

Public-Private Partnerships for the Provision of Port Infrastructure: An Explorative Multi-Actor Perspective on Critical Success Factors*



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Abstract

Public-private cooperation on the level of project finance, and provision of large-scale infrastructure projects, is increasing on the global level. This paper uses a multi-actor analysis, in order to explore the critical success factors (CSFs) for sound implementation of public-private partnerships (PPPs) in the port context, and to determine the diverging opinions of stakeholders with regard to the importance of these CSFs. The results indicate that eight CSFs are of superior importance in port PPPs: the concreteness and preciseness of the concession agreement, the ability to appropriately allocate and share risk, the technical feasibility of the project, the commitment made by partners, the attractiveness of the financial package, a clear definition of responsibilities, the presence of a strong private consortium and a realistic cost/benefit assessment. The

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* An earlier version of this paper was presented at the IAME (International Association of Maritime Economists, Norfolk VA, USA) Conference 2014.

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reason for their importance is their deal-breaking character, which can lead to a total failure of PPP projects during the early stages of project conception.

Key Words : Public-Private Partnerships, Port Infrastructure, Critical Success Factors, Stakeholder, Industry Expertise

I. Introduction

Port infrastructure contributes to a country's economic development by reducing shipping time and costs, and by providing access to foreign and domestic markets¹⁾. As global trade volumes increase, and transnational/global players emerge in certain parts of the shipping market, the demand for sufficient hinterland and port infrastructure increases²⁾. The latter is endorsed by the recent initiation of numerous large port infrastructure projects worldwide³⁾. Such projects require large capital expenditures, often forcing public sector actors to search for sources of funding outside the public sphere. Governments, governmental entities and public enterprises have therefore started to look for private capital in order to implement infrastructure projects, and to provide services previously situated within the scope of the public sector⁴⁾.

This shift towards public-private arrangements for infrastructure provision, are part of a larger cyclical evolution within which the funding and procurement of transport infrastructure shifts from more, to less private involvement⁵⁾. Yet, in addition to raising traditional critical and recurrent questions on the need for large up-front investments required in such projects, the longevity of the infrastructure assets, and their sunk cost characteristic; there are also more tacit elements involved. These tacit elements are the division of risks and responsibilities amongst public and private partners, issues pertaining to the project's ecology, and the project success as perceived by different stakeholders involved⁶⁾.

1) Rappa(2014); Wiegmans(2002)

2) Wiegmans(2002); Pallis(2008); Olivier(2005)

3) IFC(2012)

4) De Lemos(2000)

5) Estache and Serebrisky(2004)

6) Daniels(1996); De Schepper, Dooms, and Haezendonck(2014)

In this paper, we analyse critical success factors (CSFs) for PPP development in North-West European landlord ports, based on the perceptions of several stakeholders involved in port operations and port infrastructure provision. Hence, a multi-actor perspective is employed to explore which CSFs are important, and to what extent different stakeholders have diverging opinions on the importance of these CSFs. To this end, we interviewed several major port stakeholders, *de facto* utilizing an industry/expert-based identification method for uncovering critical success factors⁷⁾.

The paper sets out to establish our research framework first, elaborating further on the concept of PPP, the practical application of PPPs in port infrastructure, and the development of CSFs in the literature. In the second part of the paper, the research method is discussed, after which our main findings are provided and clarified. In the final part of the paper, a discussion, and the limitations of the research are presented, followed by our conclusions.

II. Research Framework

1. Public-Private Partnerships and Port Infrastructure Provision

While port infrastructure serves a crucial facilitating role in global supply chains, leading to the advancement of local and national economies, the fact remains that its development is costly⁸⁾. This applies both to developing, upgrading or maintaining port-based and hinterland-oriented infrastructure. For most landlord port authorities, the ability to finance and develop port infrastructure is restricted, as in most cases the landlord port authority has to compete with other government departments and agencies for a limited amount of budgetary resources available for the development of public infrastructure, whilst also having to succeed in influencing the political decision making process that governs transport investment decisions⁹⁾.

In the pre-privatisation era, the development and management of transport infrastructure was the prerogative of government. This allowed

7) Leidecker(1984)

8) Rappa(2014); Daniels(1996)

9) Rappa(2014)

for interventions through the direct provision of funds and resources, in order to protect the public good or interest. Profound changes in economic and spatial policy however, have led to a re-orientation of the position of government as the sole provider and financier of transport infrastructure¹⁰⁾. A move towards corporatization, privatization, deregulation and decentralization, has had a profound impact on the modes of interaction between public and private actors, and forms of cooperation that are put in place, in order to provide sufficient transport infrastructure¹¹⁾. This trend is reinforced by recent developments in terms of public budget deficits, and the global financial and economic crisis.

When looking at private investments in seaports between 2000 and 2011, figures show that on average US\$ 4.2bn have been invested yearly in port development projects, particularly in developing regions, either through concession, greenfield projects, divestiture or management and lease contracts¹²⁾. Despite the increase of private investments in seaports, the definition of what public-private partnership entails is still debated¹³⁾. This lack of a common definition complicates the debate on the true meaning of the phenomenon, and the obstacles and conditions involved¹⁴⁾¹⁵⁾.

Seen as a family of concession types, the public-private partnership (PPP) phenomenon is far from new, and quite common in the context of port and shipping infrastructure. The Suez Canal for instance, is a very well known example of a concession built using a long-term concession¹⁶⁾. Today, and especially in the containerized part of the shipping industry, a trend towards greater private participation in port activities is present, focusing particularly on those activities with a commercial nature¹⁷⁾. In North-West European landlord ports for instance, the most common financial structure is one in which the government pays for access to the port, whilst a port authority funds basic infrastructure such as quay walls, and private container terminal operators fund the superstructure¹⁸⁾. These concessions do however differ greatly in terms of their forms, and inclusiveness. Some have an integrated design, integrated planning,

10) Wiegmans(2002); De Lemos(2000)

11) Wiegmans(2002)

12) IFC(2012)

13) Hodge, Greve, and Boardman(2010)

14) Grimsey and Lewis(2005)

15) Estache and Serebrisky(2004)

16) De Lemos(2000)

17) Wiegmans(2002)

18) Wiegmans(2002); Theys(2010)

shared or transferred construction-risk, and in some cases even the maintenance and utilization of the infrastructure is also transferred to the private sector. Amongst the more common forms of terminal concessions are the BOT: build-operate-transfer concessions and BOO: build-own-operate concessions¹⁹⁾.

Hammami et al. (2006) provide an extensive overview on the characteristics of the different types of PPPs. These include the mode of entry, and the public and private obligations concerning (1) operation and maintenance responsibility, (2) investments, (3) ownership, and (4) the average years of duration of different PPP models. These models can range from management contracts, build-own-transfer (BOT) or build-own-operate (BOO) up to full privatization agreements as shown in the table below. The inclusion of full privatization into the PPP concepts, however, remains a topic of discussion and diverging opinions²⁰⁾.

<Table 1> Characteristics of main types of PPPs

Types of PPPs	Mode of Entry	Operation and Maintenance	Investment	Ultimate Ownership	Duration (years)
Management Contract	Contract	Private	Public	Public	3-5
Leasing	Contract	Private	Public	Public	8-15
Rehabilitate, Operate and Transfer (ROT)	Concession	Private	Private	Public	20-30
Rehabilitate, Lease/Rent and Transfer (RLRT)	Concession	Private	Private	Public	20-30
Merchant	Greenfield	Private	Private	Public	20-30
Build, Rehabilitate, Operate and Transfer	Concession	Private	Private	Public	20-30
Build, Operate and Transfer (BOT)	Greenfield	Private	Private	Semi-private	20-30
Build, Own, Operate and Transfer (BOOT)	Greenfield	Private	Private	Semi-private	30+
Build, Lease and Own (BLO)	Greenfield	Private	Private	Private	30+
Build, Own and Operate (BOO)	Greenfield	Private	Private	Private	30+
Partial Privatization	Divesture	Private	Private	Private	30+
Privatization	Divesture	Private	Private	Private	Indefinite

Source: Hammami et al. (2006)

19) De Lemos(2000)

20) Duffield(2010)

2. Critical Success Factors in PPPs

The term ‘critical success factor,’ was further developed by the Sloan School of Management on the basis of Rockart (1981) who defines them as “those few key areas of activity in which favourable results are absolutely necessary for a manager to reach his/her goals”²¹⁾.

In academic research, some work on the critical success factors for PPP projects has been conducted in the last 2 decades, resulting in factors that range, amongst others, from an appropriate risk allocation and assessment²²⁾, to technical innovation²³⁾, through to knowledge transfer²⁴⁾, open communication²⁵⁾, proper stakeholder management²⁶⁾ and a strong financial market²⁷⁾. In total, more than 70 CSFs have been identified by this research.

However, only a few dominant CSFs have been researched extensively. This is due to the fact that the concept of project success is difficult to define, and remains somewhat elusive. Project success is often defined as the ability to finish within time, cost and quality constraints²⁸⁾. However, projects have been delivered within time, budget and quality limitations, and have still been evaluated as being failures. On the other hand, several projects that did not meet these constraints have been evaluated as successful. This has lead authors such as de Wit (1988) to suggest that there might be a distinction between overall project success and project management success²⁹⁾. The absence of conceptual clarity has therefore lead several authors, focusing on CSFs, to conduct quasi-scientific research based on perceived success and the perception of managers in the field. The same approach is found in this paper. We opt to use an identification technique in line with what Leidecker and Bruno (1984) call industry and or business experts. This identification method includes inputs from respondents who have an excellent working knowledge of the industry or business being scrutinized. As an identification method, it is not the most objective method, yet it offers the advantage of obtaining

21) Rockart(1981)

22) Li et al.(2005); Qiao et al.(2001), Chan et al.(2010)

23) Tiong et al.(1992)

24) Jefferies et al.(2002); Jamali(2004)

25) Chan et al.(2006); Jamali(2004); Samii et al.(2002)

26) El-Gohary(2006); Smyth and Edkins(2007)

27) Akintoye et al.(2001)

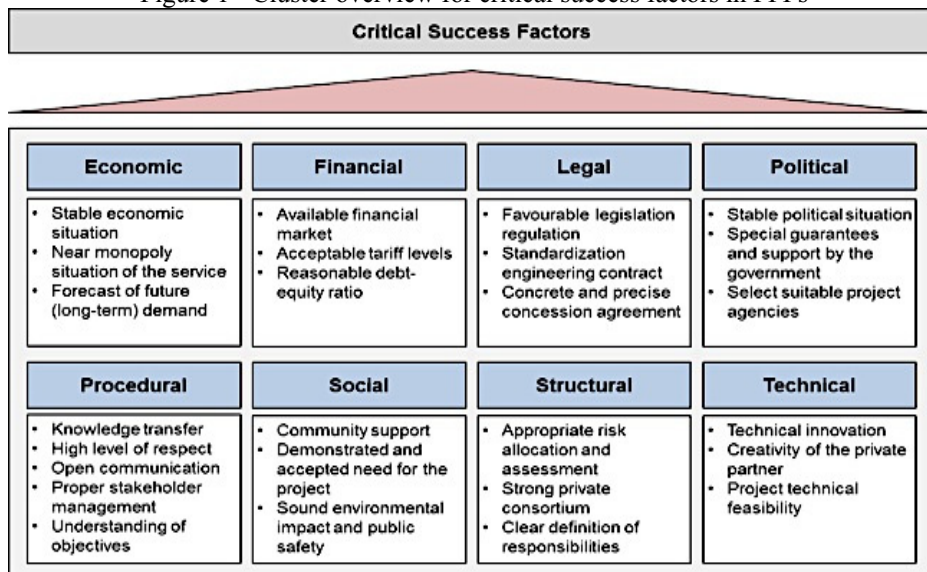
28) Ika(2009)

29) De Wit(1988)

information or perspectives that are not always available when other critical success factor identification methods are used³⁰⁾. The approach is centred on the experts' intuition and may therefore uncover even more CSFs than initially anticipated.

To structure the numerous CSFs, success factors can be categorized according to the type of value or intended goal. A clustered overview of CSFs is provided in figure 1.

<Figure 1> Cluster overview for critical success factors in PPPs



The main methodologies used by most scholars and authors in the CSF field have been literature reviews, expert interviews, surveys and case studies or a combination thereof.

III. Research Method

1. Qualitative Survey Based Research

This paper employs a three-stage qualitative research methodology. After performing a comparison of relevant academic literature, a PPP-

³⁰⁾ Leidecker(1984)

oriented survey was created to perform a comprehensive study among both public and private stakeholders. In a final stage several follow-up interviews were performed in an effort to clarify our findings further.

In the literature review process, more than 70 CSFs in PPP projects have been identified. In order to structure these factors, the authors attempted to cluster them into categories. Due to the long initial list of CSFs, we condensed the list in light of the evaluation of PPPs for port infrastructure. The selection of the CSFs is based on the authors' practical experience with PPP port projects and discussions with academics and experts from the port industry.

In the second stage, a survey was sent to different companies³¹⁾ involved in the development of port infrastructure, and is used in order to evaluate the degree of criticality for each identified CSF. A survey-based research strategy was used, as this was also done in prior CSF related research, but also due to the fact that this type of tool allows researchers to cover larger geographical areas, whilst allowing respondents to reply in the comfort of their own surroundings. It also allows industry experts to bring their perspective forwards, as it allows respondents to provide their opinion on the matter at hand. However, questions can only be clarified through follow-up interaction and overall, the return rates are typically low, but can also be augmented through follow-up techniques³²⁾.

After the completion of the questionnaire, eight follow-up interviews were held to confirm responses and to discover specific issues, or provide explanations for uncovered issues in more detail. The survey was held during a three-week period in the summer of 2013.

The questionnaire consists of 16 questions in total. Furthermore, it is conducted in both English and German, in order to ensure the highest degree of understanding by the respondents and thereby overcoming the language barrier.

The questionnaire focuses on the evaluation of CSFs (CSFs included in the questionnaire see table 2) and the reasons why certain success factors are of higher importance than other ones.

31) A list of the companies included in the research can be found in appendix 1.

32) Sekaran and Bougie(2013)

<Table 2> Shortlist of CSFs for the survey

No.	Critical Success Factor	Cluster
1	Stable economic situation	Economic
2	Available financial market	Financial
3	Attractive financial package and acceptable tariff levels	Financial
4	Special guarantee by the government	Financial
5	Reasonable debt/equity ratio	Financial
6	Concrete and precise concession agreement	Legal
7	Stable political situation	Political
8	Political Support	Political
9	Sound economic policy	Political
10	Open communication	Procedural
11	Proper stakeholder management	Procedural
12	Competitive tendering system	Procedural
13	Realistic cost/benefit assessment	Procedural
14	Knowledge transfer	Procedural
15	Community support	Social
16	Appropriate risk allocation and risk sharing	Structural
17	Strong private consortium (organizationally and financially)	Structural
18	Clear definition of responsibilities	Structural
19	Shared authority between public and private sectors	Structural
20	Commitment of partners	Structural
21	Project technical feasibility	Technical

In order to rank the 21 CSFs a 7-point Likert scale was applied in the survey. Furthermore, the number of appearances of responses for other types of questions is counted. In addition, a reliability test in terms of the calculation of a Cronbach alpha value for the evaluation of the 21 factors is performed. Other, more sophisticated quantitative analysis is excluded due to the limited amount of available data, which cannot give a clear indication of statistical significance.

2. Survey Sample and Operationalization

In the North-west of Europe, the local port authorities serve as the representing bodies of the public sector (the port) and initiate a PPP project by starting a tender or procurement procedure. In this procedure, potential port operators, as representative of the private sector, are approached to determine a partner that later develops and operates the designated terminal area. In addition, several other interest groups obtain a stake during the conception, as well as the design phase, such as

financing institutions, consultancy firms, construction companies and legal and policy advisors, which are considered as other external stakeholders.

For the purpose of this paper, a sample of the above-mentioned interests groups is determined through market research, performed in the ports included in our sample; namely the ports of Amsterdam, Antwerp, Bremerhaven, Cuxhaven, Rotterdam, Wilhelmshaven, and Zeebrugge. As a result, out of the sample size of 36 companies, 32 participants from 27 companies responded.

The questionnaire was sent to upper-level managers via e-mail. The respondents were selected due to their current or past involvement with PPP projects, and overall experience with the PPP concept

<Table 3> Questionnaire participation rates among stakeholder groups

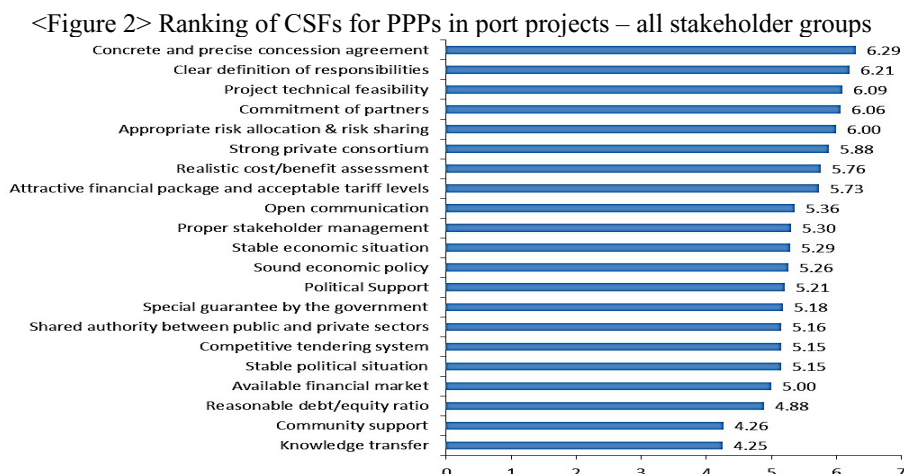
Company category	Number of approached companies	Number of responses	Response rate
Port Authority	8	8	100 %
Terminal Operator	9	7	77 %
Financing Institution	6	4	67 %
Consultancy Firm	7	5	71 %
Legal Advisor	1	0	0 %
Policy Advisor	2	0	0 %
Construction Company	3	3	100 %

Table 3 shows that a satisfying return could be generated from the port authorities, the terminal operators, the financing institutions, consultancy firms and construction companies. Furthermore, the questionnaire revealed that the average professional experience of the participants in PPPs equals to 9 years. Unfortunately however, no responses could be received from the legal and policy advisors.

IV. Results and Findings

The evaluation of the 21 CSFs has been performed with the aid of a 7-point Likert scale. The reliability test for this part of the questionnaire shows that the Cronbach alpha equals 0.859, which suggests that it is reliable. The analysis of the response data further produced mean

importance values among the 21 CSFs ranging from 6.29 to 4.25. The figure below shows the average score of the CSFs among all stakeholders.



The figure shows that a concrete and precise concession agreement (average score: 6.29) followed by a clear definition of responsibilities (6.21), project technical feasibility (6.09), commitment of partners (6.06) and appropriate risk allocation and risk sharing (6.00) are the five most important CSFs among all participants from different stakeholder groups. At the low end of the spectrum, community support (4.26) and knowledge transfer (4.25) received the lowest scores.

The evaluation of the CSFs is broken down into the different stakeholder groups, in order to identify potentially different perceptions in the criticality of success factors for PPPs in port infrastructure. Since port authorities and port operators are the two main stakeholder groups in port PPP projects, special attention is put on the comparison between their opinions on CSFs in port PPP.

<Figure 3> Evaluation of CSFs - port authorities

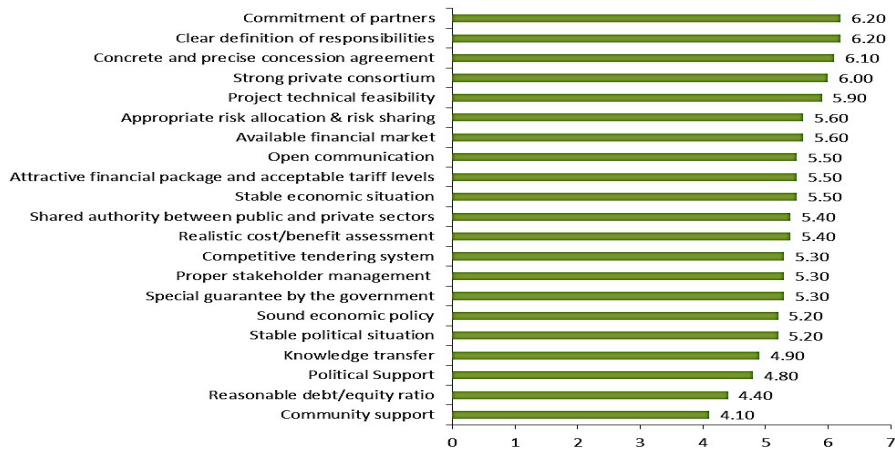
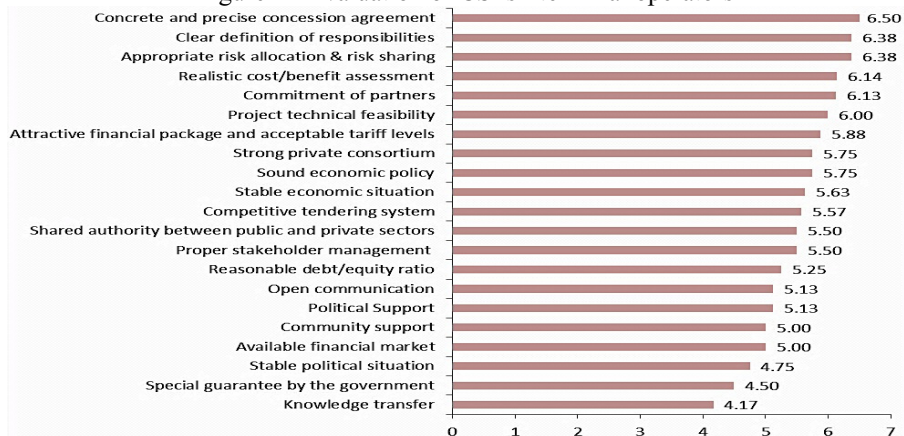


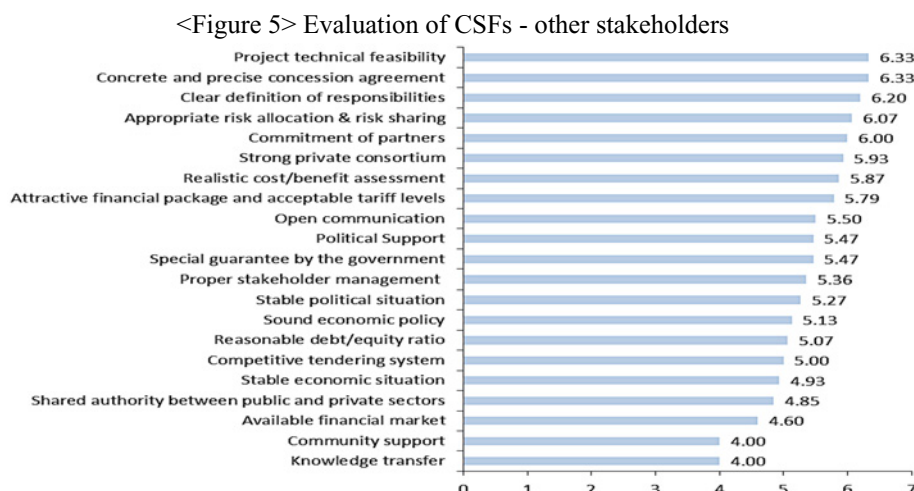
Figure 4 indicates that port authorities evaluate the commitment of partners (6.20) as well as a clear definition of responsibilities (6.20), a concrete and precise concession agreement (6.10), a strong private consortium (6.00) and a project that is technically feasible (5.90) as the most important CSFs.

The terminal operators however considered the concreteness and precise ness of the concession agreements (6.50), the clear definition of responsibilities (6.38), an appropriate risk allocation and risk sharing mechanism (6.38), a realistic cost/benefit assessment (6.14) and the commitment of partners (6.13) as the most crucial CSFs. A full list of the evaluation of CSFs is presented in figure 5.

<Figure 4> Evaluation of CSFs - terminal operators



Finally, figure 6 shows the evaluation of CSFs made by respondents active in financing institutions, consultancy firms and construction companies, which are combined into the category other stakeholders.



The third group other stakeholders reported that the concreteness and preciseness of the concession agreement (6.33), the technical feasibility of the project (6.33), a clear definition of responsibilities (6.20), an appropriate risk allocation and risk sharing (6.07), and the commitment of partners (6.00) are the most important CSFs in PPPs for port infrastructure.

The CSFs concrete and precise concession agreement, a clear definition of responsibilities, and the commitment of partners have obtained very high scores among all 3 stakeholder-groups. The figures also show that the terminal operators and the other stakeholders group consider the realistic cost/benefit assessment, and the appropriate risk allocation and risk sharing, as very important. Additionally, when looking at the biggest differences between the rankings of CSFs, the rankings often differ between port authorities and terminal operators. 6 out of the 21 CSFs show a difference of six or more ranks, whereas available financial market with 11 ranks of difference shows the largest gap, followed by sound economic policy (8 ranks), special guarantee by the government (7), realistic cost/benefit assessment (7), open communication (7) and reasonable debt/equity ratio (6). When comparing the other stakeholder groups' responses with the port authority responses and the terminal

operator responses, only one CSF varies significantly with more than six ranks. This is the CSF expressing the need for a stable economic situation.

The respondents were also asked to select the three most important CSFs. The outcome shows that the most important CSFs are: a concrete and precise concession agreements (number of selections: 15), an appropriate risk allocation and risk sharing mechanism (15), followed by an attractive financial package and acceptable tariff levels (11). However, across respondents, the top-three rankings showed that 18 different CSFs were part of a top three. As such, a lot of diversity is present when looking at the responses brought forward by different types of stakeholders.

Therefore, when looking at the top-three rankings provided by respondents active in a port authority, these grouped responses show that 15 out of the 21 CSFs made it into a top three selection. The five dominant CSFs are appropriate risk allocation and risk sharing, a sound economic policy, a stable economic situation, an attractive financial package and acceptable tariff levels as well as a realistic cost/benefit assessment.

However, the terminal operators only selected 10 out of the 21 CSFs. The dominant CSFs among the terminal operators are appropriate risk allocation and risk sharing, a concrete and precise concession agreement, the commitment of partners as well as an attractive financial package and acceptable tariff levels. This outcome is interesting, since the importance of only 3 CSFs are evaluated as important, by both the terminal operator and the port authority experts.

For the remaining stakeholders, the results indicate that 13 CSFs have been selected with the dominant factors being: a concrete and precise concession agreement, an appropriate risk allocation and risk sharing, an attractive financial package and acceptable tariff levels and the technical feasibility of the project. Hence, in comparison with terminal operators, 3 out of the 4 of the most important CSFs are identical, whereas only two overlapping factors exist with the responses put forward by the respondents active in a port authority.

1. Reasons for the Selection of Critical Success Factors

With 15 voices stating that a concrete and precise concession agreement is one of the three most import CSFs; it has received the most votes under

the top 3 CSFs selection. Through the interactions we had, in following-up on the survey-based analysis, it was established that this is due to the fact that the concession agreement is seen as the cornerstone for public-private cooperation. As such, it clearly defines the roles, rights and duties as well as the responsibilities of all parties involved in the project. This may then serve as a tool to resolve disputes, as well as a framework for outright conflict solving as it contains the details of the risk allocation. Hence, mutual agreement and trust are easier to obtain according to the respondents, as a clearly written concession agreement does not leave room for different interpretations.

Appropriate risk allocation and risk sharing has also received 15 top 3 votes by respondents. Its relevance stems from the interpretation of risks, as this is crucial to properly allocate risk. Therefore, the better the risk is shared, the better the outcome will be. If the private investor has to bear the majority of the risk, an agreement for a PPP will not be reached. From a financial perspective, participants claimed that without proper risk allocation, no or very unsatisfying offers will be received, since the risk allocation has a direct impact on profitability of an investment. Finally, one participant answered that the allocation of risk is inextricably linked to profit, resulting from the fact that an operator is prepared to take risks in order to make profits. On the other hand, the port authority should cover the long-term fixed costs rather than maximize profits. Proper risk allocation is thus crucial, in that both parties are aware of the risks they should take in a PPP.

The attractiveness of the financial package and acceptable tariff levels obtained the third highest amount of top 3 votes (11). First, according to the respondents, a project that is not financially attractive will not materialize, since private parties will not be interested. Second, the concession agreement has to be structured in a way that the tariff levels are as low as possible, but in parallel, allows an operator to gain a reasonable return on investment (ROI), which is the first criterion in evaluating the investment in a PPP project. Third, this CSF is important for port authorities in order to be able to receive competitive offers from the market. Fourth, an attractive financial package also positively influences the banking market and its willingness to finance a PPP project. Finally, most PPPs require high capital expenditures. Hence, sufficient overall return has to be ensured and tariffs need to be set freely. Where

needed, government support should be granted so all parties can generate a profit.

A stable economic situation received 7 votes in the top 3 ranking. This is due to the fact that a stable economic environment is more predictable, and hence mitigates PPP risk. The same is valid for a realistic cost/benefit assessment, which in this case is considered rather as a pure financial assessment. This CSF was selected 6 times in a CSF Top 3. Without these elements, the customer is unable to make a clear evaluation, which in the end may result in the overall failure of a PPP. Also, a cost/benefit assessment is the basis for the design of a promising financial model.

The CSF project technical feasibility was selected 6 times. Projects that are generally not technically feasible, do not offer sufficient grounds to start from, and may increase the chance of missing assigned targets, thereby decreasing investors' interest.

The results show that the perception between the port authorities and the terminal operators differs substantially for the following CSFs: available financial markets, special guarantee by the government, open communication, sound economic policy or realistic cost/benefit assessment.

The biggest difference in terms of the evaluation of importance is situated in the CSF available financial market, which is more important for the port authority. According to the respondents, this is due to the fact that the port authorities face financial constraints with regards to the available budget for investments in port infrastructures. Terminal operators on the other hand consider this CSF less critical, since they believe in their own financial strength, and the majority of the terminal operators, in the end, are able to finance a bigger portion of the investment with shareholder equity, as long as the project offers the required ROI and risk premium.

Another marked difference in the perception can be observed for the CSF special guarantees by the government, which is considered more important by the port authorities. This evaluation is influenced by the dependency of the port authorities on their shareholders, which are mainly the local, regional or national governments, on which territory the port authority is located. This dependency refers to the fact that, due to the relatively limited financial capacities on the one hand, and the large monetary amount for investments on the other hand, port authorities often

require these governmental guarantees to be able to finance port infrastructure projects at low interest rates.

The factor of sound economic policy also shows a comparatively high difference in terms of the perception between the port authorities and the terminal operators. This is predominantly due to factors mostly outside the circle of influence of the terminal operator. It is however included in their business case and evaluated in the risk analysis. Also, due to their global operations, terminal operators are quite aware of and experienced in changing political situations. Hence, the terminal operators do not consider this factor as critical while the port authorities have a different opinion. The port authorities are in close and regular dialogue with the political institutions due to the ownership structures of port authorities in North-Western Europe.

The importance of realistic cost/benefit assessment was also evaluated differently by terminal operators on the one hand and port authorities on the other. This is due to the fact that terminal operators are largely influenced by the results of the financial appraisal (based on their own costs and revenues) whilst port authorities are more influenced by the results of the economic appraisal (the costs and benefits to all stakeholders, including the wider public).

Port authorities evaluated open communication as more important than the terminal operators. This divergence can be explained by the port authorities having an interest in transparency in the whole process of a PPP for port infrastructure, since attractive and fair bidding processes are ensured through transparency. Terminal operators on the other hand, regard this factor as less critical, because they are not interested in providing too much information during the conception, as well as the design phase, due to confidentiality reasons. Until they are awarded the concession, they fear unnecessary communication with the port authorities, since they do not want them to get involved too much in the operational matters.

The perceptions towards the importance of CSFs by the other stakeholders mostly go either in line with the terminal operators or the port authorities. Only the CSF of stable economic situation differs to both other stakeholder groups as it is considered fairly less important by the other stakeholders. An explanation given by the interviewees is that most other stakeholders operate on an international level and in regions which

are far less stable than North-West Europe or, alternatively, that this CSF is outside their control and thus is not a deal-breaking factor in their opinion.

V. Discussion and Limitations

1. The PPP Definition

We indicated that there still is much debate about the PPP concept and its origins³³⁾. Where the concept is applied broadly, public-private cooperation in any sort or form can be said to be a PPP, including projects characterized by low or no risk sharing. However, more recently, scholars have been looking into research on PPPs where three types of risk (demand risk, construction risk and exploitation risk) are located with the private or public partner that is best suited to oversee and tackle these risks. Such a classification is currently applied in the United Kingdom, and other Anglo-Saxon countries, and has been defined as so-called PFI projects (or private financing initiatives). On the European mainland, governments also have been looking into the division of risk and responsibility in large-scale infrastructure projects, often in an attempt to make projects neutral on the level of the government budget. According to the ESA-rules, governments in the EU are allowed to make off-balance sheet transactions, granting them financial means at the current moment, without having to provide an immediate restitution. The cost of developing large-scale transport infrastructure can therefore be spread into the future, by means of availability payments, as long as sufficient risk (involved in the design, construction, maintenance and/or operation of the infrastructure) is transferred to the private sector. We therefore wonder whether our respondents consider these new developments as part of their assessment of PPPs, or whether or not their focus has been mainly directed towards the more common concession types that are often found in shipping and port operations.

33) Hodge, Greve and Boardman(2010)

2. Stakeholders and the Stakeholder Map

The terminal operators and port authorities, seen as the two most important stakeholders in this paper, are generic or abstract terms. However, our research aims to preserve a high level of abstraction by looking at commonalities found across projects, represented through individual voices. As such, it lacks the nuance that can be found when including all possible stakeholder opinions, and instead focuses primarily on the two main players, i.e. the terminal operators and the port authorities included in our sample.

3. Including the Project Life-Cycle

Given the uniqueness of infrastructure projects, it is vital that research on CSFs takes the project life cycle into account. Accordingly, when project life cycles are taken into account, respondents will find some CSFs to be more or less important in certain project phases. A more substantiated research effort will therefore need to include a study of CSFs in the project design phase, in the project-planning phase, the project execution phase, or any other project phase³⁴⁾. Such an approach may then reveal the importance of certain CSFs related to a particular project phase. Hence, as our research did not make the distinction between the different project phases, it lacks sensibility for the underlying project phases, yet provides a broader scope and a more abstract perspective. As such, it is situated along the lines of previous research aimed to discover universally applicable CSFs in the port PPP context.

VI. Conclusion

The results of our questionnaire, indicate that 8 CSFs are of superior importance in port PPPs: a concrete and precise concession agreement, the presence of appropriate risk allocation and risk sharing, the project's technical feasibility, the commitment made by partners, the attractiveness

³⁴⁾ Ika(2009)

of the financial package, a clear definition of responsibilities, the presence of a strong private consortium and realistic cost/benefit assessments.

The reason why these CSFs are of superior importance is their deal-breaking character, which can lead to a total failure of PPP projects during the early stages of the conception, as well as the design and development phase. In addition, these factors may impact the overall mitigation of risks and impact the project environment, by offering high levels of certainty, stability and reliability in terms of project planning. Finally, some of the CSFs influence the attractiveness of a PPP project, and thus the possibilities for a competitive bid.

The perception of importance of the CSFs varies significantly between the port authorities and the terminal operators. These differences in importance are based on their distinct financial and organizational characteristics. In addition, deviating goals, such as profit maximization for the private terminal operator, and cost recovery, as well as increased market shares/trade relations for the port authority, are another reason for the different evaluation of CSFs. *

Acknowledgement

The authors would like to thank the respondents for their much-appreciated contributions, whilst also acknowledging the sponsors of the Chair in Public-private partnerships located at the Vrije Universiteit Brussel, namely Deloitte, Laga and Grontmij.

* Date of Contribution ; August 30, 2014
Date of Acceptance ; December 1, 2014

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Appendices

<Appendix 1> List of organisations contacted in the research format

No.	Company	Position
Port Authority		
1	Bremen ports	Project Manager Port Development
2	Groningen Seaports	Project Manager
3	Hamburg Port Authority	Assistant to the Director (Port Infrastructure)
4	Hamburg Port Authority	Director Business Development
5	Port of Amsterdam	Commercial Manager
6	Port of Antwerp	Managing director of infrastructure
7	Port of Antwerp	Manager Policy and Strategy
8	Port of Rotterdam	Manager Projects Logistics
9	Port of Zeebrugge	Policy Director
10	Seaports of Niedersachsen	Managing Director
Terminal Operator		
11	APM Terminals	Head of Business Development Europe
12	APM Terminals	General Manager Port Investments & Projects
13	Buss Port Logistics	Managing Director
14	DP World	Senior Commercial Manager
15	HHLA	Business Development
16	J.Müller Aktiengesellschaft, Brake	Chief Executive Officer
17	PSA Zeebrugge	Managing Director
18	Royal Vopak	Manager IR
Financing Institution		
19	ABN Amro	Head of Global Project Finance
20	Bremer Landesbank	Division Director, Debt Equity Ports & Logistics
21	NordLB	Director/Project Manager Infrastructure
22	World Bank	Port Consultant
Consultancy Firm		
23	Drewry Maritime Advisors	Consultant
24	Drewry Shipping Consulting	Senior Analyst Ports & Terminals
25	Drewry	Senior Advisor
26	MTBS	Director
27	RebelGroup	Advisor
28	RoyalHaskoningdhv	Consultant
29	Van Doorn Consulting	Owner
Construction Company (focus on PPP involvement)		
30	Hochtief	Director UK Projects
31	Johann Bunte Bau	Director PPP Projects
32	Strabag	Director PPP Projects