incompatibilities on cross-border projects. Table 22 in the Appendix contains the category name given per author in their respective research and where it was clustered to the selected variables portrayed in Table 5.

The designed theoretical framework will serve as a link between the findings from literature on incompatibilities and those brought up by the interviewees in the following stage. Considering only relevant aspects with a high presence in the literature are included in the framework, these were

addressed in the interviews and further looked into if brought up by the interviewee. Likewise, the theoretical framework served as an initial frame for allocating issues later found in the case studies.

Category	Definition	Author
Regulatory elements	Formal regulations and rules that govern behavior and reinforced by surveillance activities and backed by sanctions	(Orr & Scott, 2008) (Mahalingam & Levitt, 2007) (Qiu et al., 2019) (Hertogh & Westerveld, 2010) (Hertogh et al., 2008)
Normative elements	Informal norms, values, standards, practices that guide behavior and decisions	(Orr & Scott, 2008) (Mahalingam & Levitt, 2007) (Qiu et al., 2019) (Hertogh & Westerveld, 2010) (Hertogh et al., 2008) (Ozorhon et al., 2010)
Cultural elements	Shared nature of beliefs, identities, logics of action and mental models	(Orr & Scott, 2008) (Mahalingam & Levitt, 2007) (Qiu et al., 2019) (Ozorhon et al., 2010)
Interpartner relations	The nature of the relationship between partners related to their commitment, communication, cooperation, conflict resolution and trust	(Qiu et al., 2019) (Hertogh & Westerveld, 2010) (Hertogh et al., 2008) (Ozorhon et al., 2010)
Structural characteristics	The extent of management control imposed on the joint venture through ownership distribution and completeness of the contract regulating their activities	(Hertogh et al., 2008) (Ozorhon et al., 2010)

Table 5: Theoretical framework of interorganizational incompatibilities

3.5 CONCLUSION

Based on the findings in this chapter, the first sub question can be answered.

What are the interorganizational incompatibilities that can be identified from literature?

As presumed earlier, it was proposed that the interoperability definition given by the European Commission was incomplete as it only considered conditions of regulatory, technical and operational nature to accomplish interoperability in cross-border railway projects. As found in literature, the regulatory aspect is considered relevant as it was found quite frequently as a trigger for interorganizational incompatibilities among the PDOs. Nonetheless, as this is an aspect where the PDOs nor the client have the opportunity to shape it to their convenience, it is important to further

investigate how does the existence of incompatible regulatory systems affects a PDO by adding complexity to their relationship and how do these PDOs deal with the issue.

The normative aspect was the most frequently found across the literature. As this aspect is deeply ingrained within the institutional culture of organizations, to adapt values and practices between different partners can be challenging. Similarly, organizations build their own culture from their surroundings and customize their rules, practices and codes of conduct to it. So, whenever these set of norms is confronted with another, incompatibilities may arise resulting in conflicts of interaction that beset collaborative ventures. As found in the research from Ozorhon et al., (2010), the normative aspect, - called Organizational culture fit by the researcher -, has a strong influence on the interpartner relations. Incompatibilities in this dimension may result in conflicting behaviors and interaction problems which in turn directly affect achieving the project's goals. Coupled with it, the normative aspect has a moderate influence on other dimensions such as interpartner relations and structural characteristics governing the relationship between different PDOs. Therefore, it is important to continue to research it as PDOs have a opportunity for improvement since this aspect can usually be influenced by them.

Closely related to the normative aspect is that of interpartner relations. Interpartner relations are considered to be one of the aspects that can be managed from the inside of the organization, even though external parties such as stakeholders can have an influence on it by indirectly adding complexity to the relationship between different PDOs. This added complexity can in turn affect PDO from the inside as partners may think of different strategies to address stakeholders and thus create barriers for cooperation and conflict resolution. This will further be addressed in the case studies.

The structural characteristic is another internal aspect that can be shaped by the PDOs. Especially in cross-border projects, this variable is of importance as a single project is co-owned and managed by two or more clients and Project Delivery Organizations. The clarity of distribution of ownership and responsibilities of the PDOs can prevent the emergence of conflicts or in turn increase the probability of having them. Nonetheless, although this aspect only emerged in two researches, it is appraised as important since further study could shed some light on how the hard characteristics of contracting and governance can cloud incompatibilities between organizations.

Lastly, the cultural aspect has been one where opposing views have been found. While some researchers argue the cultural aspect has been overestimated and in practice, cultural differences do not have a strong influence on the emergence of interorganizational conflicts, other researchers argue the opposite. Several authors report that differences in national culture can be associated with the dissimilarities in the interpretation of and responses to managerial issues and act as a source for poor communication, cooperation and commitment from the PDO partners. Due to the opposing views of researchers and as variable inherent in internationality, the cultural element is also included in the theoretical framework.

Category	Definition
Regulatory elements	Formal regulations and rules that govern behavior and reinforced by surveillance activities and backed by sanctions
Normative elements	Informal norms, values, standards, practices that guide behavior and decisions
Cultural elements	Shared nature of beliefs, identities, logics of action and mental models
Interpartner relations	The nature of the relationship between partners related to their commitment, communication, cooperation, conflict resolution and trust
Structural characteristics	The extent of management control imposed on the joint venture through ownership distribution and completeness of the contract regulating their activities

Table 6: Frequent identified interorganizational incompatibilities from Literature

4. CASE STUDIES

This chapter contains an overview and the findings from the case studies through desk research and conducted semi-structured interviews.

This chapter is composed as follows. Section 4.1 elaborates on the case selection criteria for the outline. It discusses in detail case selection criteria, the selected cases, the data collection approach, the selection of interviewees, the interview protocol and the retrieved data. Section 4.2 is dedicated to the case study and analysis of Rail Baltica project. Section 4.3 discusses the case study and analysis of Zevenaar-Oberhausen rail connection.

4.1 CASE STUDY OUTLINE

4.1.1 CASE SELECTION CRITERIA

In order to obtain generally descriptive assertions and be able to compare and analyze the case studies, selection criteria have been set as:

- Railway projects in the European Union
- One or more border crossings
- Distribution across the European Union is encouraged

The case studies are distributed across the EU so they share the macro-political and economic system of the EU that allows them to have comparable conditions. Besides, the distribution across the EU may also shed some light on how the cultural background of nations cooperating in cross-border projects, can influence the surge of interorganizational incompatibilities.

- Execution phase

Interoperability can be hindered from the conception of the project until delivery and operation due to regulatory, technical and operational conditions. However, by selecting projects which are currently in an execution stage, the empirical research may discover patterns or resemblances in these projects and how these barriers are being treated in the respective cases.

- Availability of the case study and its interviewees

Given the empirical data obtained from the case studies was essential to continue with the following sections, the availability of interviewees was an important point to consider.

4.1.2 SELECTED CASES

	Project	Location	Brief	Phase
C1	Rail Baltica	Lithuania, Latvia and Estonia	870 km long greenfield rail transport project which will integrate the Baltic States into the European rail network	Early execution
C2	Zevenaar-Oberhausen rail connection	The Netherlands and Germany	75 km long track to connect the Betuweroute line across the German network in Oberhausen	In execution

Table 7: Case studies

Considering the above mentioned criteria, only two projects were optimal to be part of this study. A total of four projects were initially considered and invited to participate in this research. Due to the very early stage of execution of one of the projects, the invitation was declined by a member of the Management Board. The third project, was discarded in a later stage of research due to time constraints of the Joint Venture.

4.1.3 DATA COLLECTION

In order to later conduct a set of exploratory interviews with professionals participating in the selected cases, first, desk research on the projects was performed through digital platforms to get an insight in the PDO and overall project. This allowed to have a more meaningful conversation with the interviewees as the researcher had a frame for reference.

As a second step in this stage of the research, semi-structured interviews with experts took place. During the interviews, an inductive approach would aim to identify the causality of interorganizational issues and recognize patterns and relationships within the case studies. In addition, the interviews will also reveal if the findings from the literature review match those present in practice or in turn reveal interorganizational incompatibilities that have not been scientifically documented.

4.1.4 SELECTION OF INTERVIEWEES

Due to the practical nature of the present investigation, the selection of interviewees is considered of importance in order to obtain relevant information and useful insights from a trusted source (Dul & Hak, 2007).

Since the focus of this research is on the encountered interorganizational incompatibilities within Project Delivery Organizations, a main criterion was that the respondents were part of the PDO team or if externals, it was desired they had close and regular contact with the PDO. Considering the incompatibilities within the PDO are thought out to be present in any area of the organization, it was not necessary for the interviewee to exclusively belong to a specific area of the PDO. Although it was rather preferred the interviewee was part of the management team or was in a position with frequent contact with the partner organization. Two strategies to contact potential interviewees were used. The first strategy was to do snowball sampling so initial informants could refer other respondents if they complied with the criterion and were thought of as possible informants which could bring valuable

insight to this research (Verschuren & Doorewaard, 2010). The second strategy was for the researcher to venture herself into contacting people through e-mail if their information was public.

Another important consideration was the willingness and availability of respondents (Rowley, 2012). Considering the two projects are currently under execution and respondents have a busy schedule, it was essential to take this into account to offer flexibility for conducting the interviews and have the respondents on board. A total of thirteen people were invited for an interview in the final case studies, yet only six of them accepted the invitation. Table 8 below presents the interviewees' roles in the specific project along with an assigned code for identification.

Case	Code	Interviewee Position	Organization
C1	Int.1.1	Country Manager	RB Rail AS
	Int.1.2	Consultant on Integrated Project Delivery models	Brainteam
	Int.1.3	Head of Strategic Stakeholders and Communication	RB Rail AS
	Int.1.4	Chief Programme Management Officer	RB Rail AS
C2	Int.2.1	Interface and operational manager	Attica
	Int.2.2	Project Coordinator	ProRail

Table 8: Case studies' interviewees

4.1.5 INTERVIEW PROTOCOL

For each project, a different number of interviews - based on the availability of professionals - were held with members involved in the Project Delivery Organization. Each interview lasted between an hour and hour and a half, depending on the availability of the interviewee. Given the interviewees are located in different countries across Europe, most of the interviews were arranged via videoconferencing, except those of the case study of Zevenaar-Oberhausen rail connection which were held in person. A semi-structured and explorative set up is used to frame the interview questions, the complete interview protocol can be found in Appendix C. The following shows how the interviews were structured.

The first part of the interview consisted of an introductory talk on the topic. The concept of interorganizational incompatibility was not mentioned, although some of the organizational challenges cross-border projects face were briefly mentioned so the interviewee had a frame of reference of the type of barriers that were of interest. Next, an open question was addressed about the type of incompatibilities or challenges the PDO had faced in the project of interest and how were these dealt with by the organization. Up next, and if considered needed by the researcher to diversify the answers from the informant, the categories from the theoretical framework were addressed in an open dialogue. In addition, it was asked about the affecting consequences of such incompatibilities and what strategies were put in place to solve the issues that arose.

Finally, once the previously identified variables from literature were addressed, the interviewee was asked if relevant aspects according to his experience in cross-border projects were not addressed. For concluding the interviews and with the intention of making the interviewee reflect, it was asked what in his opinion could people and organizations do better to deal with the identified barriers.

4.2 CASE STUDY 1: RAIL BALTICA

4.2.1 CASE INTRODUCTION

Historically, the Baltic States have had strong ties with the countries of Eastern Europe, Western Asia and in particular with Russia. Reflecting this strong relationship, the current rail transport services are mainly provided in an East-West axis and operating in an incompatible gauge system to that of the rest of Europe, which makes the connection between these two regions impossible. However, in the mid 90`s the concept of a railway project connecting these two regions surged and was then consolidated in 2004 with the inclusion of the Baltic States into the European Union.

Despite the challenges ahead such as the technical interoperability of different gauges between each of the Baltic States, and the neighboring countries of Poland and Germany, a declaration of intent to continue with the project was signed in 2006 and then ratified in 2010. The project took a big step forward when in 2015 the European Commission approved funding from the Connecting Europe Facility (CEF), along with the national governments of Lithuania, Latvia and Estonia (Veebel et al., 2019). According to the studies performed in 2017 during the planning phase, these are some of the main goals of Rail Baltica connection:

- Creation of the north-south route to attend to the interest of the EU and improve the connection with Western Europe.
- The railway connection is planned for passengers and freight transport, and will be powered by electricity so that emissions are avoided and the project complies with the goal of carbon neutrality by 2050 in the EU.
- Passenger trains will operate at a maximum speed of 249 km/h and freight trains at 120 km/h.

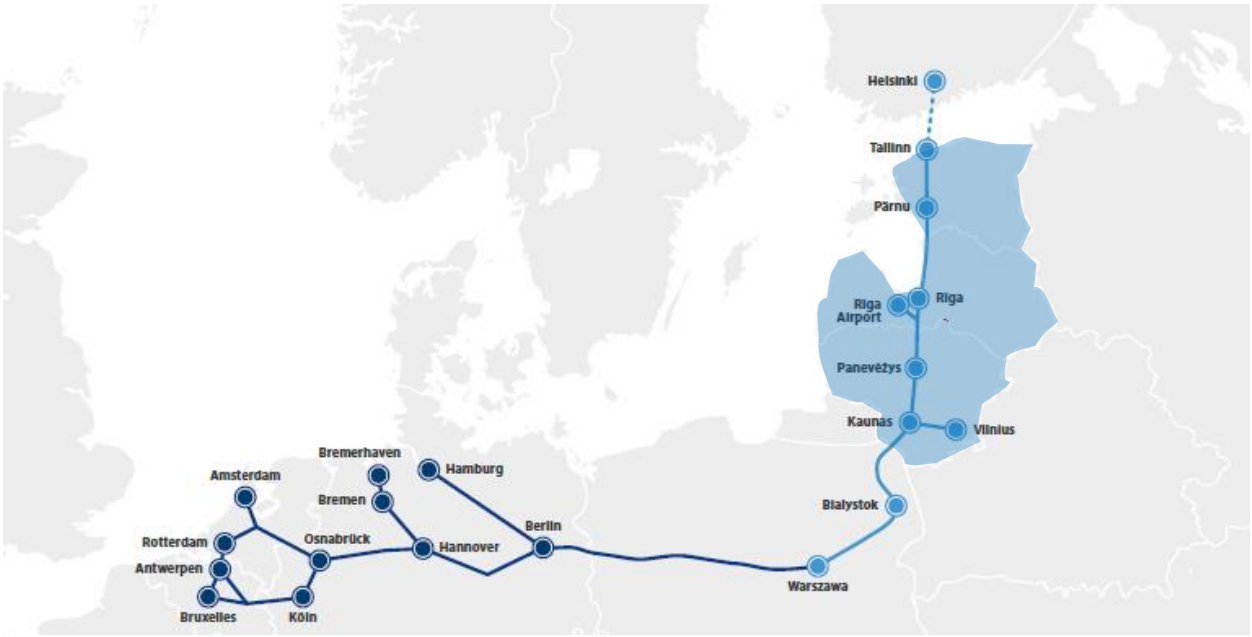

Figure 3: Rail Baltica map (Connecting Europe Facility, n.d.)

4.2.2 PROJECT FACTS AND FIGURES

Table 9 presents relevant facts and figures of Rail Baltica project.

	Facts and Figures
Countries	Lithuania, Latvia and Estonia
Construction	Primarily green field
Purpose	Integrate the Baltic States into the European rail network
Length	870 km
Estimated Cost	€5.8 Billion
Project Financing	85% EU (CEF), Lithuania, Latvia and Estonia
Milestones	2004 – Rail Baltica included in TEN-T priority list 2014 – RB Rail AS Joint Venture established 2017 – Land acquisition scheduled to begin 2019 – First design contract for the Rail Baltica main line signed 2026 – Expected start of operation

Table 9: Rail Baltica project facts and figures (Rail Baltica, n.d.)

4.2.3 PROJECT ORGANIZATION

As with many publicly owned infrastructure projects, Rail Baltica is being implemented by the three national governments and funding parties – Lithuania, Latvia and Estonia. In turn, in 2004 the three ministries of transport – beneficiaries - of each country came together to establish the international joint venture RB Rail AS, which acts as the main coordinator for the development of the project. Among the various tasks of the IJV, this main coordinator is responsible for the design, construction and marketing of the line. Additionally, RB Rail AS as the representative to external organizations, also submits EU financing proposals on behalf of the beneficiaries, while also serving as the central body for all purchases and the contracting authority for most tenders.

Each of the three funding member states has a national branch which acts as the implementer of the project in its own country, each of these branches is exclusively state-owned and has equal shares in the ownership of RB Rail AS. The reason an IJV was established as the coordinator of the project is to get a fair playing field for each of the national governments by representing their interests. In the same manner, it was considered acting as one united front would positively contribute to guarantee a successful project implementation and so ensure interoperability.

As an IJV equally owned by all three member states, the Supervisory Board of RB Rail AS consists of six members, two members appointed by each beneficiary. In turn, the Management Board is comprised of four members, the Chairperson of the Management Board, Chief Financial Officer, Chief Operating Officer and Chief Technical Officer, which membership must be accepted by all beneficiaries and replaced every three years. Rail Baltica Project Delivery Organization is shown in Figure 4 (Rail Baltica, n.d.).

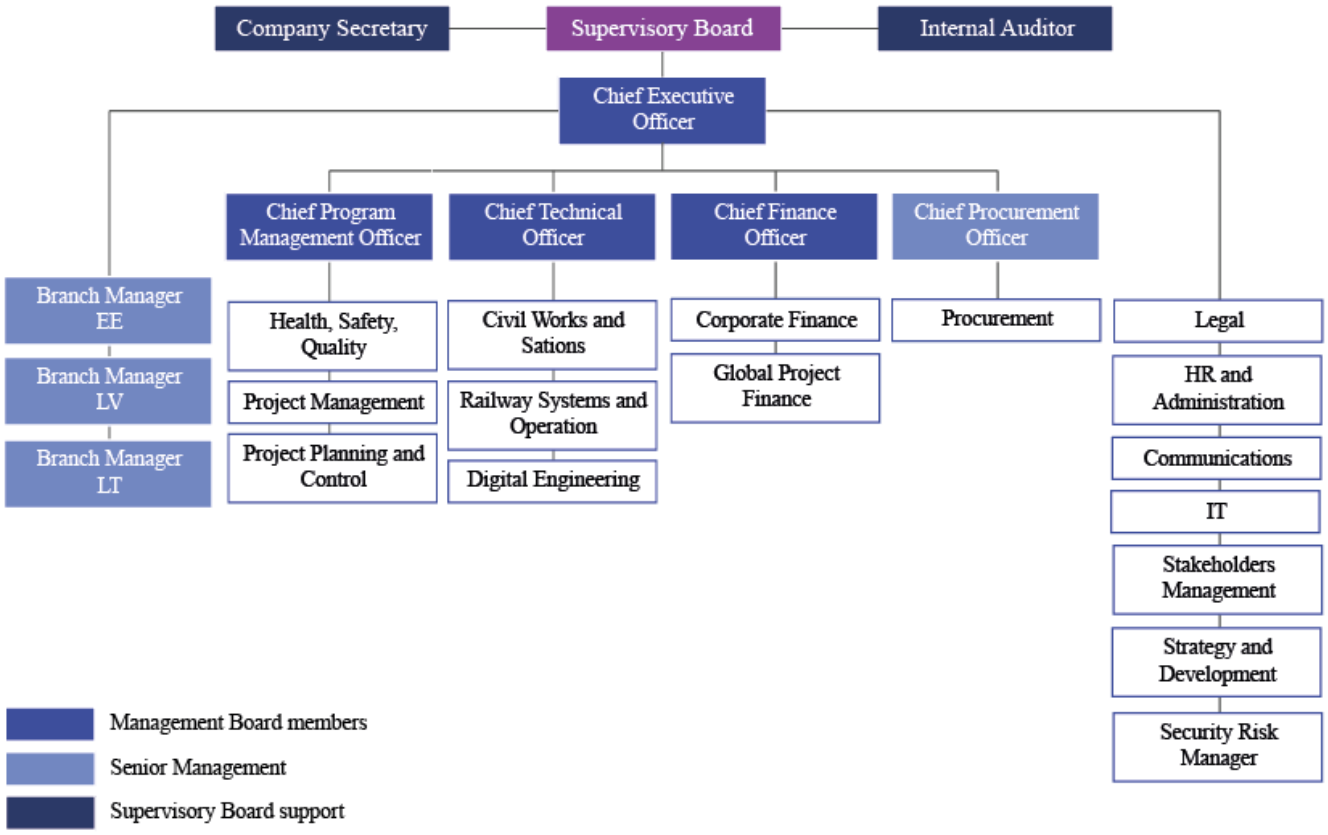

Figure 4: Project Delivery Organization structure Rail Baltica (Rail Baltica, n.d.)

4.2.4 ANALYSIS OF IDENTIFIED INTERORGANIZATIONAL INCOMPATIBILITIES

Int.1.1 had been working in Rail Baltica project for four years now and is Country Manager of one of the branches of the implementing bodies, his position in the organization structure above is included as part of the Senior Management. Int.1.2 is an external consultant on Integrated Project Delivery models and is currently advising the IJV on IPD and Alliance models. Int.1.3 is a senior expert appointed year and a half ago as Chief Programme Management Officer and member of the Management Board of the IJV and his position in the organization structure above is marked as part of the Supervisory Board. Int.1.4 is currently Head of Strategic Stakeholders and Communications, and previously he was Country Manager of one of the implementing bodies for five years. His current position is directly linked to the Chief Executive Officer shown in the figure above.

All interviewees considerations are based on personal experience on the project, the difference in perceptions can be attributed to the level of involvement of the interviewees with the PDO. The areas of attention on organizational incompatibilities raised by the interviewees are described in Table 10:

Incompatibility	Description and Analysis	Source
Regulatory		
Differences in regulations and legislations	**Description**: Even though all countries are members of the EU, they also have different legislations that regulate aspects from the technical character to the approvals process in each country.	Int. 1.3, Int. 1.4
	Analysis: As the project is mainly greenfield, the process of route approval and land expropriation was of importance to progress in the project and its next phases. Yet, each country moved at a different pace which caused uncertainty on the established timeframe to complete the Global project.	
Normative		
Differences in management approaches	**Description:** The presence of multiculturalism in professionals can bring different views on how to approach and deliver a project and relate to people.	Int. 1.4
	Analysis: It was perceived that this aspect was on one hand influenced by a cultural dimension where people are bound to a specific belief and way to act based on their cultural background. On the other hand, having professionals – usually foreigners - with more international experience than the locals, highlighted the different approaches and sets of beliefs people consider are better for the project.	
Matrix organization system	**Description:** Members were required to report to their branch manager and to the project manager that oversees the function horizontally across the different country branches. Despite the matrix structure was selected to be implemented because of their apparent benefits on allowing interdepartmental communication, the structure has brought confusion as responsibilities and a chain of command are not clearly defined.	Int.1.1
	Analysis: It wasn't identified the cross-border nature of the project added an extra barrier for the matrix system to succeed. Yet, it is a probable cause that the physical distance across subordinates and at least one of their managers adds an obstacle for the system to be ideal for this type of project.	

Incompatibility	Description and Analysis	Source
Decision-making avoidance by subordinates	**Description:** Two reasons for this issue were brought up by the interviewees. First, freedom of action for the implementing bodies is currently not prescribed in a legal framework which provokes a tendency of subordinates delegating decisions to the top managers. Second, decision making now follows a top-down approach given that relevant information is of knowledge among people in the top management but not shared with the rest of the members.	Int.1.1, Int.1.2,
	Analysis: In order for subordinates to be willing to make decisions, two actions must be in place; decision-making powers must be prescribed for the implementing bodies and its people and transparency on information must exist.	
Culture		
Language and communication	**Description:** The PDO faces difficulties for communicating given that all three countries have different languages but communicate either in English, French or Russian.	Int.1.1, Int.1.4
	Analysis: A common language is used for all implementing bodies, yet basic misunderstandings and misinterpretations are caused by communicating in a foreign language. Difficulties in communication are also produced if people have little or no experience in cross-border or international projects.	
Interpartner relations		
Divergent interests	**Description:** The implementing bodies have divergent interests which haven't been able to negotiate. Given historical data on the complex decision-making process, partners often opt for decisions that will not require a lot of negotiation.	Int.1.4
	Analysis: Issues in decision-making originate from the lack of aligning interests and perception of mistrust towards the partners. Given the divergent interests and the lack of objectives alignment, a fully embedded relationship hasn't been achieved. As a result of the continued neglecting of interests, partners often skive the prolonged negotiation process and instead settle for the most accepted or easiest option even though it might not be in the project's best interest.	
Skepticism towards partners	**Description:** There is a perception that the implementing bodies do not share all their intentions with the others and there is a lack of transparency between them. Skepticism towards PDO partners causes a lot of second guessing especially in the decision-making process which then provokes a complex drawn out decision-making process.	Int.1.4

Incompatibility	Description and Analysis	Source
	Analysis: Transparency in information among the PDO is key and this later evolves into trust when the predictability and expectations of other's actions match the action performed. The presence of skepticism within the PDO affects the quality of collaboration and communication as partners feel the need to keep information and their intents to themselves.	
Interpartner fit		
Lack of a common integration plan	**Description:** There is a lack of goal congruency among the different implementing bodies which causes a constant discussion between the Global project perspective and the different national perspectives.	Int.1.2, Int.1.3, Int.1.4
	Analysis: One common integration plan is considered a key aspect to focus on for the project to succeed. The lack of a common plan is a sign of an unaccomplished embedded relationship characterized by a lack of trust and commitment. The absence of these elements tends to motivate the fear of opportunistic behavior. While the coordinators of the IJV push the different implementing bodies to align their goals, these different parties haven't been able to reach a fully embedded partnership. As a result, each branch pursues its own national interests which produce a constant discussions on the direction of the global project.	
Lack of similar project experience	**Description:** While the Lithuanian parent organization had relatively more experience with large projects, the other two organizations not so much. Yet, no project of this scale has been built before in the region. Given the lack of a similar project to have been built, there was a scarce number of national people with the needed skills and expertise to join the team. Also, all nations had different levels of experience with delivering projects of domestic nature on their own.	Int.1.4
	Analysis: Different project experience among partners can cause the national branches take different approaches to develop and deliver the project. While an experienced party may have the capacity to foresee and prepare for this type of project, another may be unaware of possible issues. Given the scarce number of nationals with the necessary experience to join the team the Management Board of coordinators and the implementing bodies welcomed the idea of recruiting expats.	

Incompatibility	Description and Analysis	Source
Differences in national PDO structures	**Description:** Each implementing body in the different countries has set their organization different. They all vary in size, capabilities and experience. While one of the countries decided to keep their organization small and instead get consultants to manage the construction on their behalf, the other two countries – with their particular differences - opted for growing their own organizations and develop capabilities within them and so be more involved in the project.	Int.1.4
	Analysis: A difference in national PDO structures can open the gap between all three implementing bodies more. Practices, capabilities and processes can significantly vary as the organizations grow different in structure and size.	
Politics		
Cross-border projects are often politically lead	**Description:** The political driven agenda can hamper the development of cross-border projects. Given that these types of projects are planned to be executed during a specific time and have a great external pressure to start and deliver as foreseen, often organizational aspects of projects are underrated.	Int.1.1
	Analysis: To rush into the commencement of a project can provoke basic aspects of time, people and organization are overlooked.	

Table 10: Rail Baltica identified interorganizational incompatibilities

4.2.5 Findings on Case study 1: Rail Baltica

Table 11 below presents the variables identified in the specific case study. Next to the enlisting of variables found, the incompatibility issue is briefly mentioned.

Interorganizational Incompatibilities	
Variables from Framework	**Incompatibility**
Regulatory	• Differences in regulations and legislations
Normative	• Differences in management approaches • Matrix organization system • Decision-making avoidance by subordinates
Culture	• Language and communication
Interpartner relations	• Divergent interests • Skepticism towards partners
New Variables Found	**Incompatibility**
Interpartner fit	• Lack of a common integration plan • Lack of similar project experience • Differences in national PDO structures
Politics	• Cross-border projects are often politically lead

Table 11: Rail Baltica short table on interorganizational incompatibilities

Next, Table 12 below presents suggestions the PDO could put in practice for the aforementioned incompatibilities. The source of these suggestions is rooted in ideas brought up and discussed during the interviews conducted.

Incompatibility	Suggestion
Regulatory	
Differences in regulations and legislations	As an external variable to PDOs and projects, differences in laws and regulations should first be appraised. If the incompatibility is strong enough to hamper the development of the project, a harmonization in laws and regulations should be addressed as early as possible to the relevant institution. It is important to mention to harmonize laws and regulations does not necessarily mean to modify them and make them the same. But depending on the level of harmonization needed, the establishment of a neutral body or self-regulation can be employed.
Normative	
Differences in management approaches	Different approaches in management were mainly recognized between people with different project experience. While in this case, the issue is seen as an incompatibility it should rather be seen as an opportunity for knowledge sharing between the most experienced practitioners and the rest. As one of the strengths of IJVs, knowledge sharing can be facilitated as integration between organizations is procured. Therefore, knowledge sharing and integration can be seen as a collective process of construction and redefining of beliefs and practices so complex tasks can be performed through collective input.
Matrix organization system	Currently, the project does not report benefits from using the matrix organization system. Thus, it is recommended the system should be replaced by one with a clear chain of command. If desired to keep the current system, it is suggested to plan physical meetings periodically as face-to-face interactions are considered as more effective by the informants.
Decision-making avoidance by subordinates	For an employee to be willing to make informed decisions, to have the necessary information is key. Thus, transparency on information should be established either by Integrated Project Delivery tools such as the Big Room concept, such as suggested by an informant. Or through technology tools such as a shared database.
Culture	
Language and communication	Language qualifications should be put in place according to the position to be occupied by the employee. Similarly, employees in positions where strong communications skills are necessary should continue with formation on these.

Incompatibility	Suggestion
Interpartner relations	
Divergent interests	The existence of divergent interests provokes either drawn-out processes of negotiation or the settlement for a suboptimal decision. In order to avoid the above, to set a stronger governance system where the Main Coordinator can make decisions without the need to consult the national branches would bring speed to the decision-making process and look after the best interests of the project.
Skepticism towards partners	Formally all the implementing bodies have a binding agreement to develop a joint project. Yet, it is suggested they should invest resources in building trust so they can openly share their true interests and so forth aim for achieving group and individual goals.
Interpartner fit	
Lack of a common integration plan	Different organizations might be driven by a varied set of interests that may not always be aligned. While a conscious effort must be made to align these interests and obtain a global project plan, agreements may not be reached. In these cases, to have a strong governance structure capable of decision making and lead efforts towards a common goal might be of help.
Lack of similar project experience	In an attempt to cope with the incompatibility, the Management Board of coordinators and the implementing bodies have resorted to recruiting expats and welcome them to the team or hiring external consultants. While both strategies have their perks, to welcome experienced international employers to the team offers the opportunity to enrich the knowledge of the nationals and develop capabilities within the national branches.
Differences in national PDO structures	Given the different national PDO structures grow independently attending to their wishes and capacity, it is suggested a single body or Main Coordinator should govern their interactions. In line with the above, the Main Coordinator should have the capacity to approach each national branch according to their own structure. Yet, it is recommended a basic level of practices and organization is standardized so as to make the coordination and information flow more efficient.
Politics	
Cross-border projects are often politically lead	Even though politics is considered an exogenous aspect of the project, it is recommended intergovernmental agreements should be put in place to ensure the project continuity and support on all spheres of government across nations.

Table 12: Rail Baltica suggestions on incompatibilities

4.3 CASE STUDY 2: ZEVENAAR-OBERHAUSEN RAIL CONNECTION

4.3.1 CASE INTRODUCTION

The Zevenaar-Oberhausen connection is part of one of the main branches of the Rhine-Alpine Corridor from the TEN-T program. The importance of the connection lies in its geographical location which results in one of the busiest freight routes in Europe as the route connects major EU economic centers. In general, it is considered the route has no major missing links; however, bottlenecks are currently present due to the increased traffic flow and the intense demand on the route. In order to respond to the current insufficient capacity, in early 2000 national governments came together to start planning a third track between Zevenaar in the Netherlands and Oberhausen – via Emmerich - in Germany.

The connection from Zevenaar to Oberhausen is 75 km long, out of which 3 km comprise the Dutch section and 72 km the German section. The intent to improve and better connect the Netherlands and Germany came with the decision to build the Betuweroute line which connects the port of Rotterdam with Zevenaar at the Dutch border. Due to the relevance the port of Rotterdam has in international freight, a declaration of intent to link these two countries with a third railway track was signed in 2007, the same year the Betuweroute line opened for operation. Among the goals set for the Zevenaar-Oberhausen project, these are some of the most relevant:

- Construction of a third track to solve bottlenecks in the route
- Upgrading of stations and replacing level crossings with flyovers
- Installation of ERTMS Level 2 equipment at the cross-border section and install ERTMS on the whole line

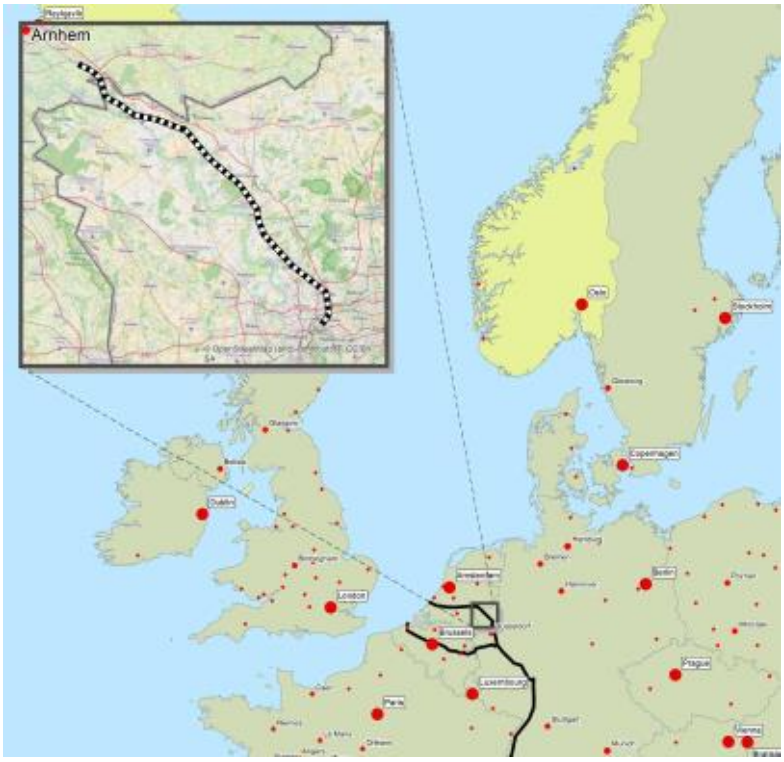

Figure 5: Zevenaar-Oberhausen rail connection map (Milieu Ltd., 2016)

4.3.2 PROJECT FACTS AND FIGURES

Table 13 presents relevant facts and figures of Zevenaar-Oberhausen project.

	Facts and Figures
Countries	The Netherlands and Germany
Construction	New third track and line, bridges and stations upgrades
Purpose	Respond to the expected increased capacity of international freight and passenger trains in the Rhine-Alpine Corridor
Length	75 km in total
Estimated Cost	€1.5 Billion
Project Financing	Unknown
Milestones	2007 – Start of operations of the Betuweroute line 2007 – Declaration of intent between Transport Ministries in The Netherlands and Germany 2012-2015 – Public consultations and Final Routing Decision contested in court 2016 – Voltage changeover in the cross-border section started 2026 – Completion of the complete track until Oberhausen, Germany

Table 13: Zevenaar-Oberhausen rail connection facts and figures (Milieu Ltd., 2016)

4.3.3 PROJECT ORGANIZATION

The project is being developed by the two national railway managers, ProRail in The Netherlands and DB Netz in Germany, who had been working together since the planning and layout of the project. The collaboration of the two organizations started in 2010 when several bilateral working groups were established for the design of the connection. Currently, there are nine working groups divided by specialties made up of workers from both organizations and directly linked to the Technical working group.

As German and Dutch railway systems do not have standard interfaces that fit easily together, specifications and designs were needed to determine how technical and organizational interfaces would be defined. As a result, both organizations agreed early on in the process to appoint each of them an interface manager through which information and communication would flow. Once the interface manager was set-up, ProRail and DB Netz agreed on the specifications, allowing them to define a plan for time and scope of the following activities (Milieu Ltd., 2016). The Project Delivery Organization structure is shown in Figure 6.

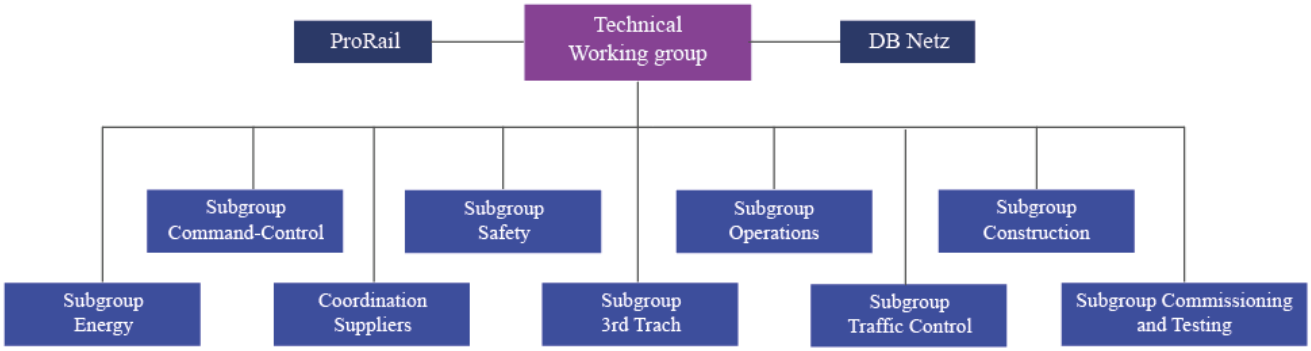

Figure 6: Project Delivery Organization structure Zevenaar-Oberhausen (ProRail, 2021)

4.3.4 Analysis of identified interorganizational incompatibilities

Int.3.1 is part of the Dutch team through an external consultancy in charge of delivering an interface and operational plan. His position within the organization structure above is located in the Technical working group as he overviews all other technical subgroups together with the German counterpart. Int.3.2 was the project coordinator appointed by ProRail for six years, 2014-2020. He joined the project after the front-end phase was concluded and the execution began. Similar to Int. 3.1, his position within the organization was in the main Technical working group.

The areas of attention on organizational incompatibilities raised by the interviewees were as follows:

Incompatibility	Description and Analysis	Source
Regulatory		
Differences in regulations and legislations	**Description:** Design and construction standards were different in both countries. Especially on a technical level, incompatibilities were present in the form the trains were powered - DC and AC – and the technical complexity this added to the project. Also, early in the design and construction phase, the signaling system – ERTMS – represented a challenge as DB Netz wasn't familiar with it and their network did not comply by the time with the European standard.	Int.2.1, Int.2.2
	Analysis: In addition to the differences in regulation, disparity in the update level of infrastructure on both countries can represent an issue as one nation may have more work to perform and more learning to do than the other.	
Normative		
Different practices	**Description:** Practices were seen as different in both organizations. On the Dutch side the standard was that the project coordinator could reach anyone within his organization. While on the German side, every department involved in the project had its own manager and processes for decision-making. This caused that no one person could represent the	Int.2.2

Incompatibility	Description and Analysis	Source
	whole German organization and issues on the project took longer to be solved.	
	Analysis: An explanation to the above can be related to the closeness normative aspects – attitudes and practices - have with national culture.	
Culture		
Language and communication	**Description:** Due to differences in national language, the common language to use was English, yet it was reflected language would still represent a barrier. Misunderstandings would appear since there was no exact translation on something the sender of a message wanted to transmit.	Int.2.2
	Analysis: People wouldn't be able to convey a message so accurately in English as they would do it in their first language. Also, it seemed that misunderstandings in language coupled with a lack of experience on similar projects added complexity for communicating since people wouldn't be able to fill in the gaps of language by relating the situation to previous experience.	
Differences in national culture	**Description:** One of the interviewees reflects on culture being the cause for different practices and even the structure of the German organization. A relevant cultural dimension perceived was the hierarchical way of working on the German side. As a result, German workers knew their power limitations and up to where they had authority for decision-making.	Int.2.1, Int.2.2
	Analysis: Current research on cultural dimensions gives a good insight into cultures and their traditional social behavior.	
Interpartner fit		
Size of partner organization	**Description:** DB Netz organization is considerably larger than ProRail. In early phases of the project this led to ignorance on both organizations on to which departments and persons to turn to.	Int.2.2
	Analysis: Difference in organizations' size had mainly an impact on communication and the speed for reaching the right person. Issues in communication would cause for messages to be lost or not delivered as intended.	

Table 14: Zevenaar-Oberhausen identified interorganizational incompatibilities

4.3.5 FINDINGS ON CASE STUDY 2: ZEVENAAR-OBERHAUSEN RAIL CONNECTION

Table 15 below presents the variables identified in the specific case study. Next to the enlisting of variables found, the incompatibility issue is briefly mentioned.

Interorganizational Incompatibilities	
Variables from framework	**Incompatibility**
Regulatory	• Differences in regulations and legislations
Normative	• Different practices
Culture	• Language and communication • Differences in national culture
New variables found	**Incompatibility**
Interpartner fit	• Size of partner organization

Table 15: Zevenaar-Oberhausen rail connection short table on interorganizational incompatibilities

Next, Table 16 below presents suggestions the PDO could put in practice for the aforementioned incompatibilities. Similar to the previous case unit, the source of these suggestions is rooted in ideas brought up and discussed during the interviews conducted.

Incompatibility	Suggestion
Regulatory	
Differences in regulations and legislations	As considered by the practitioners, even though laws and regulations are rigid and exogenous to the PDO, differences have been dealt with internally as there is room for maneuver. Differences in this category as in any other are more easily resolved if partners have a good relation. Rather than solely appealing to the technical knowledge of people, a good interpartner relation was key.
Normative	
Different practices	It is recommended a level of organization and harmonized practices should go hand in hand according to the degree of integration national PDOs will have in this cross-border project. Thus, it is considered it is not necessary for national organizations to develop in the exact same manner, rather it is recommended to harmonize basic practices to have more effective processes.
Culture	
Language and communication	Similar to the previous case, it is recommended people who have constant contact with the partner organization have a good command of the official language so as to avoid miscommunication. An alternative strategy that emerged in the project was the flexibility to communicate in an alternative language – either Dutch or German – across teams in both organizations.

Incompatibility	Suggestion
Differences in national culture	In this particular case, it was thought differences in national culture were not the main issue. Yet, it is an advantage for international PDOs to count on professionals with cross-cultural experience as part of the project management team as they might be more aware of these challenges in multinational teams. Nevertheless, in projects where differences in national culture might be more pronounced, the issue could be addressed through the employment of training or workshops.
Interpartner fit	
Size of partner organization	A strategy already implemented by the organizations was to appoint each an interface manager in charge of the communication. This resulted in having a clear channel of communication through which information would flow in speed.

Table 16: Zevenaar-Oberhausen rail connection suggestions on incompatibilities

5. CROSS-CASE ANALYSIS

As part of the second stage of the Double Diamond research method, this chapter uses the findings from Chapter 4 in a cross-case analysis where commonalities and differences found in the case studies and across practice are exposed. This chapter provides an answer to the second sub-question formulated as:

What are the key interorganizational incompatibilities to focus on from practice?

This chapter is composed as follows. Starting in Section 5.1 and until 5.7 each of the categories discussed in the previous chapter are addressed. All issues or incompatibilities found are also linked with literature to bring an extra insight on how the particulars are seen, either supported or not by literature. Section 5.8 presents the conclusion of this chapter and provides an answer to the mentioned sub-question.

In Chapter 3, a proposed theoretical framework was presented, which contained the most relevant variables present across literature. The framework contained five categories of incompatibilities commonly found among PDOs when developing an infrastructure cross-border project. Following the structured approach of the Double Diamond method, for the literature review, there were no targeted aspects within the categories to look into, as the goal was to use divergent thinking and explore the topic as much as possible. After having conducted empirical research through interviews, it was now the aim of this section to focus on those aspects that were recognized by interviewees as incompatibilities and in what form were they shown. The categories found across the case studies and the interorganizational incompatibilities are listed in Table 17 below.

From Table 17, it can be seen that a majority of the incompatibilities identified were found in the first case study, eleven incompatibilities against five from the second case. A reason for this can be that for the first case, four members of the PDO were interviewed, whereas there were only two people interviewed for the second case. In addition, an extra element that can be source to an incompatibility and that was found across literature as relevant is that of Formal agreements and management control which was allocated into the Structural characteristics category.

Category	Incompatibility	C1	C2	Literature
Regulatory	Differences in regulations and legislations	✓	✓	
Normative	Differences in management approaches	✓		
	Matrix organization system	✓		
	Decision-making avoidance by subordinates	✓		
	Differences in practices		✓	
Culture	Language and communication	✓	✓	
	Differences in national culture		✓	
Interpartner relations	Divergent interests	✓		
	Skepticism towards partners	✓		
Interpartner fit	Lack of a common integration plan	✓		
	Lack of similar project experience	✓		
	Differences in national PDO structures	✓		
	Size of partner organization		✓	
Politics	Cross-border projects are often politically lead	✓		
Structural characteristics	Formal agreements and management control			✓

Table 17: Framework of identified interorganizational incompatibilities from Case Studies

5.1 REGULATORY

Historically laws and regulations are different in every country of the EU, these incompatibilities can affect cross-border projects differently depending on the project and countries involved. In the railway industry these differences can be observed in the technical parameters and standards, border crossing procedures, planning and approval processes of the project, among others. Such laws and regulations determine the rules of the game for cooperation in cross-border projects by providing a clear framework to reduce uncertainty and limit arbitrary decision by project participants. As seen in the past, when cross-border projects are heavily affected due to a mismatch on national regulations, authorities have proven to be flexible on the issue when they have the capacity to oversee and monitor (Global Infrastructure Hub, n.d.).

As seen in the studied cases, both projects played with this flexibility in a different manner. Due to the different regulatory systems and the project being made up of three nations, the IJV of the first project obtained a mandate to define its common technical standards and procurement. This concession allowed the IJV to agree on design guidelines and common procurement without the need to include diverse institutions from all implementing bodies. As recognized by the interviewees, the legitimacy and continuity of the mandate was only effective as the organization had to prove itself to EU institutions. This in turn brought a sense to the implementing bodies to be their own vigilantes and behave as expected.

On the other hand, the second project which consists of only one border crossing tried to adhere to regulations as much as possible and only played with flexibility in technical specifications when there was room for it. To exemplify the above, an incompatibility became visible when the new track had to be inserted between a relatively modern Dutch line – The Betuweroute – and a relatively outdated German line. Ahead of its time, the Dutch Betuweroute was built already using common standards and Technical Specifications for Interoperability (TSIs) to eliminate future obstacles when connecting the line with the rest of Europe. However, as the German organization was still operating on national standards, regulatory and technical complexities were present when they were forced to replace them with common European standards.

As recognized earlier, national regulatory systems and their institutions are traditionally inward-looking. As a result, this forms a regulatory void as there is a lack of institutions to bridge and enforce regulations between countries. In these types of cases, self-regulation is often adopted to address existing gaps in governments' regulations. And although this is a strategy that can work, specific conditions have been identified to be essential for this to succeed. First, government regulators must have sufficient resources to monitor and sanction the self-regulating entity and second, regulators and regulated entities must reach a consensus about the norms and standards that will govern behavior in the latter (Short, 2013). Within the case studies, both projects are being developed within the EU, and although only one of them received full mandate to define their own standards, both projects are subject to surveillance and compliance of laws and regulations by EU institutions.

5.2 NORMATIVE 

Among the incompatibilities presented in this category, in both projects a link is shown with aspects of the cultural dimension. While on the first project the interviewees thought diversity in nationality and experience brought significant differences in management approaches, on the second project it was perceived the hierarchical structure on the partner's organization was due to national culture rather than to the intrinsic structure of the organization. These results coincide with the thinking of some researchers that corporate culture and norms are nested in national culture (Erez & Gati, 2004). It is presumed that those practical and normative dissimilarities between partners have a larger impact than differences in national culture (Pothukuchi et al., 2002).

Another event raised in one of the case interviews was the decision-making avoidance by subordinates where informants point out two probable causes for this. As stated in a study by Chan et al., (2004), having clear roles and responsibilities is a critical success factor in partnerships across the construction industry. Decision-making powers and authority should be clearly specified. Further, decision-making and problem-solving should be delegated to the lowest possible level of authority. Having this decentralized authority, enhances the employees' level of commitment to the alliance by increasing their responsibility and involvement in decision-making (Cheng et al., 2004). As suggested by one of the informants, for decisions to be delegated to the lowest possible, a joint process between managers and subordinates must be undertaken. First, subordinates must level their managers for the specific information they require for a determined task, and subsequently, managers must permeate this to the

requester or subordinate. So, as seen from this suggestion, a precondition for subordinates to be willing to make a decision is a good level of communication between them and their superiors and information permeability. Even though this barrier has been identified, no formal addressing in the organization has been made.

5.3 CULTURE 

An aspect commonly found in cross-border projects across Europe and also in projects formed by multicultural teams is that of issues in communication due to the different national languages. In the studied projects the issue was present given that each country had their own language and this was also used within the different organizations. A common strategy to find across practice and literature is decided early on to choose a common official language. According to Emmitt & Gorse (2006) even though in multicultural project teams it is essential to set a common language to try to ensure understanding, this can also delimit non-native speakers with loss of efficiency as well as increased risks for misunderstandings. Proof of the above is that both case studies experienced misunderstandings with the set official language – English – as it wasn't the first language to the majority of the people in both projects. As a result, people would have troubles for conveying a message accurately. To address this barrier, the two projects implemented different strategies. In the first project, the IJV has set language qualifications according to the position to be occupied by a new entrant. While it is necessary a high level of command of the language for joining the project coordinator, different standards are set for joining the implementing bodies. Meanwhile in the second project and depending on the situation, people would have the flexibility to communicate either in an alternative language to their own teams and later let the others know the content discussed. Another approach would be to communicate in an alternative language across teams in both organizations if the employees had knowledge of the language, yet this emerged more as a spontaneous action rather than as a planned strategy.

Another incompatibility present only in the second case was the perceived difference in social hierarchy among the German organization due to culture. A practical example where this was seen was in the decision-making process. While the Dutch project coordinator would encourage people to take informed decisions on their own, the German organization would follow a top-down approach where most of the decisions were made on the top management and later shared with the rest. As a result, German workers were already programmed to know their power limitations and would escalate decision-making to their superiors. According to Ochieng & Price (2009), in multicultural teams it is suggested that the role of the project leader should be that of someone who can effectively manage the cultural differences that might emerge within the team. And even though the favored leadership style can be based on a cultural fit, in this study it was found team participants would rather have a leader with strong emotional intelligence leadership competencies than one with strong technical project skills. As Javidan et al., (2005) suggest, if managed effectively, cultural differences can be source of innovation and a stimulus for mutual learning.

5.4 INTERPARTNER RELATIONS 

As considered in literature and as seen in practice, the nature of the relationship between partner organizations will have consequences on the partnership operation. Usually this category defines the quality of collaboration by referring to the quality of a partnership or a team's internal interactions.

In both studied projects, although it wasn't considered an issue but rather a remark, it was mentioned there are desired skills and capabilities workers should possess in cross-border projects. Among these skills it was mentioned it was essential workers were tolerant towards others, had the ability to lead, be an effective communicator and consensus builders. Despite these skills and abilities could be seen as desired also in projects not necessarily of cross-border nature, it was suggested by the interviewees, conditions of nationality and language are less relevant when people are able to effectively communicate and dialogue. According to Rahman & Kumaraswamy (2008), organizations working together in any form of partnership should focus on selecting the best possible compatible and capable project team. In order to form an effective team, organizations should not only focus on technical skills, knowledge and experience but also on people's ability to coordinate actions and their interpersonal qualities. Similarly, it was reflected that the lack of certain skills in workers can make collaboration difficult. Given the lack of previous cooperation between the working teams, the different knowledge and experience, dissimilar parent organizations and culture, attributes such as being open-minded are highly valued. In addition to that, a willingness from team members to understand each other was also considered crucial to forming good relationships between multicultural teams. As was also exemplified by interviewees, even when certain problems arose on technical or regulatory matters, these were solved thanks to the quality of the relationship between people and the organizations rather than because of the high technical competencies of engineers.

Similar to the qualities highlighted by people in both projects, Ochieng & Price (2009) suggest people in top management positions and/or project managers should have a special set of skills. Leaders in multicultural teams should have the ability to understand and clearly communicate to all members of a team and be cross-culturally and communicatively competent. Furthermore, Bell et al., (2013) suggest personal skills, leading styles and interpersonal skills directly affect the cooperation process and its results while relationships are built. Especially, building relationships is an important task in projects where there is a strong dependency and interrelatedness between partners. As research indicates, relationships form the basis for collaboration in teams (Bond-Barnard et al., 2018).

Also pertaining to this category was an issue present in the first case study related to the lack of commitment to align the partners' interests and the skepticism or level of mistrust present. Given the lack of a fully embedded relationship between partners, a level of mistrust and skepticism is present. Which affects the quality of collaboration and communication as partners feel the need to keep information and their intents to themselves. As mentioned by some of the informants, transparency in information among the PDO is key, as this later evolves into trust when the predictability and expectations of other's actions match the action performed. Since the recognition of this barrier, the PDO has resorted to seeking external consultancy on integrated project implementation and delivery system. Even though the strategies proposed have not yet been implemented, among them is the concept of Big Room and a shared digital platform. The Big Room environment is being considered

to be implemented within each implementing body in their respective countries and a joint similar environment that includes all countries in a specific location. The purpose of this working environment would then be to allow information flow, have open and transparent discussions and foster collaboration by making commitments and deliver as promised. In line with this concept, to have a shared digital platform would allow for members anywhere to have access to the same information and thus start building trust so their true interests and objectives can be discussed in a transparent environment.

Besides the suggested skills crucial to building a good relationship between organizations, the feeling of trust is also considered to be an enhancer of collaborative processes. According to Bond-Barnard et al., (2018) when collaboration and trust are promoted in a project, it is more likely the project will be a success in terms of cost, time and quality, but also that it will be seen as a successful collaboration by the stakeholders involved. As imagined, trust is not a sudden condition that PDOs instantly acquire when a joint project is about to be undertaken. Research shows in order to develop trust among partners, certain levels of organization are necessary, namely management procedures, decision-making process and interests and benefits to stakeholders (Bell et al., 2013; Hirschhorn & Gilmore, 1992). Considering this research, it can be identified the issue of skepticism or level of mistrust present in one of the projects resonate with the findings. The alignment of interests among partners needs to be settled and served to an acceptable extent to help build trust and collaboration.

5.5 INTERPARTNER FIT 

As can be seen from Table 15, this category was the one with the most identified incompatibilities by the interviewees. Interpartner fit is seen as a multidimensional category that has evolved from a mixture of several dimensions to achieve collaboration among multiple organizations. Among the main factors included there is the alignment of strategic objectives, compatibility on companies structure and size, complementarity of critical resources – skills and competencies - and hints of culture via partner consensus on operational policies (Batra et al., 2019).

As mentioned in one of the projects and across literature, a lack of a common integration plan received major attention. As Bell et al., (2013) suggest, objective and goal alignment is a decisive factor for the success of alliances. When partners cannot align interests and these continue to be neglected, organizations put the partnership at risk as they enter into a state of permanent negotiation where defensive behavior prevails. Therefore, to encourage collaborative practice and discuss and negotiate the opposing goals and interests, organizations must have a solid foundation of trust and commitment (Dietrich et al., 2010; Bell et al., 2013). Similarly, other authors suggest the formulation of mutual objectives and interests results in more committed partners aiming to achieve individual and joint interests without motivating the fear of opportunistic behavior. Having partners sharing their true interests and also commit to the partnership will allow participants to consider each other's interests and think of win-win strategies (Mohr & Spekman, 1994; Rahman & Kumaraswamy, 2008). Likewise, Gulati et al., (2012) suggest misaligned incentives are a hazard for collaborative endeavors as they can cause diminished commitment among partners and gradually deteriorate the relationship. With regards

to this incompatibility, it seems the root cause for it lies in the absence of trust and commitment, which is similar to the barrier of mistrust present in the interpartner relations category. Considering the above, it can be derived, the presence of a solid foundation of trust and commitment is key for solving more than one incompatibility present.

Also a lack of similar project experience and differences in national PDO structures was recognized as issues by the implementing bodies of the first project only. Due to the lack of similar project experience and overall experience with projects of this magnitude, organizations acquired different approaches to face the issue. Given the scarcity of people in the region with the necessary knowledge to join the team, the Management Board of coordinators and the implementing bodies welcomed the idea of recruiting expats. Therefore, as a strategy to combat the lack of similar project experience by the PDO, resorting to international workers with the needed qualifications has been well accepted. This strategy has been implemented by both the Management Board who serves as main coordinator of the project and the national implementing bodies. Regarding the differences in national PDO structures, considering no precedent for a similar scale project in the region, and the varying visions each national ministry had, different national organizations arose attending to their own wishes. As a result, each national organization has developed independently and different approaches, structures and capabilities are found among them. Although no strategy has been implemented for the above, nor the Main Coordinator has the power to specify the structure of the implementing bodies, it is recommended the project should be governed by a single body who has the capacity to collect and administer compatible information from all the different parties.

Unlike the first project, parent organizations in the second case study didn't create an extension of themselves to be managed by an IJV. Yet, they did face issues related to the dissimilarities between the considerably large German DB Netz rail company and the Dutch ProRail. According to Batra et al., (2019) there is negative connection between size asymmetry of parent firms and the performance of the new partnership formed. This asymmetry in size will negatively impact the stability of the new PDO formed as there will be a mismatch in the strategic mission, culture and bureaucracy. As a strategy to overcome this mismatch and have an effective channel for communication, organizations opted for appointing each an interface manager. As considered by interviewees, this approach was an outstanding best practice for overcoming the difference in organizations' size and for having effective communication.

5.6 POLITICS 

Politics comprises all the activities of co-operation, negotiation and conflict within and between societies, whereby people go about organizing the use, production or distribution of human, natural and other resources in the course of the production and reproduction of their biological and social life (Leftwich, A., & Callinicos, A., 2004, p.14-15).

Considering the above definition of politics it can be understood politics include all the activities related to decision-making in groups and other forms of power relations within society or

organizations. Therefore, the concept of politics must be differentiated from that of political science which is the branch that studies politics and government.

Cross-border projects are often perceived as politically driven endeavors. This political complexity can be reflected in projects being seen as endeavors to be completed in the same government term that initiated them. As these projects are then charged with different expectations from the different governments involved, external forces play a big role in the management and development of the project (Kodeih & Greenwood, 2013). As reflected by one of the interviewees, to combat this external pressure and guarantee the continuity of the project, it is necessary to meet the interests and objectives of the parties involved; this way, the project maintains stability and support throughout its development. Similarly, platforms such as the Global Infrastructure Hub consider different planning systems and policies in the countries engaged in cross-border projects makes coordination more complex than on domestic projects, which is why to maintain stability in cross-border projects, governments have a big role to play. Intergovernmental agreements should be set early on in the project to help align the different governments on project objectives and ensure the continuity on the project even if changes in national laws and regulations occur (Global Infrastructure Hub, n.d.).

Issues related to politics and cooperation can also occur inside the PDO as happened in the first case study where it was mentioned politics even become relevant when choosing leaders or members of the Management Board. As the Board from the IJV has decision-making capacities and acts as coordinator of the project, the process for choosing members becomes a back and forth negotiation among the implementing bodies. As exemplified by one of the interviewees, the negotiation for choosing Board members becomes lengthy and parties usually reach an agreement until the proposed member appears neutral to all. Usually, this neutrality is found in a condition of nationality. As perceived by the national branches, internationals are seen as impartial since they have no affinity to any country in particular. As a result, the different national implementing bodies embrace with more open mind proposals that the international members are putting forward.

5.7 STRUCTURAL CHARACTERISTICS

Issues in this category were not raised in any case study. Rather it was identified formal agreements between partner organizations and equal management control over the project had a positive impact on the cross-border collaboration on both case studies. As seen in both cases and across practice, partner organizations can make use of formal agreement in a different way. While some joint PDOs opt for having more binding contracts and establish an organization to help obviate hazards, others decide to put more weight on a shared management led by trust. As documented in literature, contracts and cooperation are interrelated as a contract provides a legally binding framework where parties can see their responsibilities and rights, but also the goals, policies and strategies underlying a partnership (Luo, 2002). Similarly, Shenkar & Zeira (1992) state that contractual completeness can reduce conflict among the partners as there is less ambiguity in regard to the role and tasks every party must abide by. Nevertheless, Luo (2002) also points out that regardless of the completeness of contracts, if there is no cooperation between the partners, no legally binding document can govern a joint operation or project.

As research suggests, having equal ownership in an international partnership allows partners to build trust by assuring all partners are attentive to the other's success (Bleeke & Ernst, 1993; Bener & Glaister, 2010). In resonance with this statement was the strategy implemented by the first project. The establishment of an IJV served as the vehicle for the implementing bodies for having shared management for the cross-border sections. While the IJV is responsible for delivering the cross-border elements, each country is responsible for delivering the infrastructure in its own territory. Similarly, the equal distribution of ownership of the IJV was seen as a mechanism for partners to be equally committed and as a way for pushing for negotiations and reach agreements. However, it was identified that the lack of aligned objectives – national objectives – had an impact on the performance and workability of the IJV. So, even though the formal arrangement of a Joint Venture served the purpose for the implementing bodies for coming together and take a decision on the Global project, the full potential of the IJV was conditioned to the alignment of strategic objectives.

Unlike this case, other projects rather agree on having the same extent of management control over the project without establishing a new business arrangement as an IJV. The shared management over the interface organization ProRail-DB Netz, therefore, allowed both organizations to be active participants in the developing and decision-making process of the project. Despite there was no steering committee to make directional decisions over the project or exert pressure for the organizations to collaborate, it was considered the commitment towards the project, willingness to discuss and negotiate things and the responsibilities of each organization brought stability to the collaboration.

Hence, it is considered cooperation from the partners and a clear and complete contract are complements that cannot substitute one another. Yet even though contract completeness is something to consider, not every partnership contract must have the same level of completeness. Partner organizations must consider the level of term specificity and contingency adaptability in regard to the market uncertainty, possible hazards, or unexpected events so they can maneuver and make adaptations when necessary.

5.8 CONCLUSION

Based on the findings in this chapter, the second sub question can be answered.

What are the key interorganizational incompatibilities to focus on from practice?

The present interorganizational incompatibilities across the case studies were found after conducting interviews. As part of the Define stage of the Double Diamond method, interviewees were asked on their personal experience on incompatibilities witnessed. These incompatibilities were then either placed under the categories previously identified in the theoretical framework, or a new category was created if necessary. This framework containing the incompatibilities found in practice led to the validation of the theoretical framework proposed, but also shed light on the most frequent type of issues present in practice and their relevance. Further, even though the number of issues found across the categories already gives a hint on the relevance of certain aspects over the others, the semi-structured

approach of interviews allowed the researcher to get an insight into the root causes and opportunity areas the case studies have.

In the proposed theoretical framework, five categories were present as they were the most relevant found across literature. In practice, all five were brought up by interviewees as relevant to consider in cross-border project were multiple PDOs are collaborating. Yet even though in the Structural characteristics category no issue was found in practice, interviewees still reflected on the importance of this variable for the correct development of collaboration in projects. Therefore the category was addressed in the cross-case analysis but not included as an identified source of incompatibilities. Moreover, a new category of Politics was discovered in the exploratory interviews and therefore added. Table 18 below lists the key interorganizational aspects found in practice across case studies.

Category	Incompatibilities from practice
Regulatory	Regulations and legislations
Normative	Management approaches Organizational structure Decision-making process Work practices
Cultural	Language and communication National culture
Interpartner relations	Mutual and individual interests Trust and skepticism between partners
Interpartner fit	Common integration plan Project experience National PDO structures Size of partner organization
Politics	Projects often politically led
Structural characteristics	Formal agreements and management control

Table 18: Key interorganizational incompatibilities from practice

Having identified the relevant incompatibilities that have an impact on cross-border collaboration, the findings from this section will be used for further development of the framework for dealing with these incompatibilities.

6. FRAMEWORK

As part of the third stage of the Double Diamond research method, a solution must be designed to tackle the previously identified problem. In this chapter, a framework for implementation in cross-border projects is developed, based on the results from the case studies and literature. This chapter provides an answer to the third sub-question formulated as:

What improvements are required in the current practice to overcome interorganizational incompatibilities in cross-border projects?

This chapter is composed as follows. Section 6.1 elaborates on the foundation of the framework and its aims. Section 6.2 elaborates on the design of the framework and its criteria and Section 6.3 portrays the steps and strategies for implementation.

6.1 FOUNDATION OF THE FRAMEWORK

Based on the findings from the previous sections, a conceptual framework containing specific strategies is designed to tackle the identified incompatibilities from the empirical research. Likewise, suggestions from literature are also included – even if not shown in the empirical research - if considered relevant. The set of strategies aims at indicating focal points of attention to international PDOs and thus provides practical advice on how to improve the collaboration within the PDO in a cross-border project and overcome interorganizational differences. Likewise, its purpose is for PDO to continue collaborating in a cross-border project without resenting the extra complexities that these types of projects bring with them.

Particularly the initiation and management of relationships and team building is suggested to be done in early project phases, so partners can start developing team loyalty and trust in a newly created partnership. Similar to what Oberlender (2014) suggested, actions implemented in the early phases of project development can have a greater impact than those implemented later. Considering the aforementioned, the present framework will be designed to be implemented in the front-end phase as the timely implementation of the proposed framework and its strategies could be considered essential for the following phases.

6.2 DESIGNING THE FRAMEWORK

The conceptual framework and its strategies are based on the findings from literature and empirical research. As it was observed from the conducted interviews, informants pointed out a variety of incompatibilities present in cross-border projects. These incompatibilities from both case studies, were allocated into combined categories which allowed the researcher to visualize the results that would lead to the design of the framework. As a strategy to design the framework, the following criteria were set:

- Incompatibilities that were pointed out by at least two informants were considered more relevant for designing the framework.
- In view that the designed framework is to be used by PDOs, only strategies that can be implemented and influenced by the PDO are considered in designing the framework.
- Given the identification that some issues from a certain category are nested in another, the former is first addressed in an attempt to influence the non-occurrence of the following incompatibilities.
- Best practices and positive actions mentioned by the informants and undertaken in the case studies are also included as part of the strategies.

Category	Incompatibility	C1	C2	Literature
Regulatory	Differences in regulations and legislations	✓	✓	
Normative	Differences in management approaches	✓		
	Matrix organization system	✓		
	Decision-making avoidance by subordinates	✓		
	Differences in practices		✓	
Culture	Language and communication	✓	✓	
	Differences in national culture		✓	
Interpartner relations	Divergent interests	✓		
	Skepticism towards partners	✓		
Interpartner fit	Lack of a common integration plan	✓		
	Lack of similar project experience	✓		
	Differences in national PDO structures	✓		
	Size of partner organization		✓	
Politics	Cross-border projects are often politically lead	✓		
Structural characteristics	Formal agreements and management control			✓

Table 19: Selected interorganizational incompatibilities from Case Studies

6.3 PROPOSED FRAMEWORK

As noted earlier, the establishment of a new PDO, either in the form of a formal IJV or a more informal partnership, demands a process where parties have to come together to bridge their differences so cooperation can be obtained. As has been documented in literature, strategic alliances – including those of international nature - go through a similar process of evolution that allows them to gain and maintain truthful cooperation and commitment. These phases of evolution are commonly organized into three blocks, namely initiation, implementation and evaluation (Cheng et al., 2004; Wohlstetter et al., 2005).

Similarly, the proposed framework follows the mentioned phases of the evolution of a strategic alliance and introduces specific strategies to be implemented in each of these. Three factors act as preconditions to be present throughout the collaboration, namely: Cross-cultural awareness, Top management support and leadership and Trust development.

PRECONDITIONS

CROSS-CULTURAL AWARENESS

According to Ochieng & Price (2009, p. 529), choosing not to recognize cultural complexity limits the ability to manage it. Differences in culture across multinational teams can be found in the different communication patterns, value systems, what is considered acceptable behavior, among others. If overlooked or ignored, these differences will affect the interaction between partners and thus lead to misunderstandings or conflict and create problems in the management of the project (Bernáld, 2011). Conversely, awareness of the partner's culture and acknowledgment of the differences between the own culture and theirs will help reduce and manage conflicts in international projects. In similar research, Rezaiemoghaddam (2014) ascertained that for multicultural teams to develop a good relationship, a closeness between cultures is not a prerequisite. Instead, the success of this quality relationship and collaboration lies in the mere recognition and caution towards cultural differences. Acting in awareness of cultural differences will most certainly facilitate a better relationship since partners feel mutual understanding and thus foster trust and cooperation.

TOP MANAGEMENT SUPPORT AND LEADERSHIP

Across literature, the active participation, commitment and leadership from top management is often considered a prerequisite for a successful partnering project (Agapiou, 1998; Chan et al., 2004). In line with this, other studies suggest the commitment of top management is essential as this is then passed on through the rest of the hierarchy (Bennett & Peace, 2006). Also, according to interviewees of one of the cases, leaders take a huge role as they need to give direction to the organization, build consensus with the other partners and inspire and permeate qualities, such as teamwork, with the rest of the organization. Thus as reflected by informants, the role of managers is much more than that of being coordinators. Top managers' tasks should also include social skills such as enthusiastically communicate the partnership vision to the rest of the organization and ensure that those involved in the project buy into its purpose. Still, even though managers have a special role within the partnership, the vision and success of it should not exclusively fall on them but rather should be accepted and implemented by all those involved (Buckley et al., 2002).

TRUST DEVELOPMENT

Among the case studies and in literature, trust was seen to be key in the initiation process of alliances and throughout it. As indicated in the literature, the existence of trust is key, as this is an antecedent to the commitment between partners (Nakos & Brouthers, 2008). Unlike other projects where organizations can choose their partner based on a set of qualifications such as previous cooperation or conditions of partner fit, which in turn can bring an immediate sense of trust, the case is different in this type of one-off collaboration.

Thus, in order to build trust, it is recommended partners start building trust through a twofold strategy. This being calculative trust through formal governance and normative trust through reciprocal relationship and collaboration (Ruijter et al., 2021; Shen et al., 2021). As pointed out in the two case studies and through literature, it is recommended to first focus on establishing formal governance. In the early phases of development, the purpose of such efforts is to reduce uncertainty and ambiguity by developing a shared set of procedures and contractual arrangements to prevent opportunistic behavior. As partners have clearly defined responsibilities and duties, calculative trust is being built as partners expect a consistent and predictable course of action and delivery from the other.

Yet, as formal governance is sometimes insufficient since it cannot cope with unexpected situations, normative trust through partnering and collaboration can complement trust-building. Among the critical components in this type of trust are commitment, mutual goals and open communication. Some authors argue the use of workshops as interventions can help reflect upon collaborative behavior and develop effective communication, a positive component of trust (Bresnen, 2007). It is thus through these components that trust among partners is being developed which in turn can create and maintain a win-win climate among the PDO.

PHASE 1: ESTABLISH A LEVEL OF ORGANIZATION

In this first phase – similar to the phase of initiation in strategic alliances – a strategic level of organization, where the PDOs start with a visionary planning and crystallize common ground is key. Considering that previous to starting a project in collaboration, organizations have their own culture and practices, this strategic level of organization aims at giving direction and defining common strategies for the achievement of goals. As in this stage organizations have their first approaches where possible differences might be recognized, the awareness of these as well as the aim for bridging differences and create a new joint organizational culture are essential to foster collaboration (Graen & Hui, 1996). Similarly, research on strategic alliance formation indicates that there are a number of conditions that facilitate its initiation. Among these, the establishment of structures and communication channels, complementarity of needs and assets, compatible goals and trust.

STRATEGY 1: DEFINE A COMMON LANGUAGE AND COMMUNICATION CHANNEL

Practitioners suggest these two actions are key for ensuring effective communication. Establishing a common official language in the early phases of development rules out the uncertainty of language and avoids reworks and confusion with regard to the official language. Simultaneously, it is recommended the newly created PDO sets language qualifications to entrants according to their position in the organization. Also regarding this strategy and as observed in the second case study, to set a formal communication channel through an interface manager is overriding. The high quality of communication indicates the ability of parties to share their ideas and to ensure that the frequency of communication is high enough in order to keep everyone informed of any changes.

STRATEGY 2: DESIGN GOVERNANCE STRUCTURE

As mentioned, partnerships and strategic alliances are cooperative arrangements made up of autonomous organizations that jointly seek to accomplish common goals. Yet, as collaboration sometimes does not go as smoothly as it should and conflicts arise, governance structures must be set

in place to ensure collaboration between actors. Across practice, these structures may vary in formality and complexity depending on the number of actors involved, tasks and objectives (Wohlstetter et al., 2005).

Given there is no predetermined governance structure that fits every case, parent organizations must jointly evaluate the degree of formality and control they want to share and exert over the joint PDO in cross-border projects. Aspects to evaluate are related to transaction and relational characteristics. The former suggests considering the uncertainty of the environment and asset specificity while the latter suggests contemplating differences between parent organizations, information asymmetry, bargaining power and the level of trust. Considering the above, parent organizations can agree on the mechanisms of control they will exert over the PDO, which could go from staffing and participation in the operation of the PDO to possession of equity and voting rights, formal agreements, approvals and the use of a board of directors (Kamminga & Meer-Kooistra, 2007). In practice, organizations can shape their governance structure inspiring from the most common typologies, namely, hierarchy, market and network. The differences between these modes of governance are notorious, among the factors behind the choice between governance forms are differences in corporate culture, level of trust between partners, procurement strategy and motivation for learning from one another (Ho et al., 2009). Considering the dependency of partners in cross-border projects, a network-like mode of governance is frequently used as it focuses on mutual adjustments and collaboration to together define their own and separate aims and the way to realize them jointly. Among the most characteristic features of this particular governance form is the development of stable relations to collaborate, negotiation and consensus, interest representation – mix of common and own interests –, information sharing and cooperation for mutual benefit.

STRATEGY 3: DEVELOP A COMMON INTEGRATION PLAN

Among practitioners, the lack of a common integration plan was the incompatibility that received the most attention. In multi-partner projects, the different actors forming the joint PDO are motivated by the incentives of collaboration. Considering the above, to ensure that actors will work towards the achievement of a common goal, the incentives of the different actors or stakeholders should be aligned. As suggested by Ominde & Ochieng (2020), the conception of an effective multi-partner collaboration framework should be founded within a stakeholder integration model where the interests and objectives of each stakeholder are addressed and taken care of. Across literature it is indicated that the alignment of incentives and the existence of congruent and collaborative goals are important factors for a successful collaboration. Yet, for partners to be willing to share their true intentions and what drives them into this collaboration a strong foundation of trust and commitment must be in place. Given the above, the present strategy is more likely to succeed if the precondition of trust is present.

PHASE 2: IMPLEMENTATION

The second phase refers to the operational level of the organization where a follow-through on the strategy is tracked. Here, a reflection on the processes is typical, and commonly the phase is characterized by the establishment of communication mechanisms to facilitate information flow, internal processes in place to ensure governance and effective leadership to keep the alliance focused.

STRATEGY 4: SET STANDARDIZED WORK PRACTICES

Before setting common standards for the operation of a newly created partnership, organizations have their own identity composed of certain practices and behaviors. As the alliance comes into place and a joint common goal is set, it is recommended partners aim at making their different management practices more compatible. According to some authors, compatibility with the organizational culture or having harmonized practices results in partner learning, knowledge sharing and effective interactions (Sirmon & Lane, 2004). Thus the existence of clear roles and processes of collaboration facilitates the interaction between collaborating actors. The development of a collaborative practice requires appropriate coordination and communication mechanisms. But once implemented, collaboration may benefit from appropriate communication and coordination mechanisms, policies, protocols and standardized documentation (Dietrich et al., 2010). Once the mechanisms are mastered by the personnel, they provide consistency across the joint organization and save time and resources. As well, this consistency of standardized practices facilitates comparison across the separate organizations and allows monitoring by a superior entity.

STRATEGY 5: PROCURE INFORMATION FLOW AND TRANSPARENCY

As implied by Ominde & Ochieng (2020), in multi-partner projects, one of the drivers of a well-designed stakeholder integration model is based on the notion that the project implementing teams share spaces (Eberlein, 2008). Within the realm of Integrated Project Delivery, the Big Room concept has been developed as an integrated way of working. This method often includes the use of a shared workspace where project team members from various organizations or team members of different disciplines come physically together to allow information flow, form teams and foster collaborative decision-making. As retrieved from a case study, the concept of Big Room is thought to be applied at a national and international level. On a national scale, a Big Room is proposed to be located in each country and on an international scale occasional meetings in a predefined location when the decision-making process is intense. In current practice, the Big Room concept is often related to the physical co-location of team members, yet the practice is not limited to physical space. In the past year, due to the lack of face-to-face practices of collaborations, organizations have come up with virtual solutions to put the method into practice. To facilitate the virtual environment, organizations have to redesign the event by adopting appropriate tools to enable connectivity, effective communication, collaboration and engagement. In addition to this, preparing and facilitating the event for the audience and emulate physical interaction as much as possible through break-out rooms has proven to be a good alternative to face-to-face interaction (Dave et al., 2015).

Given the geographical distance between partners collaborating and the need to have tools that facilitate communication and procure information exchange, the creation of a shared IT database would support transparency on information (Eriksson et al., 2009). Yet, for this tool to be more likely to succeed, the standardized work practices and documentation from strategy 4 must also be put in place.

PHASE 3: EVALUATION

As part of the evolutionary process of a partnership, it is suggested the PDO should go through a review phase to benchmark Phase 1 and 2. The aim of this phase is to analyze the level of compliance the

organization obtained in the previous phases and thus decide if improvements must be made before moving to the following phase of the project's lifecycle or not.

STRATEGY 6: FEEDBACK AND CAPTURING LESSONS LEARNT

Even though evaluation on strategies and other goals might turn difficult given the intangible nature of collaboration, the assessment and reflection of impacts are essential for the continuous improvement. In order for partners to evaluate the results of their efforts, first, they should agree on the metrics to determine the level of accomplishment of their goals. Depending on the processes or specific goal to be evaluated, the PDO will define the method and metrics to use and the targeted people to participate. Among the aspects through which collaboration could be evaluated are measuring the consensus in decision-making and time, level of trust between partners, surveys about partner satisfaction, sharing of lessons learned, among others.

Table 20 below lists the incompatibilities collected from the empirical research and those issues considered relevant by literature to be included even if they were not mentioned in interviews. Namely, Overlooked responsibilities of top management and No collaboration improvement. In the right column the preconditions or strategies for overcoming the incompatibilities are presented.

	Incompatibility	Strategy
Preconditions	Differences in culture	P.C.: Cultural awareness
	Skepticism towards partners	P.C.: Trust development
	Overlooked responsibilities of top management	P.C.: Top management support and leadership
Phase 1 – Establish a level of organization	Language and communication	S1:Define a common language and communication channel
	Divergent interests	S2: Design governance structure S3: Develop a common integration plan
	Lack of a common integration plan	S3: Develop a common integration plan
Phase 2 – Implementation	Differences in practices	S4: Set standardized work practices
	Decision-making avoidance by subordinates	S5: Procure information flow and transparency
Phase 3 – Evaluation	No collaboration improvement	S6: Feedback and capturing lessons learnt

Table 20: Proposed strategies for overcoming interorganizational incompatibilities

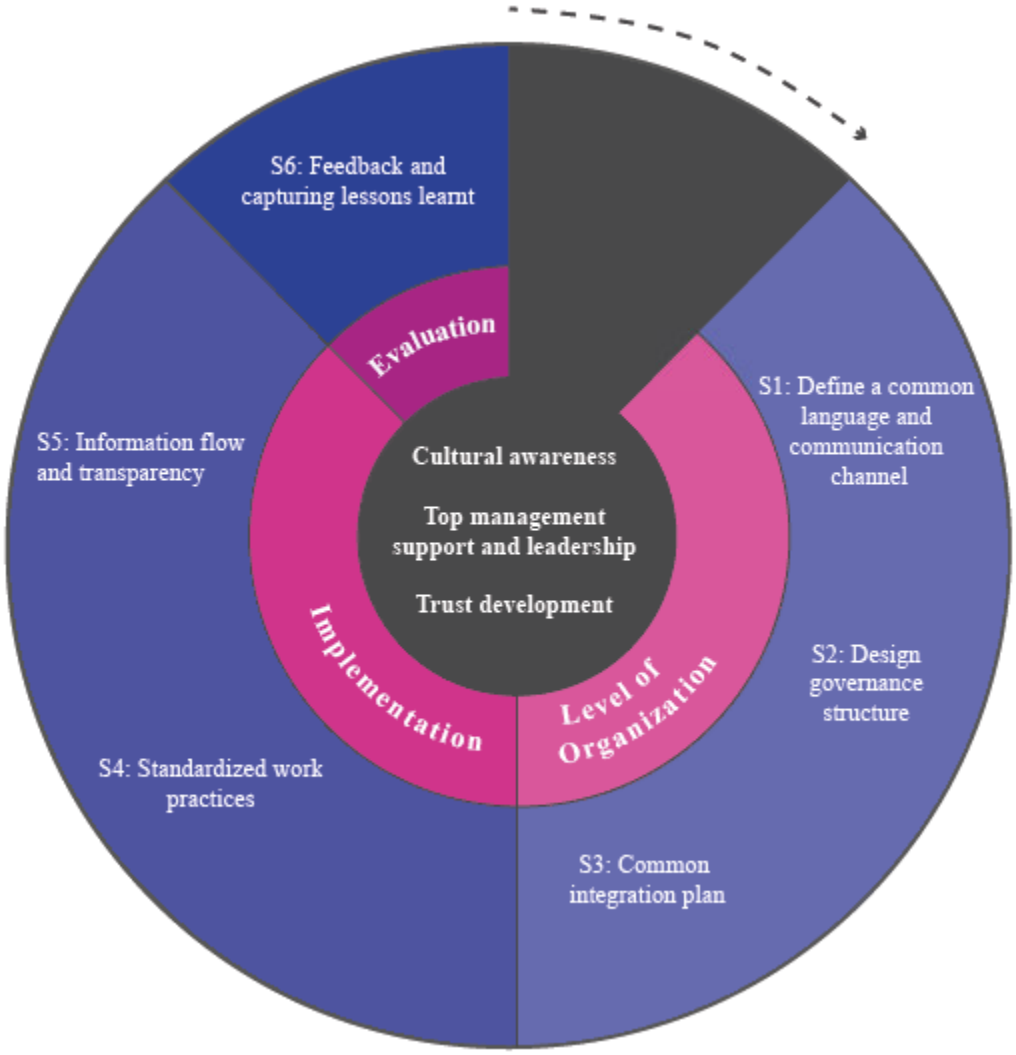

Figure 7: Proposed framework for partnership implementation in front-end phase

7. EXPERT VALIDATION

As part of the fourth and last stage of the Double Diamond research method, this chapter validates the applicability and usefulness of the proposed framework with professionals with expertise in project management and organizational complexities. This chapter provides an answer to the fourth sub-question formulated as:

What is the applicability and feasibility of the proposed framework for implementation?

This chapter is composed as follows. Section 7.1 displays the validation set-up. Section 7.2 presents the discussion of the framework through the addressing of four questions. Section 7.3 presents the conclusion and results from the framework and proposed strategies for implementation.

7.1 EXPERT VALIDATION SET-UP

A set of one-on-one online interviews was held with four experts to validate the proposed framework for implementation. The experts were practitioners and academics with varying expertise in project management, LIPS and organizational complexities in cross-border and international projects. Each interview lasted between 50 and 70 minutes, depending on the availability of the interviewee.

First, the researcher made a short introduction to the research topic followed by an explanation of the results found in practice, the criteria for designing the framework and the proposed framework itself. For the framework, each of the three phases was described, followed by an explanation of the individual strategies.

For the second part of the session, the researcher addressed a set of preformulated open questions to validate the usefulness and applicability of the designed framework for implementation. The protocol for the expert session can be found in Appendix D.1.

7.2 DISCUSSION ON VALIDATION

The validation of the framework was carried out through a set of open questions separately addressed to the experts. These questions focused on the clarity, usefulness and applicability of the framework and its strategies by PDOs. Likewise, points for improvement were also discussed and adopted into the revised framework if considered relevant.

- Are there any steps or strategies that are not clear from the framework?

In general, all experts agreed that the framework and particular strategies were clear and easy to follow. Also, it was mentioned that to know the incompatibilities found across the case studies and the criteria to select some of those for further development made the framework very understandable. All experts also mentioned that all the incompatibilities addressed in the framework were recognized by them,

which made the understanding of the framework and the reasoning behind it easier. Conversely, two experts had one question each about the essence of strategy 4 and the third phase of development as the wording was considered a bit confusing. After discussing strategy 4 again, the expert mentioned the word *Standardized* could be replaced by *Harmonized* as the strategy refers to make practices more compatible but not necessarily the exact same. In his opinion, to standardize practices could be problematic as perhaps people from different organizations work well with their own practices or processes, thus when these are changed, an unnecessary disruption occurs. With regards to the third phase of development, it was proposed to change the word *Evaluation* by *Review* as the former focuses on assessing if the actions in place have been making the difference to what is intended, while the latter consists of deciding whether the results from an evaluation need change for reaching certain goals.

In addition, one expert asked how the framework and strategies could be particularly tailored for cross-border projects. Within the elaboration given to the expert, it was mentioned the considered extra management effort these projects require due to differences in laws and regulations, actors coming from different social environments, the high risks of misunderstandings and conflicts due to national culture and work practices, etc. After the researcher delved into the extra complexities these projects carry, the expert agreed the explanation was clear and sufficient. So, it was thought even though the framework could also be applied to projects of domestic nature, certain strategies become just more relevant in cross-border projects.

- Is the proposed framework considered useful and applicable by PDOs in cross-border projects to help to overcome interorganizational incompatibilities?

All four experts agreed that the framework is applicable and valuable for partnership establishment in cross-border projects. Two of the experts also mentioned the framework could even be used by projects of domestic nature, as the process for establishing any strategic alliance can be similar regardless of the project. Also, according to one respondent, an aspect that helps the applicability of the framework is that it gives a clear structure to the steps to follow to reach the end goal. It was also mentioned, the framework can be useful regardless of the experience different people might have with cross-border projects. While the framework can bring awareness of the importance of these issues to people with little or no experience in these projects, for the most experienced members, it can also serve as a starting point for discussion with partners about the importance and the method for aligning these issues to achieve cross-border cooperation. In addition to this, another respondent mentioned even though the framework and its strategies can be helpful, its usefulness is bound to specific aspects as not every issue found in practice can be addressed through it, for example, differences in laws and regulations, the influence of politics, divergent interests of other stakeholders and even incompatibilities in roles and practices within one organization. Furthermore, even though the usefulness of implementing the strategies would not be in question in a project, it was mentioned its implementation could be laborious as practitioners tend to engage in disordered processes of discussion when there is no specific prescription to follow.

- What should be modified or improved from the proposed framework for PDOs to find it more valuable?

Concerning this question, two comments were brought forward by experts, namely, the importance of awareness towards differences organizations may encounter, and the level of specificity of the proposed framework. The first comment was shared by three experts and referred to the importance of awareness towards the differences and possible barriers organizations may find throughout the project's lifecycle. In this specific phase of front-end development awareness of differences in laws and regulations, national culture, governance structures and technical aspects were mentioned. Yet, considering the aspect of national culture was already included in the presented framework, it was suggested to specifically address the importance of awareness towards differences in laws and regulations. As mentioned by the experts, even though EU legislation can be very rigid and the PDOs cannot do much to influence it, the mere awareness of possible difficulties prepares the organization to try to handle it the best they can rather than focusing on fighting against it. By being aware of incompatibilities in this aspect and the others, conflicts and misunderstandings in actions taken by the partners can be avoided.

A second comment discussed by the researcher and one expert was about the level of specificity of the framework. As first suggested by the expert, the more specific on the prescription of the framework, the better, as PDOs know exactly what steps to follow. Yet, as explained by the researcher, the framework aims at indicating focal points of attention and suggestions to where partners should focus when developing a cross-border project. As mentioned in the session, although a very specified framework would make its implementation easier, having a more generic framework allows different PDOs to tailor the strategies to their own. The reason behind this is that different projects and organizations have different needs for integration. Thus, if the strategies were more specific, the framework would run the chance to fit better projects with similar needs for integration, governance structures, etc. After this discussion with the expert, he agreed with the argumentation and suggested perhaps specific points of attention in each strategy would benefit the framework. So, although no modification was made on the level of prescription of strategies, a brief elaboration on points of attention was attached to the final table of strategies so PDOs can tailor-made them according to these. This brief elaboration on points is inspired in the previous interviews conducted with practitioners where ideas and suggestions were discussed.

- The suggestions provided in the framework might not be new or unknown. Why don't practitioners use them?

In general, experts identified two reasons for the above, namely the overlooking of organizational differences and their consequences and the common thought that projects should be designed as unique and therefore ignore other's experiences. First, it was reflected that practitioners often overlook interorganizational issues due to directing the project's focus to matters of time, costs and overall technicalities. In turn, this would eventually cause the level of complexity to rise due to the absence of basic integration aspects, which causes the project to end up suffering in those aspects that were initially considered the most important. Also, it was mentioned that often organizations overlook this organizational aspect as they try to fast-track these projects due to the external pressure they receive.

So, by leaving aside the interorganizational integration they do not have time to reflect or become aware of the challenging differences between organizations. As a second reason, it was mentioned that often practitioners incorrectly try to design these projects – and in general LIPs – as one-of-a-kind projects and ignore the body of knowledge and research done so far. So, as suggested by the experts, practitioners must be willing to learn from others and reflect on what other projects and organizations have done.

7.3 CONCLUSION

In this chapter, the proposed framework for the establishment of a collaborative partnership was validated by a group of experts with the aim to determine its applicability and usefulness. Through the comments of experts above, the fourth and last sub-question is to be answered:

What is the applicability and feasibility of the proposed framework for implementation?

As agreed by all experts, the proposed framework is considered to be useful and feasible to be applied in cross-border projects for the establishment of a partnership. Added to that, it was thought the framework and strategies could also be used by PDOs developing projects of domestic nature given the process for partnership establishment is similar regardless of the project.

Furthermore, as part of the suggestions and points for improvement, punctual adaptations were made to the final framework, namely, improvements to wording, the expansion of the precondition of awareness and the specificity of strategies. Regarding the first comment, the wording of strategy 4 and the third phase of development was modified according to suggestions. Regardless of the modification of the wording, the explanation of these two remained as the expert had no further comments on this. As a second point for improvement, the awareness of differences in laws and regulations was included in the framework's core, next to cultural awareness. As indicated by the experts, when members of the PDOs are aware that they will encounter differences in laws and regulations and get to know the conditions to which partner organizations are subject, they become more understanding towards their partner's processes and actions. Elements to consider in this aspect are the differences in planning and approvals procedures, national public consultations and hearings, public financing, etc. Yet, for this state of consciousness to be useful throughout the establishment of a partnership, the mere recognition of differences is not enough. Members of partner organizations must be willing to invest time in learning where differences lie and how these would affect the project. The last point of improvement regarding the specificity of strategies was addressed through the elaboration of special points of attention PDOs should discuss when aiming at implementing each strategy.

Attending to the mentioned suggestions, the table containing the incompatibilities and strategies and the graphic framework were modified and presented below in Table 21 and Figure 8 respectively. Table 21 highlights where modification were made. Besides the mentioned improvements, no further changes were made to the framework. Overall, all experts confirmed the proposed framework can be of value and applicable for PDOs aiming at establishing a collaborative partnership as it gives structure to the process organizations usually follow messily.

	Incompatibility	Strategy
Preconditions	Differences in culture	P.C.: Cultural and regulatory awareness
	Differences in regulations and legislations	
	Skepticism towards partners	P.C.: Trust development
	Overlooked responsibilities of top management	P.C.: Top management support and leadership
Phase 1 – Establish a level of organization	Language and communication	S1:Define a common language and communication channel
	Divergent interests	S2: Design governance structure S3: Develop a common integration plan
	Lack of a common integration plan	S3: Develop a common integration plan
Phase 2 – Implementation	Differences in practices	S4: Set harmonized work practices
	Decision-making avoidance by subordinates	S5: Procure information flow and transparency
Phase 3 – Review	No collaboration improvement	S6: Feedback and capturing lessons learnt

Table 21: Validated strategies for framework

The following is a brief elaboration on focal points of attention for the implementation of the final strategies. This elaboration is inspired in the previous conducted interviews with practitioners where ideas and suggestions were discussed.

- S1: Define a common language and communication channel

Considering good communication is a primary ambition of PDOs, it is crucial to establish thorough communication channels from the onset to avoid misunderstandings. As considered by the interviewees and especially for intense sessions of information exchange, face-to-face communication appears to be more effective than online as the former facilitates the exchange of ideas and visions. Similarly, to facilitate the success of this strategy, it is recommended PDOs select an official project language based on the ease of finding competent personnel with the language qualifications necessary.

- S2: Design a governance structure

In view that no specific governance structure can fit all projects' needs, PDOs may design their own considering the level of control partners will have over decisions, the composition of decision-making body, differences in corporate culture, level of trust between partners, procurement strategy and motivation for learning from one another.

- S3: Develop a common integration plan

Even if partners have diverse interests, complementarity is key. Identifying partners' main strategic objectives should be done in early phases of a partnership establishment to avoid unnecessary conflicts during its management and operation.

- S4: Set harmonized work practices and S5: Procure information flow and transparency

Along with differences in national culture, differences in organizational culture and management styles can also result in conflict and thus affect the performance of partners. Depending on the level of complementarity, integration and exchange that partners need from one another, the mentioned strategies will be shaped.

- S6: Feedback and capturing lessons learnt

The ongoing effort to capture lessons learnt is advised throughout the project's lifecycle although key times are at the end of the project or at the end of each phase of development. In order to help focus the discussion in the lessons learnt session, it is advised the project manager uses standard categories for participants to share their learnings. Once the results have been processed and analyzed, steps for improvement are designed.

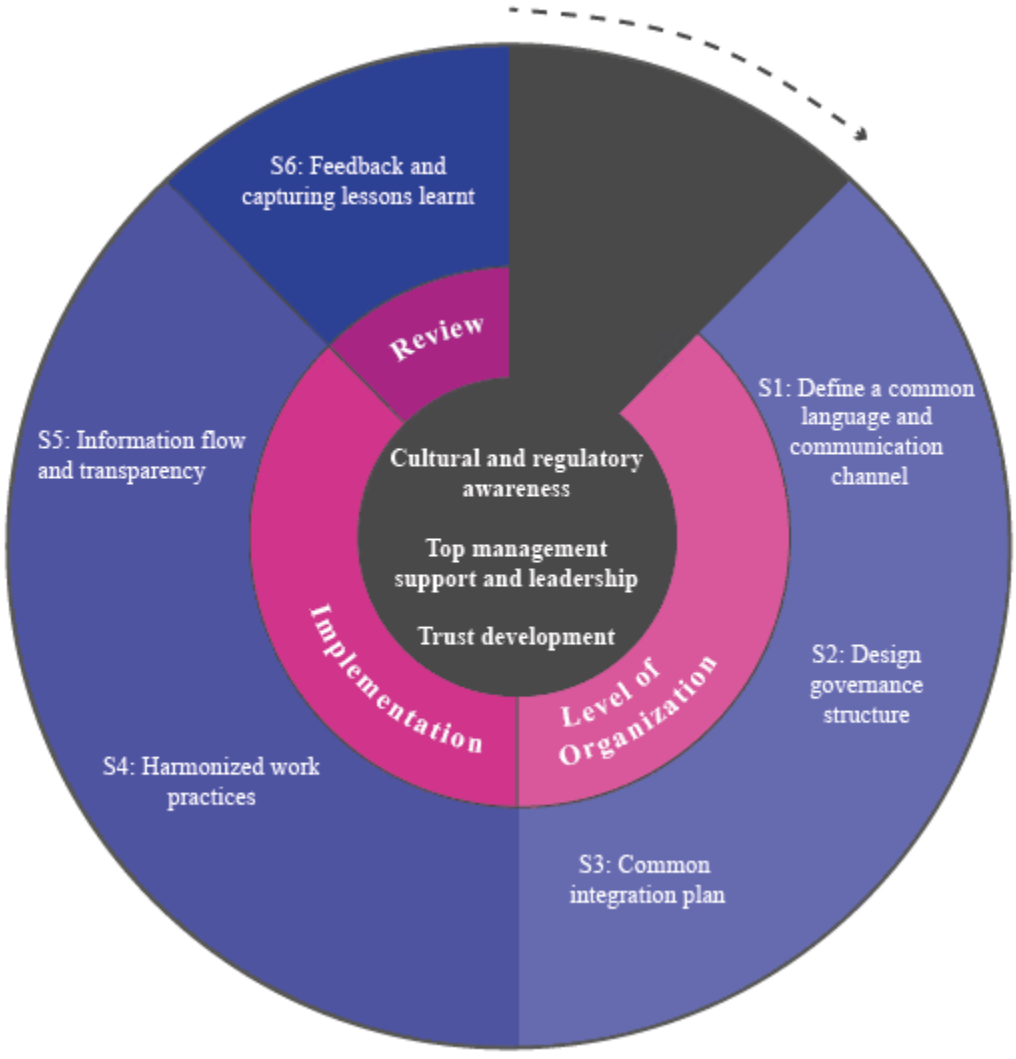

Figure 8: Validated framework for partnership implementation in front-end phase

8. DISCUSSION

8.1 DISCUSSION

Large Infrastructure Projects and thus those of cross-border nature are considered a whole different breed of projects as they are exceptionally challenging to manage. The above is due to their technical scope and complexity, lead times, social and political pressure, but also due to the diverse actors coming from multiple socio-cultural settings, which create immense coordination and collaboration challenges. Traditionally, the managerial complexity these projects carry has been proven impossible to manage using strictly contractual means and to aim at predicting and controlling the unknown. As researchers recognize, given the multiple interdependent participants in LIPs which are embedded in different institutional contexts, the role of project managers and organizations must evolve from maneuver around complexities to try to shape and influence these conditions to promote project success (Biesenthal et al., 2018; Pinto & Winch, 2016). Consistent with the view that an overarching strategy should be put in place by the PDOs to align and coordinate the multiple stakeholders, recent research suggests that the governance of LIPs should not be thought of as a straightforward process but rather as a non-lineal, conflictual and institutional embedded process shaped by the collective actions of organizations (Esposito & Crutzen, 2020). In response to the above, the objective of this study was to address the part the dynamics of collaboration in multi-partner projects also play over the management and success of cross-border projects. In particular, this focus was on the interorganizational incompatibilities the multiple partners often encounter and what can they do to overcome them.

In order to study these dynamics and their influence on the overall management of projects, first, common interorganizational incompatibilities within the PDOs were explored through a literature study. Across the literature, the usual term to study differences in logics is that of incompatibility, yet when applied to organizations, it was discovered these incompatibilities commonly just refer to differences in institutional elements such as regulations, norms and culture. In an attempt to look for extra elements that could be source of incompatibilities, the search was broadened to consider aspects not exclusive to cross-border projects. Once these elements were identified in literature and their presence was corroborated during the empirical research, it was confirmed even though the cross-border nature of projects certainly adds organizational complexity to projects, the presence of these elements and thus interorganizational incompatibilities is not exclusive to the domestic or international nature of projects. As a result of the above, the present research contributes to the formation of the concept of *interorganizational incompatibility* within the realm of cross-border projects which in turn serves as a concept for encompassing all elements found across literature and practice.

Similarly, it was found that incompatibilities in both internal and external level have direct repercussions in the management and collaboration of strategic alliances. Within the external level, the regulatory aspect was identified as the most relevant incompatibility affecting the development of a project but not the collaboration and goodwill of partners. Nevertheless, the variables related to internal aspects and, in particular to soft aspects of project management, were considered more relevant to the interviewees.

After developing the proposed framework for implementation and having also confirmed with experts its usefulness, the present research contributes to giving practical advice on the steps to follow to establish a partnership in cross-border projects. Although some of the strategies can be seen as generic for implementation, the framework still holds value as it is expected PDOs shape the strategies to their own specific settings.

8.2 LIMITATIONS OF THE RESEARCH

The findings of this study have to be seen in light of some limitations that must be considered while interpreting the results and findings. The main limitations are:

- The main limitation of this research was the number of case units as well as informants. Even though the case units are considered a sample that represents the rest of the cases with similar characteristics, a bigger number of case units and informants could have led to more accurate results. Thus, if more case units and informants had been included in this study, the outcomes of this research could have potentially been different. Conversely, if findings from the case studies had been more alike and showed a pattern, results could have been generalized and served as a clear direction on where to focus.

- Given the significant differences between both case studies, and considering these were the foundation for designing the framework, the proposed framework can be seen as generic as PDOs must make it their own. The set of strategies mainly points out focal points of attention for PDOs to consider, yet not necessarily all of the strategies may fit different PDOs developing a cross-border project.

- For the exploratory interviews, mainly personnel from top management were interviewed as the framework was intended for them to be the main users. Thus, the incompatibilities found in the empirical research and the proposed framework respond to the barriers that are noticeable to them.

- There is a lack of previous studies in the research topic. Current literature on cross-border projects and global projects is limited, so based on the available information the first chapters of this research were carried out.

- Given the intended user of the framework is the multiple PDOs developing a cross-border project, several incompatibilities could not be addressed as part of the framework since PDOs can hardly influence them. An example of this, differences in laws and regulations – besides acquiring awareness -, incompatibilities between the PDO and other stakeholders, the influence external factors such as politics have on the development of a partnership and overall projects, etc.

9. CONCLUSION AND RECOMMENDATIONS

Section 9.1 elaborates on the conclusion and answers the main research question. Section 9.2 presents the recommendations for future research and Section 9.3 presents the recommendations for practice. Lastly, Section 9.4 presents the researcher personal reflection.

9.1 CONCLUSION

In order to conclude this research, an answer to the main research question should be provided. To be able to answer it, each of the sub-questions formulated at the beginning of the research are answered in sequential order. The following is the main question to be answered:

How to address organizational incompatibilities to improve the process of achieving interoperability in cross-border projects?

The above mentioned main research question can be answered by first addressing the following sub-questions:

SQ 1: What are the interorganizational incompatibilities that can be identified from literature?

SQ 2: What are the key interorganizational incompatibilities to focus on from practice?

SQ 3: What improvements are required in the current practice to overcome interorganizational incompatibilities in cross-border projects?

SQ 4: What is the applicability and feasibility of the proposed framework for implementation?

Next, each sub-question is answered.

SQ 1: What are the interorganizational incompatibilities that can be identified from literature?

Literature shows that a varied sort of aspects can cause incompatibilities within an international PDO developing a cross-border project. These aspects can be exogenous to the project organizations such as Regulatory and Cultural elements, and others can be influenced and shaped by the PDO such as Normative elements, Interpartner relations characterized by the relationship between partners and Structural characteristics such as formal agreements. As identified from literature, the presence of incompatibilities can have direct repercussions on the development of the project as partner organizations do not have prescribed solutions for the varied issues that can come across. So, after performing literature review, a theoretical framework was built. Table 5 in Chapter 3 presents the theoretical framework and a brief definition of the incompatibilities found.

SQ 2: What are the key interorganizational incompatibilities to focus on from practice?

To answer this question two cross-border railway projects were studied, Rail Baltica and the Zevenaar-Oberhausen connection. After analyzing each case individually, a cross-case analysis was performed to examine the similarities and differences across projects. The results showed that out of the five categories found in theory, four of them were also present in practice, these being Regulatory, Normative, Cultural and Interpartner relations. In addition to those four categories, two other were found, namely Interpartner fit and Politics. Interpartner fit is seen as a multidimensional category including the alignment of strategic objectives, compatibility in companies structure and size and complementarity of critical resources. Politics referring to all the activities related to decision-making in groups and other forms of power relations within society or organizations. Next, the identified incompatibilities from practice were allocated into one of these categories. As a result of the research performed in this step, Table 18 in Chapter 5 presents the final framework containing the seven categories that were source to the fifteen incompatibility issues found.

SQ 3: What improvements are required in the current practice to overcome interorganizational incompatibilities in cross-border projects?

Based on the findings from practice and relevant information from literature, a framework composed of a set of strategies was designed for its implementation. This framework aimed at indicating PDOs special points of attention to look at and strategies to implement for the correct establishment of a partnership in cross-border projects. Considering the PDO has limited capacity to influence all aspects that can be a source of incompatibilities, criteria were set to design the framework around those incompatibilities that the PDO can manipulate and were considered relevant by informants. Thus, the resulting framework proposed addresses seven incompatibilities raised by informants during the empirical research and two commonly overlooked issues that were mentioned in the interviews or literature as a focal point of attention. These nine issues were addressed individually and it was proposed either the existence of a specific condition or a strategy could help overcome them. Table 20 in Chapter 6 contains the proposed strategies to attend the specific the incompatibilities. The following are the preconditions and strategies proposed:

- Cultural and regulatory awareness – If overlooked or ignored, differences in these aspects will lead to misunderstandings and conflict. Acting in awareness of differences will facilitate collaboration as there is mutual understanding between partners.

- Top management support and leadership – The role of managers involves more than being coordinators. Top managers should also have a social role as consensus builders, leaders and ensure that those involved in the project buy into its purpose.

- Trust development – Considered an antecedent to commitment, trust is essential throughout the whole lifecycle of a partnership as it allows partners to cope with unexpected situations.

- Strategy 1: Define a common language and communication channel – Essential to ensure effective communication. When coupled with language qualifications for employees, language misunderstandings can be avoided.

- Strategy 2: Design a governance structure – A governance structure should be put in place to ensure collaboration between actors and progress. Aspect to evaluate when designing the structure are related to the level of control partners will have over decisions, the composition of decision-making body, differences in corporate culture, level of trust between partners, procurement strategy and motivation for learning from one another.

- Strategy 3: Develop a common integration plan – To ensure a common goal, the interests and objectives of each stakeholder should be taken care of. The present strategy is more likely to succeed if the precondition of trust is present.

- Strategy 4: Set harmonized work practices – Compatible practices can facilitate partner learning, knowledge sharing and effective interactions. Once the mechanisms are dominated, they provide consistency across organizations and save time and resources.

- Strategy 5: Procure information flow and transparency – By allowing information flow partner organizations can discard the feeling of mistrust and encourage decision-making at all levels. The present strategy is more likely to succeed if strategy 4 is in place.

- Strategy 6: Feedback and capturing lessons learnt – A process of review to benchmark the previous strategies is encouraged so organizations can evaluate their efforts and either continue their collaborations as such or make improvements if necessary.

SQ 4: What is the applicability and feasibility of the proposed framework for implementation?

After having designed the proposed framework, this was validated by four experts in one-on-one sessions. Overall, experts expressed the framework could be of use by PDOs when developing a project of cross-border or domestic nature as the process for establishing a partnership is similar regardless of the project. In addition, the proposed framework received positive comments as it was considered it addressed relevant issues of cross-border projects, was easy to read and proposed a clear structure for PDOs to avoid the messy processes they usually go through when there is no prescription to follow. In turn, there were suggestions for improvements concerning wording, the expansion of the precondition of cultural awareness to also include awareness of differences in laws and regulations and the level of detail of strategies. As a results of adapting the mentioned comments to the framework, Table 21 and Figure 8 present the final outcome.

Main RQ: How to address organizational incompatibilities to improve the process of achieving interoperability in cross-border projects?

Nowadays the concept of *interoperability* only considers aspects of regulatory, technical and operational nature as essential to achieve railway connectivity across national borders. Similar as in practice, this focus on the hard aspects tends to leave the organizational issues aside and thus neglect their identification and formal addressing as part of the strategic repertoire of organizations. Through this research, the concept of *interorganizational incompatibility* was studied and expanded to include all aspects that are present in cross-border railway projects. As found in research, the presence of these incompatibilities often leads to misunderstandings, relationship damage, increased transaction costs, collaboration difficulties and others, which in turn hamper the management and performance of projects.

Therefore, in order to enable the collaborative management of these projects, the present research proposes to combat the most relevant issues found across literature and practice and provide a framework for implementation. As discussed previously, organizations must come together and tailor the strategies and enrich the framework where necessary to enable collaboration regardless of their differences. Thus, the risk of encountering organizational incompatibilities in the front-end phase of development or in later stages can be addressed early on and avoid a damage in performance and hinder the achievement of interoperability as planned.

In conclusion, this research presents a stepping stone to the formal addressing of interorganizational issues in cross-border projects and contributes to fill in the gap the topic represents.

9.2 RECOMMENDATIONS FOR FUTURE RESEARCH

The following are some recommendations for future research:

- The proposed framework for implementation mainly addresses soft aspects of project management. In order for developing a more complete framework that PDOs can use in the front-end of partnership development, hard aspects are also recommended to delve into.

- Given the international nature of cross-border projects, and as remarked by informants, the cultural dimension is worth delving more into. To focus on differences of national culture could shed some light on new barriers that perhaps have influence on other dimensions and thus tackle them in timely manner.

- The focus of this research was on the collaborative partnership implementation between PDOs in the front-end phase of project development. Thus, it is recommended to expand the research to an execution phase and see the new barriers PDOs face and what can be implemented for them to maintain a collaborative relationship.

- As identified in the expert validation session, even though across literature and also in practice there is more information on how to tackle organizational issues, firms seem to be making the same mistakes over and over again without qualms. Thus, it is suggested to research on which mechanisms within the organizations make that this improvement in practice doesn't happen.

9.3 RECOMMENDATIONS FOR PRACTICE

The following are some recommendations for practice:

- It is recommended the designed framework is put into practice so PDOs have a clear structure to follow that allows them to overcome interorganizational incompatibilities. It is also expected the continuous use of the framework and further exploration of these challenges would allow organizations to strengthen the framework and its strategies to current practice.

- Most of the informants, experts and the case units have in different degree a relationship with Netlipse. Thus, the results obtained from this research confirm professionals across the organization face similar issues in cross-border projects and see the relevance for the current research. And although the main focus of the organization is on organizational aspects within LIPs, cross-border projects would benefit from being seen as a subset of these and thus specially addressed.

9.4 PERSONAL REFLECTION

Before starting my master's in TU Delft I accumulated experience for four years in the Budgetary control area for large mixed-use projects in Mexico. Given my own nature of being a calculative-oriented person, my qualities resulted to fit well into my job position. I would analyze options before making a decision, make sure contracts were clearly specified and complete, that the company was choosing the right contractor and paying a fair price, etc. Yet, in the end, it would frustrate me that things wouldn't go as planned due to basic misunderstandings, poor communication, conditions that could have been foreseen and the constant change of plans which are so common in the construction industry. Not entirely sure about the how and why, but since then I thought that perhaps to focus more on people, building relationships and organizational aspects for the better performance of construction projects deserved more attention. So, determined to explore these interests of mine, I ventured to pursue a master's degree with the hope of contributing something to the industry and perhaps finding a solution to the problems that plagued me as a practitioner.

This being my first experience doing research and writing a thesis, I can admit it was not easy. Moreover, I can recognize all the things I should have done different and could have done better. Starting with, I wish I would have kept my mind more open in early stages of my research and up to the start of my interviews. I recognize having such a fixed idea of how I thought my research was going to look like in the end, and even the results I thought I was going to get from the interviews, puzzled me whenever there was a change of plans or things didn't turn out as I planned. To my advantage, thanks to the constant guidance from my graduation committee I was reminded to keep an open mind, see opportunities in every step along the way and work with the things I had. This piece of advice was applied on several occasions, from the definition of my topic, the results from interviews, the struggle with the number of case studies and interviewees, the method for validating my results, among others.

Moreover, the greatest takeaway for me as a professional lies in actively recognizing the influence that people, organizations and collaboration have on the success of construction projects. And although, this reflection may seem as pretty basic, this learning was reinforced through the interactions I had with experienced professionals, which not only serve the purpose of this research, but also allowed me to grasp a portion of their knowledge in project management.

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APPENDIX A – THEORETICAL FRAMEWORK CATEGORIES' NAME PER AUTHOR

Variable	Author	Category name per author
Regulatory elements	(Orr & Scott, 2008) (Qiu et al., 2019) (Hertogh & Westerveld, 2010) (Hertogh et al., 2008) (Mahalingam & Levitt, 2007)	Regulatory Regulatory Legal Legal consents Regulatory
Normative elements	(Orr & Scott, 2008) (Qiu et al., 2019) (Hertogh & Westerveld, 2010) (Hertogh et al., 2008) (Ozorhon et al., 2010) (Mahalingam & Levitt, 2007)	Normative Social Social Stakeholders Organizational culture fit Normative
Cultural elements	(Orr & Scott, 2008) (Qiu et al., 2019) (Ozorhon et al., 2010) (Mahalingam & Levitt, 2007)	Cultural Cultural National culture fit Cultural
Interpartner relations	(Qiu et al., 2019) (Hertogh & Westerveld, 2010) (Hertogh et al., 2008) (Ozorhon et al., 2010)	Relational Organizational Organization and management Interpartner relations
Structural characteristics	(Hertogh et al., 2008) (Ozorhon et al., 2010)	Contracting Structural characteristics

Table 22: Theoretical framework categories' name per author

APPENDIX B – RAIL BALTICA IJV PROJECT ORGANIZATION

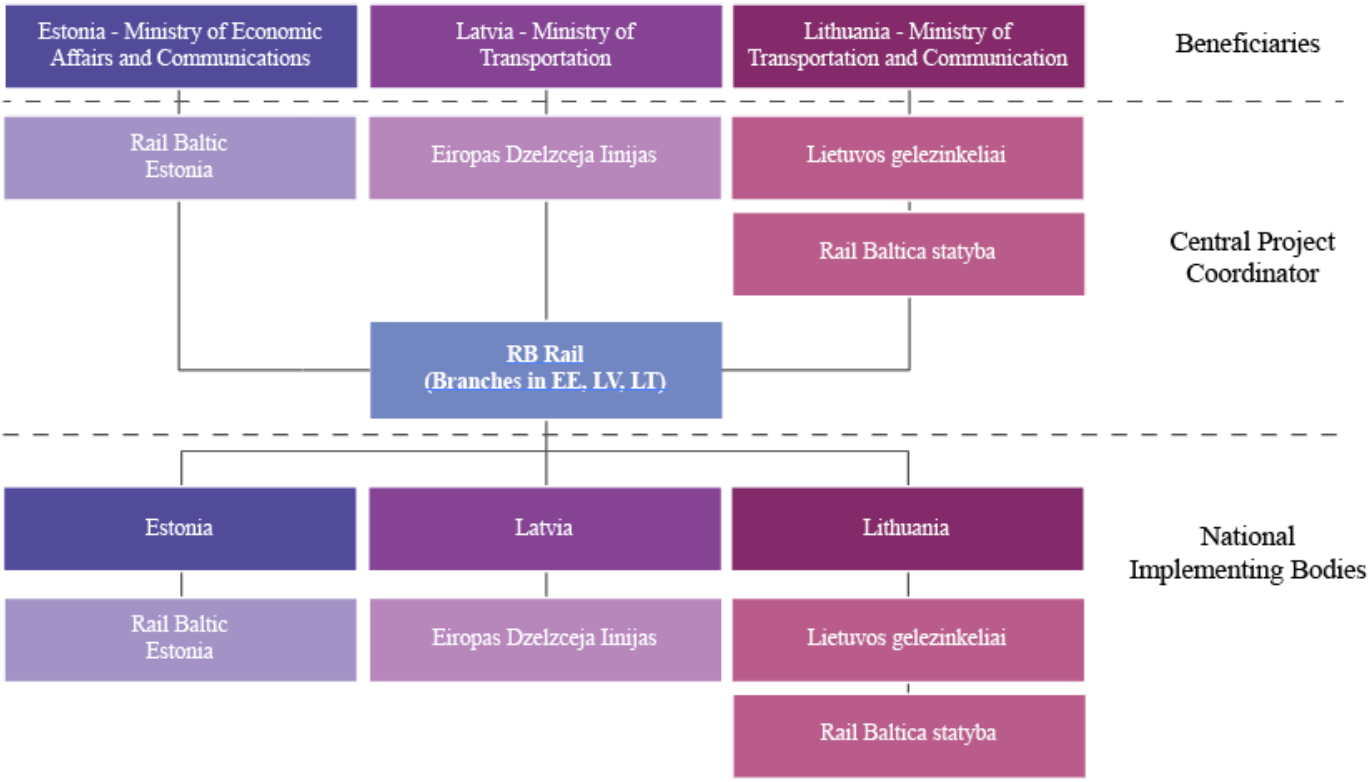

Figure 9: Rail Baltica IJV Project Organization (Rail Baltica, n.d.)

APPENDIX C - INTERVIEW PROTOCOL

Introduction

The present interview will serve the purpose of doing exploratory research for my master thesis focused on the interorganizational incompatibilities in cross-border projects. The purpose of this interview is to explore the interorganizational incompatibilities found in practice in particular case studies so later a cumulative analysis among the findings from the different case studies can be derived. The goal of this research is to identify the most recurring issues present in cross-border projects in practice and how can they be prevented from occur or tackled when occurring so the PDO does not suffer on the development of the project.

Conditions

In order to be able to transcribe this interview later, permission to record this interview is asked. The recording will be treated as confidential and there will be no further use of the recording.

Part 1

1. How many years of experience do you have in domestic and cross-border projects?
2. For how long have you been working in this project?
3. What is your role in this project?

Part 2

A general overview on the complexities cross-border projects face is given, e.g. regulatory, cultural, organizational aspects. However, no relation to the proposed framework is done so as to not restrict the responses from the interviewee.

4. What type of incompatibilities/barriers have you come across when working in this cross-border project?
5. How was this situation faced and managed in your project?
6. What were the affecting consequences of such barrier?
7. How was this problem/issue solved?
8. Which of the incompatibilities brought a larger impact to the project?
9. Do you think situations of the same nature are important in cross-border projects?
    a) If so, why?
    b) If not, why?
10. What can people and organizations do better to collaborate despite these barriers?

Part 3

11. In your opinion, do you think there is an aspect/variable that needs to be considered in cross-border projects besides the ones already discussed?
    a) If so, what aspect and why?
12. Do you recall an event where this aspect was present?
13. Is there any remark you would like to add to this interview?

APPENDIX D.1 – EXPERT INTERVIEW PROTOCOL

Introduction
Prior to conducting the expert interviews, a short presentation was given to expose the research topic, the results obtained from the empirical research which were used for building the framework and the framework itself. The strategies and preconditions included in the framework and its phases were also discussed one by one with Figure 7 paired with Table 19. Next, the researcher addressed a set of preformulated questions to validate the applicability of the designed framework for implementation.

The questions addressed to the experts were as follows:

1. Are there any steps or strategies that are not clear from the framework?
2. Is the proposed framework considered useful and applicable by PDOs in cross-border projects to help to overcome interorganizational incompatibilities?
3. What should be modified or improved from the proposed framework for PDOs to find it more valuable?
4. The suggestions provided in the framework might not be new or unknown. Why don't practitioners use them?

APPENDIX D.2 – EXPERT SESSION PARTICIPANTS

Code	Expertise	Organization
Exp. 1	Railway project management	Femern A/S
Exp. 2	Organizational challenges in LIPs	British University in Dubai
Exp. 3	Railway project management	AT Osborne
Exp. 4	Complexity in infrastructure	AT Osborne

Table 23: Expert session participants