

Incomplete Contracts and Public-Private-Partnerships;

A case study of the Dutch Infrastructure policy

Joël Habets

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Abstract

The degree to which the private sector should be used for traditional public activities has always been subject to extensive discussions. This research tries to add a new chapter to this discussion by examining the usage of public private partnerships in the Netherlands. By means of an extensive examination of the standardized contracts used in the UK, Australia and the Netherlands the incomplete contracts theory by Hart (2003) will be used to establish expectations for the differences in outcomes in the three countries. These outcomes are tested by means of evaluations done in all three countries. This study makes clear that public private partnerships do offer benefits over traditional procurement. But there seems to exist a trade-off in between the quality of the project and the associated costs. The degree to which risk is transferred towards the private party is vital, as a higher degree seems to lead to lower negotiation costs, higher quality but also higher insurance costs.

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Summary

Public Private Partnerships (PPP) are the newest form of cooperation between the public and private sector. They incorporate the agreement to transfer (part of the) responsibilities of at least two project stages of a former public activity to a private party. This means that the private party can have the responsibility over the finance, design, construction and maintenance of a specific project. Parallel to the general discussion concerning the involvement of the private sector into so-called public activities and vice versa, PPPs have been subject to an extensive debate, as both empirical surveys and economic literature does not offer enough evidence to give a clear conclusion. This research has made an attempt to offer some answers regarding the questions that surround the effects of PPP-implementation by making use of the incomplete contracting model of Hart (2003). In contrast to most literature this model does not try to resolve the question regarding the effectiveness of PPP by a simple yes or no, but makes clear that it is dependent upon the degree to which the construction and service of a specific project are being specified in the contract. Indicating that a PPP will only be successful whenever the specification of the construction offers room for the private party to enrich it with its own expertise, while the quantification of the service offers clear output specifications for which the private party can easily be monitored and penalized or rewarded.

The analysis starts by examining the standardized contracts that are being used with PPP implementation in the UK, Australia and the Netherlands. This comparison makes clear that the UK offers the most liberal form of PPP, as their contract transfers most of the risks from the public to the private party in combination with a strict penalty regime. Australia is a little more cautious in this respect, while the public party in the Netherlands keeps the largest share of responsibilities in own hands and transfers the least risks to the private party.

In line with the theory of Hart this leads to the expectations that the United Kingdom offers the most suitable agreement for public private partnerships. Australia is a little behind, while the Netherlands is expected to be the least able to benefit from the potential benefits that PPPs offer.

The second part of the analysis concerns the testing of the expectations established in the previous part. With the help of several empirical examinations that have been done in both the UK and Australia and evaluations with respect to four projects in the Netherlands. These latter projects are used as case studies and represent the first experiences of the Netherlands with the implementation of public private partnerships.

The aggregated results from these outcomes lead to several conclusions; in the UK PPP projects offer an advantage in both time and costs, while in half of the projects innovations have taken place. On the other hand are transaction costs high, mainly due to the long tendering stage, which have also decreased potential benefits from competition. In Australia PPPs offer mainly a cost advantage, as the projects offer a roughly similar time confidence level as traditional procured projects, mainly due to the delays during the start-up of the project. Negative outcome is the fact that innovations and design changes are very rare. These outcomes are quite similar to the ones in the Netherlands. PPPs here are also subject to extensive transactions costs during the tendering stage, offer too little possibilities for contract changes leading to little use of innovations. Still these projects are expected to be delivered with both cost and time advantages over traditional procured projects.

The outcomes of the analysis lead to several conclusions. First of all it is obtained that with the correct measures public private partnerships offer benefits over traditional procured projects. Second, the method used within a specific contract is determinant for the benefits that are achieved; first the high degree of risk transfer towards the private party seems to benefit the quality of both the process and the delivery. Leaving almost all responsibilities to the private party leaves little room for discussion, diminishing the transaction costs associated with extensive negotiations, and offers the private party a lot of room to make efficient adjustments in both the design and maintenance of the project. Downfall of this high risk transfer is the higher costs that are obtained and could be contributed to the higher costs for the private party as a result of more insurance, however when trying to diminish these costs by leaving a substantial part of the risk in the hands of the public party, the quality of both the process

and the delivery seems to suffer. The high share of responsibilities that are taken by the public party does not only leave room for lengthy negotiations but also reduces the potential benefits from the incorporation of the private party with respect to quality improvements and innovations.

In addition, several implications can be obtained. The lack of standardization in both Australia and the Netherlands has put a restraint on the potential cost advantages and has decreased the degree of competition during the tendering stage. Next to that they also underlie the governance problems that are obtained in both countries. This problem seems to be substantial as they in Australia have led to a time-disadvantage compared to traditional procured projects, while in the Netherlands they only increase when projects become more complex.

Several recommendations for the Dutch PPP policy can be extracted from the analysis. First of all the results do indicate that PPPs offer benefits and their implementation should not be questioned beforehand. Second, in order to fully benefit from the potential advantages the Dutch procedure should not only include more standardization to prevent extensive negotiations, but should also incorporated a higher transfer of risk in order to prevent the PPPs from just being bundled traditional procured projects, with substantially high transaction costs. This could improve both the quality of the process and the quality of the ultimate delivery.

1 Introduction

The proper size of the government is one of those subjects within economic literature that always has, and probably always will be, subject to extensive discussions and contrasting opinions. From the start of Adam Smith (1776) the degree to which the government should interfere in the market has been one of those issues that seemed impossible to resolve without letting personal values regarding the subject come into play. The most recent development within this discussion concerns the growing role of the private sector within formerly public activities, resulting from the increasing usage of public private partnerships by the public sector.

A public private partnership (PPP) concerns the cooperation between the public and the private sector in the production of a specific object and/or the fulfilment of a certain service which was formerly completed solely by the public sector (Iossa et al. 2007). Distinctive characteristic of PPP is the fact that the agreement between the two parties concerns at least two stages of the production process, for instance both constructing and maintenance, and as a result is often referred to as a bundled contract.

By increasing the role of the market relative to the role of the government, the public sector is trying to take advantage of the existence of private capital and profit-driven motivations within the private sector, resulting in higher innovative capacity and more efficient working methods (Logan, 1990). Nowadays a wide variety of such partnerships exists, which are being used for projects within several different sectors (Hammami et al. 2006).

This increasing usage of these partnerships has also not missed economic activity within the Netherlands as more and more projects that were formerly established solely by means of the government are now being outsourced to the private sector. This recent increase has to a large extent been the result of the number of cooperation contracts established by the executive agency of the Dutch ministry of Transport, Rijkswaterstaat (RWS). Due to a reform, almost 6 years ago, within this department emphasize became on the usage of the market within their infrastructure projects and especially to introduce the market in earlier stages of the project. So in contrast to their former policy, RWS

nowadays not only leaves the construction-part of a project to the market, but also the design-, maintain-, and finance part is being transferred (RWS, 2010).

Although the usage of PPP-contracts is increasing, there is still no general consensus within economic research concerning the potential effects and the specific usage of the contracts. Both economic theory and the empirical literature are not (yet) capable of representing a convincing argument in favour of, or against, the implementation of public private partnerships¹.

This lack of consensus has also formed a basis for critique on the governments that do pursue in PPP- contracts, like Rijkswaterstaat in the Netherlands does. Critics argue that the view of the Dutch ministry is more fixated upon working with these innovative cooperation contracts, then that the results of these agreements form a justifiable argument to increase the usage of them (Klijn, 2009). It is argued that the department is so eager to make use of DBFM-contracts² that it often deliberately overestimates the benefits of implementation. Klijn and van Twist (2007) for instance argue that many projects have experienced delays and higher costs than budgeted beforehand. Also the high transaction costs associated with most projects have raised questions on the usefulness of the partnerships and the correct judgement of the Dutch ministry. It seems that instead of using bundled contracts as a means to increase efficiency, it has become a goal itself to work with bundled contracts.

Consequently one of the aims of this research will be to shed more light on this policy and trying to find an answer with respect to the main objectives of PPP usage in the Netherlands. By means of one the most widely accepted economic models with respect to this subject; the incomplete contract model of Oliver Hart (Hart, 2003), the procurement policy of the Dutch ministry of transport will be evaluated. So taking the point of view of Rijkswaterstaat, this model represents the decision whether to bundle or unbundle activities when outsourcing a certain project. With the help of the experiences from abroad and several Dutch case studies the theoretical optimal contract choice will be compared with the contracting choice of the Dutch ministry. These foreign experiences are originated from the UK and Australia, which represent nations that are

¹ See chapters 3 and 4 for a full analysis

² Design- Built- Finance- and Maintain- contract. See chapter 2 for a full explanation.

considered to be leading in the usage of public private partnerships and as a result can form the most reliable and trustworthy comparator for Dutch projects. Consequently the research has two perspectives; first the contracting policy of the Dutch ministry will be evaluated by means of a comparison with decades of foreign experience. This will make clear whether the critique on the outsourcing policy is valid, or whether the Dutch ministry has indeed increased efficiency by means of PPP. Second dimension will be the testing to which extent Hart's model is applicable into real-life PPP procedures. Although his incomplete contracting model is a very familiar one within economic literature, the empirical testing of the model has still to be done. As a result the outcomes could possibly indicate whether the fundamental parameters of Hart are indeed the determinant variables in practice. Note that this does not mean that the correctness of the model is tested, but instead the applicability and usefulness in practice is being evaluated.

This research is structured as follows: First a definition of PPP will be established, which will be used in the remainder of the analysis. The subsequent two chapters represent the ongoing debate with respect to PPP, by emphasizing the contrasting outcomes and opinions of both empirical and theoretical research. These chapters indicate the necessity of the usage of an incomplete contracting model, which will be explained in the fifth chapter. This is followed up by the methodology and data that will be used. The seventh chapter will start the analysis by comparing the standardized contracts used in the Netherlands, the UK and Australia. Chapter eight will use these differences to form, in the light of Hart's model, expectations for the differences in outcomes. Chapter nine will start part II of the analysis by creating a benchmark by means of the British (CHP 9) and Australian (CHP 10) experience with respect to PPP. The eleventh chapter will then start the Dutch analysis by evaluating the results of several case studies, after which the differences found in practice will be compared with the expectations previously formed. The analysis will be finished by the listing of possible recommendations and some concluding remarks with respect to the results and constraints of the analysis.

2 Public Private Partnerships (PPP)

As mentioned, including private parties into the public sector has always been a sensitive decision that has been subject of extensive discussions on an academic as well as a political level. Parallel with the growing scope and complexity of these discussions, which will be treated in the next section, is the ambiguity concerning the usage of the term public private partnerships. The terms privatization, outsourcing, contracting out, public private partnerships (PPP) en public finance initiative (PFI) are often used interchangeable, contributing to the confusion concerning the specific meaning of PPP. Underlying problem is the fact that, as also mentioned by among others lossa et al. (2007); “*A unanimous definition of PPP does not exist*”(p.18). As a result a more extensive explanation is required.

2.1 Defining Public Private Partnerships

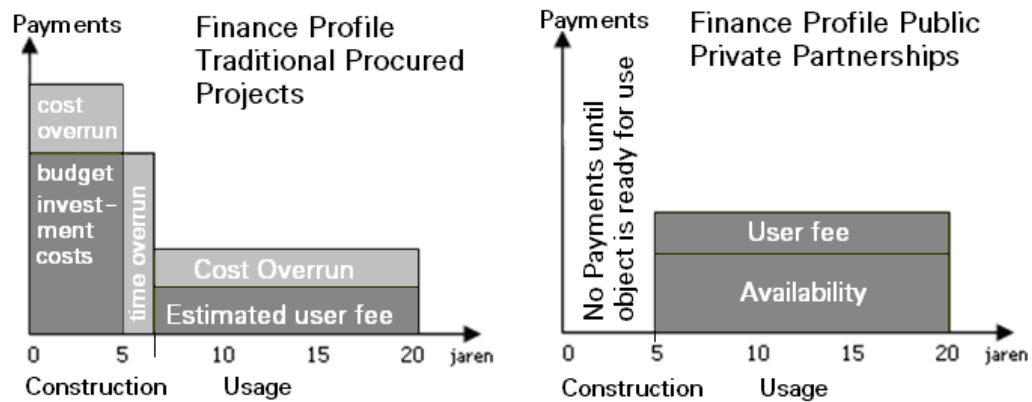
Characterising for the extensive use of PPP in academic literature is the findings that even the definition of the term has been subject to extensive research, from the economic interpretation of Hodge and Greve (2007) to even the grammar of multiple meanings by Linder (1999). But without getting too deep into the different interpretations of PPP, the choice has been made to make this research comparable and applicable within the existing theoretical framework of PPP by following the bulk part of directly related economic literature. As a result a similar definition will be used as in lossa, Spagnolo and Velez (2007), which is reasonably consistent with several other often used definitions like for instance in Engel, Fischer and Galetovic (2009) and Martimort and Pouyet (2006):

“The term PPP is to refer to any contractual arrangement between a public-sector party and a private-sector party for the provision of public services with the following four main characteristics: (i) the bundling of project phases into a single contract, (ii) an output specification approach, (iii) a high level of risk transfer to the private-sector party, and (iv) a long-term contract duration.” (p. 18)

As mentioned before, the most important feature of the definition represented above lies in the first characteristic; the bundling of project phases into a single contract. This implies that agreements between the public and private sector that does not bundle these two activities is not regarded as public private partnerships, but solely as a means of outsourcing. This deviation between simple outsourcing, often referred to as traditional procurement, and PPP will be one of the building blocks of the following research and is further explained in 2.2.1.

However this definition still does not make one of the most important differences with traditional procurement clear, which is shown in the figure below. This concerns the payment mechanism of a public private partnership.

Figure 1: Payment mechanism PPP compared to Traditional procurement



Source: AEF (2010)

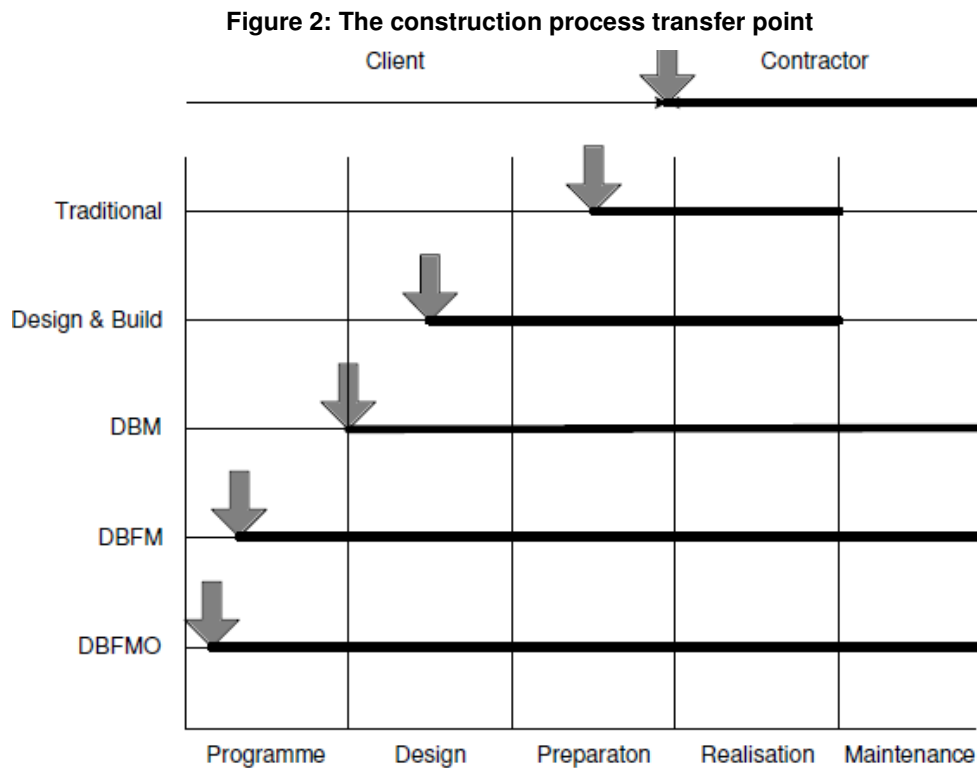
As shown above, within traditional procurement the private party is being appointed to construct a certain building for which its investment costs will directly be compensated. In contrast, in a PPP project the contractor is being compensated for the service it delivers. Which means that the private party is obligated to fully pay the initial investment costs itself, which it can earn back by means of the availability compensations that are based upon several output requirements. Consequently the construction is established with the help of private finance, which is the main reason that PPP (public private partnerships) contracts in the UK are called PFI (private finance initiatives) contracts.

2.2 Features of Public Private Partnerships

The characteristics of public private partnerships are obviously the factors that distinguish them from other procurements, and as a result are vital for further analysis. Consequently a further explanation of the four main characteristics is necessary and will be discussed below.

2.2.1 The bundling of project phases into a single contract (I)

The main difference between traditional procurement and public private partnerships is the fact that within PPP agreements different stages of the project are combined into one contract. This bundling of activities can be seen as combining for instance the building of a specific project and the maintenance of the same project into a single contract. As a result the first step is to make the different phases of potential PPP- projects clear. Following Favie and Maas (2008), a potential PPP project consists of 5 stages defined as the “construction process phases”: Programme, Design, Preparation, Realisation and Maintenance. Although these phases are defined for the construction sector, their implications for infrastructure projects, like the ones by RWS, are similar.



Source: Favie & Maas (2008)

These 5 phases are that important because they are directly linked with the degree of involvement of the private party. The figure above uses the 5 phases to indicate the possibilities regarding the degree of activity- transfer from the public to the private sector. It represents a clear picture of the factor “bundling” within the partnerships between the public and private sector. In which the degree of activity-transfer is connected to the stage in which the private party is involved. The earlier the cooperation between the public and private sector starts, the higher the degree of activity-transfer. To compare, conventional procurement often only includes the transfer of the realization of the project to the private party, while within public-private partnerships at least two or more of the phases mentioned above will have to be included in the contract. This can be stages of the process that are part of the preparation for the realization of the process, like programme, design and preparation, but can also involve the maintenance of the project after the realization has been finalized. Important notification is that although the contract contains several different stages of the process, it is still possible to include several different private parties into the agreement, as often is the case when a consortium of firms is appointed to fulfill the contract. In addition it is also possible that a project consists of several integrated contracts. Finally the figure makes clear how the different PPP contracts are to be defined, as contracts that include the private party only into the design and realization phase are defined as D&C-contracts (design and construct contract). Consequently the contracts used by RWS are often called DBFM-contracts, referring to the bundling of design, built, finance and maintain³.

2.2.2 An output specification approach (II)

The fact that public private partnerships are considered as an output approach is vital for the innovative character of the agreement, as this determines the playground of the private parties. If the contract would contain strict input parameters and highly definable working methods, it would be no such thing as a partnership, since it would just be a contractor-supplier relationship. Agreeing upon an output specification leaves room for the private party in how to reach

³ Some countries refer to DBFO in the case of DBFM, in which the “O” represents the operation of an asset. The PFI contracts in the UK for instance or often referred to as DBFO contracts. This is actually just a matter of speaking as DBFO and DBFM are used interchangeable and as synonyms. For a full analysis see; Bult-Spiering and Dewulf in “Strategic Issues in Public Private Partnerships, an international perspective” (2006).

these specifications. This gives them the opportunity to apply and make use of their own ideas, (new) techniques and implement their in-house knowledge into the project (Iossa et al. 2007). Consequently, the method used is subordinate to the final output.

2.2.3 A high level of risk transfer to the private sector party (III)

Associated with the transfer of activities from the public to the private sector is the simultaneous transfer of risks to the private sector party. Again the activity transfer comes into play as the degree of risk transfer is strongly related with the number of stages in which the private party is involved. Grimsey and Lewis (2002) listed at least nine different types of risks that are associated with an infrastructure project and that can be transferred from the government to the private party, in which areal risk should also be included:

- *Technical* risks: due to engineering and design failure
- *Construction* risk: because of faulty construction techniques and cost escalation, latent defects⁴ and delays in construction.
- *Operation* risk: due to higher operation and maintenance costs.
- *Revenue* risk: due to traffic shortfall or failure to extract resources, the volatility of prices and demand for products and services sold.
- *Financial* risks: due to inadequate hedging of revenue streams and financing costs.
- *Force majeure* risk; involving war and other calamities and acts of God.
- *Regulatory/political* risks; due to legal changes and unsupportive government policies.
- *Environmental* risks; due to adverse environmental impacts and hazards.
- *Project default*: due to failure of the project from a combination of any of the above. (Grimsey & Lewis, 2002, p.111)⁵

Of course the extent to which these risks play a role differs per project. But the risks do imply that exogenous developments are only part of the story, as several risks are also highly dependent upon the design of the contract and in particular the degree to which the risks are being hedged by the structure of the contract. The design of the contract will be determinant for the incentives

⁴ Latent defects are defects that beforehand are almost impossible to discover (RWS, 2010)

⁵ In the case multiple contracts are integrated into one project, the public party is also subject to interface risks, which consists of the mismatch between in the integration of the different contracts (Delmon, 2009)

of the private party and should specifically be constructed on the basis of two main pillars: provide incentives for the parties to undertake efficient actions when these actions cannot directly be contracted upon and to provide insurance to a risk averse party against the risks of the project (Iossa et al. 2007, p.20). Main objective with respect to the contract will be to find the right balance between these contrasting forces in order to maximize the possible profits of incorporating the private party into the process. Final important deviation in this respect should be made between two types of contracts; availability based contracts and user based contracts. In which in the first one the private party receives payments, during the term of the contract, from the public party in return of the service they offer, after which the asset is being returned to the public party. While in the latter the asset remains in the hands of the private party, which by means of certain user payments, for instance toll, is responsible for receiving its own payments. Consequently in the latter case the private party is exposed to demand risk.

2.2.4 A long-term contract duration (IV)

Final characteristic of public private partnerships is their long term nature. On the one hand this is the result of the fact that most public construction projects are generally projects that takes time to set-up. On the other hand is the length directly related with the degree to which the private party finances the project, as the length of the contract increases when the private party takes more of the finances of the project upon itself (Iossa et al. 2007). Finally, the longer the duration of the project the more the private party is able to take advantage of economies of scale and synergy advantages. Costs can be spread over longer periods and consequently profits are easier to accomplish. In addition the private party is able to learn and profit from its own mistakes during the process. A project of 20 to 30 years makes the existence of a learning curve possible as it becomes more profitable for the private party to invest into aspects like knowledge and expertise, the longer the duration of the project (RWS, 2010).

3 Public Private Partnerships in Practice

PPPs have experienced an immense growth in their usage all over the world and as a result it is useful to present a short overview of their presence in today's economy.

3.1 PPP in the world

Although the discussion surrounding them is probably nowadays at its peak, public private partnerships have already been around for several centuries now. In the 17th century for example the Dutch VOC (United East Indian Company) in the Netherlands was already established with the help of a public as well as a private party, since the trading and shipping activities of the company were made possible by both private merchant capital and public finance (Klijn, 2009). But despite this long-lived past the United Kingdom is nowadays understood as the pioneer on public private partnerships as they were, during the 1980's, one of the first to make use of the concept of cooperative partnerships. By means of the implementation of private finance initiatives (PFI) in 1992 established PPPs in the form we know them now (Iossa et al, 2007). This leading role of the UK is still visible today, as of December 2006 over 790 PFI projects had been signed, all of them which involved around £ 55 billion of capital value (CBI, 2007; HM treasury, 2006).

Although on a smaller scale, a similar growth in the usage of PPP is visible in the rest of the world, both in developed countries and in developing countries. In Europe mainly the West-European countries like the Netherlands, Ireland and the earlier mentioned UK are involved in the implementation of PPP and to a lesser degree the southern countries like Greece, Spain and Portugal (PWC, 2005; EIB, 2004). In the developing countries a growth in the usage of public private partnerships has been visible from the 1990s onwards, which was mainly the result of the growing unpopularity of privatisation, due to failures in these processes in especially Latin America (Engel et al. 2009). This resulted in the finding that in the period 1990-2003 around 2750 infrastructure projects involving private and public investment have been implemented, with a capital value of USD 786 billion. 47% of these projects were established in Latin

America and the Caribbean countries of which Chile and Mexico implemented most of these projects (IMF, 2004). Overall in the period 2004-2005 over 200 PPP contracts were signed worldwide involving USD 52 billion in investments (PWC, 2005).

Over time the extensive use of PPP agreements have also spread across an increasing number of sectors, varying from telecommunications, water and sanitation, energy and infrastructure to health, education, prisons, military, water and waste management (Hammami et al. 2006; Hart et al. 1997). It is generally the case that the longer a country has experience with PPP, the higher the number of different sectors that are being covered by their use, pointing in the direction of mainly positive experiences.

3.2 Public Private Partnerships; Empirical overview

Although the previous paragraph indicated the high usage and consequently high experience of several governments worldwide with respect to public private partnerships, a clear consensus with respect to the outcomes of PPPs is still missing (Pollit & Bouckaert, 2000; Engel et al. 2008; Iossa & Martimort, 2009). This can mainly be contributed to the mixed empirical results but is partly also due to the difficulties involved with the measurement of some important parameters. These difficulties arise firstly because most long-lived PPPs are still under operation and as a result form no proper input to estimate the overall costs and benefits of the project (Nilsson, 2009), and secondly because efficiency is difficult to measure in the public sector as a result of the lack of data on operating costs and outputs (Jensen & Stonecash, 2004).

But despite these downfalls there is a considerable amount of research available in the field of PPP. Most of them have been in the refuse collection and cleaning industries, which is primarily because these industries have often been subject to PPP agreements and secondarily because they incorporate relatively easy measurable outputs (Edwards & Stevens, 1978; Domberger, Meadowcroft and Thompson, 1986, 1987; Milne & McGee, 1992; Reeves & Barrow, 2000; and Dijkgraaf & Gradus, 2001). But also industries like transportation services (Karlaftis & McCarthy, 1999; Nash, 1993; Hensher & Beesley, 1989), maintenance of heavy equipment (Reca & Zieg, 1995), fire

protection services (Ahlbrandt, 1973), prison management services (Edwards, 1996), and road maintenance services (Blom-Hansen, 2003) have been subject to extensive empirical research.

3.2.1 Positive findings

On the one hand PPP projects are being evaluated as one big success. Looking for instance at the empirical papers mentioned above it soon becomes clear that the bulk part of them found evidence of expenditure reductions and thus a successful cooperation between private and public parties. In the refuse collection services for instance cost savings were estimated to be 22 percent on average (Domberger, Meadowcroft and Thompson, 1986; Szymanski & Wilkins, 1993). Given that it was one of the first extensive empirical outcomes of PPPs the finding soon became reason to conclude that PPPs in general would offer on average a 20 percent cost reduction compared to traditional procurement.

Also when looking at the PFI projects in the United Kingdom, success seems to be the main conclusion as most research indicates that they have led to cost savings compared to traditional procurement (A. Andersen & LSE, 2000). Research by the HM treasury has also indicated that 76 percent of the PPP projects were completed on time, which stands in sharp contrast with traditional procurement of which only 30 percent was finished within the projected time (HM Treasury, 2003). Similar results were found in the rest of Europe, with the addition that most of these projects also faced fewer cost overruns than their traditional counterpart. Although it should be noted that in these studies no clear indications of expected cost savings for the principal were found (CEPA, 2005; NERA, 2003; Sandberg et al. 2007).

In 1996 the Australian Industry Commission reviewed 203 international studies of government outsourcing. And although there results were already more moderate, as they indicated that the amount of savings is highly affected by project specific characteristics and that even cost increases can be found, their review also concluded positively by indicating that on average PPP agreements do lead to cost savings (AIC, 1996). The estimated heterogeneity found by AIC was also confirmed by Hodge (1999), who still concluded positively that on average the cost savings were between 6 and 12 percent. Similar conclusions were made by Paddon (1993) by indicating that cost savings were well below

the estimated 20 percent of Domberger et al. and more in the direction of 7 per cent. Although there are obviously still some differences in the results of the above mentioned studies, the results found by CEPA were enough evidence to conclude in that:

“The evidence supports the strong view that PPP transfers construction risk to the private sector more effectively than historical procurement methods and is likely to deliver value for money where there is strong competition and the projects are large” (CEPA-b, 2005, p. 4)

3.2.2 Negative findings

But the positive conclusion above seems a bit premature when looking at the opposite part of economic literature, which makes clear that also numerous studies have found no or even negative effects of the incorporation of a private party into the process and as a result question the findings mentioned above (Carver, 1989; Woodland, Swords and Hall, 1995; and Holcombe, 1991). Guasch (2004) for instance found that in 69% of the cases deadlines are not met or the projects required additional subsidies in order to be finalized on time. The argumentation behind these findings are substantiated by the reasoning that PPP projects are often subject to large exogenous demand uncertainty, which is not properly included into the contract and ultimately leads to expensive and time-consuming renegotiations (Engel et al. 2008). These renegotiations are typically found within projects in Latin America and Caribbean countries, where they often have led to a significant shift of benefits from the public to the private party, eventually harming the final users (Iossa, et al. 2007). Guasch (2004) is able to underpin these finding with numbers, by indicating that renegotiations of concession contracts led in 62% of the cases to a tariff increase, in 59% of the cases to an increase in the number of cost components passed through tariffs and in 31% of the cases to a reduction in annual fees due to the public sector (Guasch, 2004).

In contrast to the results by the Australian Industry Commission mentioned in 3.2.1, several Australian and other International studies with respect to contracting out found negative effects. For instance when looking at the quality

of services supplied by private parties several studies found no (Savas 1987) or even a decreasing effect (Ascher 1987, Evatt Research Centre 1990; Rimmer 1993, Egan, Montesin and Adena 1995, Fraser 1997). Looking at the garbage collection for instance, Ganley and Grahl (1988) have found evidence that productivity gains were mainly the result of increased working hours and reductions in working conditions. Quiggin (2002) also argues that the fact that the Industrial Relations Court in several cases has prevented private parties involved from reducing wages and conditions, can be seen as evidence that at least some employers are guilty of these indictments.

Next to that the high adaptation costs of public private partnerships have often been so high, that they completely diminish the benefits that arise from the agreement. Bajari et al (2007) for instance analyzed a database comprising road construction contracts in California and demonstrated that any costs that are incurred above and beyond the direct production costs of the project (adaptation costs) may account for about ten percent of the winning bid. This points to the importance of transaction costs in determining the direction of the final outcome, which is confirmed by among others Sadka (2006), Hodge & Greve (2007) and Blom-Hansen (2002).

Finally, FLyvbjerg (2005) argues that most estimates upon which PPP projects are being executed are incorrect and overestimate the potential benefits. In 9 of the 10 railroad projects the number of passengers is overestimated, with a striking average of 106%. Also in road infrastructure the number of cars passing is argued to be on average overestimated by 20%.

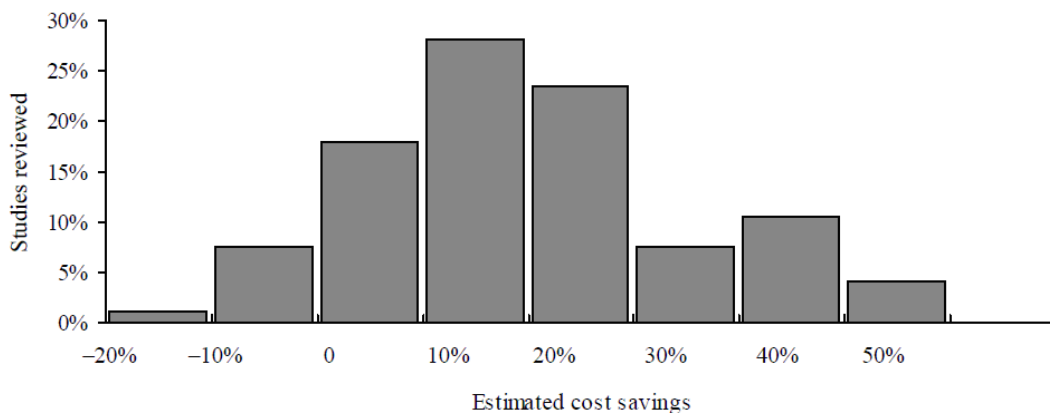
3.2.3 Mixed results

Clearly the empirics do not show any clear-cut answer to the PPP-question. As argued by Jensen and Stonecash (2004, p. 3);

“Despite a great deal of practical experience by governments of all levels, in many countries, there is still relatively little agreement about whether outsourcing is uniformly beneficial or what the magnitude of reductions in government expenditure might be” (see Pollitt & Bouckaert 2000).

The figure below, although established more than 10 years ago, was created by the “Industry Commission” and forms support to this unclear and unsatisfactory conclusion. It represents the share of studies that were reviewed for every category of estimated cost savings. Obviously the bulk part of the studies has shown cost savings, but the height differs substantially. Additionally it demonstrates that also a relatively large share of PPPs experienced no or negligible cost savings.

Figure 3: Distribution of savings from 203 studies of contracting out



Source: lossa et al. 2007

These mixed empirical results have led to the consideration that the success of public private partnerships cannot be estimated simply by means of a general analysis, but is dependent on other factors. lossa et al. (2007) examined several empirical overviews and listed the four factors that were found to be the most determinably for the success of a PPP project;

- I. *The characteristics of the targeted sector and market structure*
 - II. *The degree of macroeconomic instability*
 - III. *The country's regulatory and institutional framework*
 - IV. *The contract design and management, in particular the payment mechanism and the risk allocation built-in the contractual terms*
- (lossa et al. 2007 p. 5)

Of these four factors, the first three can be regarded as “external” while the fourth and final factor can be seen as “internal” to the contract (lossa et al. 2007).

- I) The role of the characteristics of the sector and market is aimed at the perception that the degree of competition between suppliers is essential for the degree of success of the specific project. Empirics confirm that in the transports and water services, for instance, much more renegotiations take place, than within the energy and telecommunications sector which is characterized by a much higher degree of market competition and private sector participation (Guasch, 2004).
- II) It should not come as a surprise that just like with many other economic activities the degree of success of public private partnerships is dependent on the degree of macroeconomic stability (Iossa et al. 2007). Empirics have shown that during economic shocks, like the Argentinean hyperinflation, the Brazilian devaluation or the Mexican crisis, a significantly high number of renegotiations were observed (Guasch et al. 2003).
- III) Thirdly the strength of the government and the resources available has a high impact on the probability of recurrent negotiations. The government could for instance lack commitment not to renegotiate (Iossa et al. 2007) or have political control over parties involved and as a result complicate the process (Estache, 2006).
- IV) Finally the design of the contract plays a decisive role. As Schmidt already indicated:

“If complete contracts can be written over relevant production variables then there will be no difference between public and private ownership” (Schmidt, 1996a, p.2).

But unfortunately no such thing as a complete contract is possible to construct. Consequently the allocation of risks like construction, demand and operation risk is determined by the design of the contract. Empirics show that these incompleteness and difficulties associated with this allocation form problematic issues for the success of PPP projects in both Latin-American countries

(Guasch, 2004) and in the European Union (Renda & Schrefler, 2006-a). As a result it is this fourth variable, the only “endogenous one” that will correspond to the theoretical models discussed in the next chapter, and that will be a key variable in this research.

4 Public Private Partnerships in Theory

The fact that PPPs are highly integrated in today's economy is mostly the result of the theoretical foundation of the arrangements and to a much lesser degree the result of the observable advantages in practice. Although it should be noted that the lack of these visible welfare-enhancing results could partly be contributed to the long-term nature of most agreements, fact remains that the theoretical advantages of PPP must have a very persuasive character.

4.1 The advantages of PPP

The benefits of the private sector over the public sector have been examined extensively within economic literature and initially originated from the increasing privatisation of public activities. This means that for a part the economic literature on privatization can be used to underpin the advantages of PPP, namely the part that is driven on the basis of the advantages of private party involvement into public activities. But to highlight the benefits of public private partnership over traditional procurement a second line of reasoning is necessary.

First consider the advantages of introducing private parties into public activities. These advantages know their origin in the competitive nature of the private market, which leads actors in the market to be more efficient than its counterpart in the public sector. The basis for this difference is mainly the result of the difference in objectives between the two sectors. The maximization of profit in the private sector for instance is a relatively easy measurable variable, in contrast to the maximization of welfare in the public sector. Consequently the pursued of managers and employees to reach this objective can more easily be evaluated in the private sector (Laffont & Tirole, 1991; Tirole, 1994). Second, due to its more social objective the government lacks economic orientation relative to the private sector which often leads to investments into money-losing projects (Kornai & Weibull, 1983, Boycko, Shleifer and Vishny 1996) or so called "White elephants"⁶. Transferring investment decisions from the public to

⁶ White Elephants are projects with a negative social value (Robinson & Torvik, 2005).

the private sector would then lead to an increase in efficiency due to the -on average- higher return on investment. (Dewatripont & Maskin, 1995; Schmidt, 1996a, 1996b; Segal, 1998; Maskin, 1999). White Elephants can then be avoided by incorporating user fees or availability payments as the main source of income for the private party. This leads firms only to participate into projects that are privately profitable, which is argued to also be a good proxy for social desirability (Smith, 1776).

Since the efficiency gains in the private sector are being translated into the activities of their employees this will consequently also lead to productivity differences between employees in the public and private sector (Megginson & Netter, 2001). Differences that will result in higher efficiency and lower costs compared to the public sector (Savas, 1982, 1987; Logan 1990), ultimately benefiting the final users as the user fees become closer to their marginal value than in the market-failure-case of public production (Engel et al. 2009).

The competitive private market does not only stimulate private parties to increase efficiency within current working methods, but also has a positive influence on the innovative character of the firm by stimulating the introduction and usage of new methods. In contrast, the public party does not have to outweigh any competitor and as a result does not feel the high stimulus to constantly improve or renew its current techniques. Transferring activities from public to private parties would then not only increase efficiency but also the possibilities of introducing new and innovative technologies (Iossa et al. 2007) and the spill-over of knowledge, guaranteeing durable efficiency gains.

The second line of reasoning concerns the benefits of public private partnerships over traditional procurement. These advantages are approached from the perspective that the most important difference between PPP and traditional procurement is formed by the bundling of activities. Again innovation is regarded as one of the advantages, only this time with the idea that PPP stimulates innovation more than traditional procurement will. The reasoning is as follows; since the private firm that is responsible for the construction of a specific project is also responsible for the maintenance of that same project, the firm has an incentive to reduce the future maintenance costs (Hoppe and Schmitz, 2010). Consequently it is prepared to spend more during the

construction phase when this means that it saves costs in the maintenance phase and consequently reduces life cycle costs⁷ (Yescombe, 2007, p.21). Or to put it in other words, the firm has a higher incentive “*to plan beyond the bounds of the construction phase and incorporate features that will facilitate operations*” (Grimsey & Lewis, 2004, p.92). As a result the overall efficiency of the project will increase and the total costs will decrease in comparison with traditional procurement due to the possibility of taking advantage of synergy, economies of scale and life-cycle cost reductions (Akintoye et al. 2003).

These advantages have again their implications for the length of the activities, as combining the activities will lead to a time and cost reduction of the project. Not only because now not every single stage in the process needs its own multi-year capital plan, which are often complicated lengthy processes with high transaction costs (Utt, 1999), but possible time advantages can also be achieved due to the increase in efficiency and synergy (Akintoye et al. 2003).

A final advantage of public private partnerships over traditional procurement is the belief that it is a relatively easy tool for attracting new funds. Due to the fact that the private firm is the one who attracts (part of) the necessary capital, the government is partly offset from the financial burden. Also the fact that the private party is subject to the more strict rules and obligations of the financial market than the government is, would make PPP agreements appealing (Osborne & Gaebler, 1992; Kettl, 2000, Nilsson, 2009).

4.2 The disadvantages of PPP

The discussion on the choice between public private partnerships and in-house provision would not be such a controversial one if the previous paragraph would tell the whole story. But in fact many arguments have been made in order to prove to opposite.

The difference in objectives and market structure underlie the potential advantages of public private cooperation, but they also form the basis for the downside of the story. Taking, for instance, the objectives of the two parties into

⁷ “Total project cost is the cost incurred throughout the life of the project. It is the life cycle cost (LCC) or whole life costing of the project and it includes acquisition cost, facility management cost, and disposal cost” (El-Haram, Marenjak, & Horner, 2002).

account, critics argue that the lack of social responsibility by private parties would have deteriorating effects on the quality of production (Hart, Shleifer and Vishny, 1997). In order to achieve higher profits, private firms would neglect unprofitable assets of the project, minimize the costs associated with the project and consequently reduce quality in order to increase profits (AFSCME 1985; Schichor 1995). Krugman (2003), for instance, ascertained that:

The U.S. military has shifted many tasks traditionally performed by soldiers into the hands of such private contractors as Kellogg, Brown and Root, the Halliburton subsidiary. The Iraq war and its aftermath gave this privatised system its first major test in combat – and the system failed (Krugman, 2003, p.17).

The reasoning is that managers are not the ultimate beneficiaries of an increase in asset value and as a result have no incentives to increase the value of the asset (King 1998). Also it is argued that not only the private party should be accounted for this reduction in quality. Quiggin (2002) for example argues that PPP projects can be used by the government to reduce quality without taking the blame. As governments want to reduce expenditures on a particular service, they can choose to implement it into a PPP contract without any strict measurement variables and consequently leave room for the private party to decrease expenditure and consequently the quality of the particular services.

Secondly as mentioned in paragraph 3.2.3, there is no such thing as a complete contract. Consequently there are always loopholes or misspecification of which the private party can take advantage. This means that there are always different ways to exploit the contract by one of the two parties, diminishing social welfare or transferring high risk to the other party (Quiggin, 2002). The problem lies in the fact that both parties are unable to completely foresee any potential problems or changes in circumstances. At the time these problems or changes occur, the party that has ownerships over the specific asset has the control and is able to make adjustments to its own benefit (Nilsson, 2009).

Thirdly the financing benefits are being considered as half the truth, as it is argued that the savings of the government on the investment disappear when taking into account that the user fees are also not collected. This leaves the

public party at the end of the project in the same position as it would be when financing it in the traditional manner and receiving user fees (Engel et al. 2008). Fourthly the reductions in expenditure due to the efficiency gain by the private firm are considered to be just a transfer of benefit instead of a gain. If the reductions are achieved through the decrease in workers' wages, there only exists a transfer of economic rent from the worker to the manager instead of an efficiency gain (Quiggin, 1994). These lower wages for workers are often also used as an argument on its own to prove that public private partnerships lead to a deterioration of employment conditions. When the reductions in costs are completely the result of lower employment conditions, they abolish the benefits of those lower costs (Jensen et al. 2004).

Finally there is also some evidence that public sector organizations are not at all intrinsically less efficient than the private sector (Borcherding et al., 1982; Boardman & Vining, 1989; Megginson & Netter, 2001). This would cancel out the efficiency arguments in favour of PPP.

4.3 Mixed opinions

Parallel to the lack of consensus established on empirical grounds, there also exists no clear-cut theoretical answer within economics regarding the impact of public private partnerships. It seems that, like many economic subjects, there isn't an explicit yes or no answer to the question concerning PPP and the answer "depends on". The only means of trying to give an answer that can be used to explain both the mixed results in theory and those in practise is by focusing on the problem of "*contract design and management*" mentioned in the previous chapter, and combining it with a theoretical model. A model that is built upon the assumption that the possible success of PPP is not one that can be answered with just one word, but is "dependent on". This leads us to the third stream within academic literature, which concerns those models that include other possible factors that determine the outcome of partnerships. This stream can roughly be divided into two main categories; transaction costs theory and incomplete contracts & incentives.

Transaction costs

The most straightforward category is the one concerning transaction costs. A theory that knows its roots in the work done by Oliver Williamson (1979, 1985), who is nowadays still considered to be the main attributer to the framework of transaction cost economics. His theory is built around the consideration that every transaction is associated with additional costs over its price (Domberger et al. 1997). These extra costs can take several forms, like time, energy and money (EIB, 2007, and occur due to the fact that no transaction will be established without the occurrence of any extra effort besides the transaction itself. Applying this to public private partnerships:

“Transaction costs will be the comparative costs of planning, adapting, and monitoring task completion under alternative governance structures” (Williamson, 1981, p. 1544)

Clearly public private partnerships includes higher transaction costs than traditional procurement, as a result of the higher number of stages⁸ that are associated with PPPs in which more than one party is involved. (Domberger, 1997). Combining this with the fact that the degree of success for a single PPP is negatively related to the level of transaction costs within a specific project, means that the higher the transaction costs, the less likely the project will be profitable. Obviously these higher costs should be overcome by higher benefits in comparison to traditional procurement in order to remain profitable. So the extent to which a public private partnership will be beneficial is dependent upon the degree to which transaction costs can be minimized.

Incomplete contracts and incentives

As mentioned before, there is no such thing as a complete contract; consequently there always exists some room for negotiating or even “cheating” in the form of bending the rules in your own advantage. This room within contracts is probably the most important determinant for the success or failure of the partnership. Not only does it create uncertainty for both parties, it also leaves opportunities for both parties to earn extra profits at the cost of the other

⁸ See chapter 2 for the distinction of the stages within PPP

party. Consequently there is a clear link between incomplete contracts and incentives, as the incompleteness of contracts leaves room for unanticipated behaviour, behaviour which in turn is dependent upon the incentives of both parties. Several authors have examined this link, but only a few have established and connected it with public private partnerships by means of a theoretical model.

Hart (2003) was one of the first to establish an incomplete contracting model in which the incompleteness of PPP contracts was fully examined. In his seminal work *“Incomplete Contracts and Public Ownership: Remarks, and an Application to Public-Private Partnerships”* (2003) he looks at the extent to which an incomplete contract can include variables or indicators in order to, at least partly, overcome the missing parts of the agreement (*Hart, 2003, p.C74*). The next chapter will fully examine this model and explain its implications for the resulting part of this analysis.

As an extension, Bennet and Iossa (2004) use a roughly similar model to the one established by Hart, in which both the optimal allocation of ownerships between the public sector and private firms and the desirability of bundling the building and management operations is analyzed.

This analysis starts by assuming the public party and two private parties, one that is specialized in the construction and one specialized in maintenance. Consequently the activities are said to be bundled when the two private parties form a consortium. Similar to Hart's analysis two, non-contracted upon, potential innovations can be made, both which affect the residual value of the asset and the generated social benefit, also one innovation affects costs in the management stage. These innovations can only be implemented by approval of the owner of the asset. And an important deviation has been established between the ownership of an asset and the stakeholder, with direct consequences for the negotiation power of the parties involved. By means of these assumptions, five scenarios are being developed; ownership by firm 1, ownership by firm 2, ownership by the consortium, public ownership with bundling and public ownership with unbundling (traditional procurement) in which the effects of a positive externality (in the case it pays off to invest in the durability of the asset) and negative externality are being evaluated.

The results indicate that at the present of a positive externality across the stages of production, bundling in the form of a consortium is always optimal. However, ownership by the consortium is not always beneficial, as private investment can lead to lower social benefit when the negative effect of investments on social benefits dominates the positive effect on private residual. In the case of negative externalities the results are less clear cut and the call for bundling the activities is weakened, as independent of ownership, unbundling is preferable most of the time. Especially in the case of strong negative externality, no preferable answer is to be given.

Excluding a strong negative externality their general conclusion is threefold, PPP is preferable when; the externality is more positive, the effects that innovations in building and management have on the residual market value of the facility are stronger and the weaker the effect that innovations have on the benefit from provision of the public service (Bennet & Isso, 2004, p. 28).

Despite the fact that within economic literature much attention has been devoted to the subject of public private partnerships, only few researches have examined an incomplete contracting model in relation with PPP. Although there are some models established that could fall in the same category, they are effectively more related to the subject of privatization. This is striking considering the lack of consensus within economic theory concerning the outcomes and usage of PPP, and the possible answers these models could formulate.

5 Incomplete contracting model

Looking back at the literature review mentioned in the second chapter, a clear division has been made between three different types of categories. The first two are those studies that use a theoretical foundation in order to form an opinion about whether the involvement of a private party into public activities is desirable. The third category is the one of theoretical modelling which leaves the success of PPP dependent on several factors and as a result takes a neutral position into the discussion. These models try to shed a light on the different opinions of the first two categories and try to explain these contrasting opinions by the differences in circumstances. It is this third category which can contribute to a possible answer for both the mixed results in the theory and in the empirical work, and that will be used in the resulting part of this research.

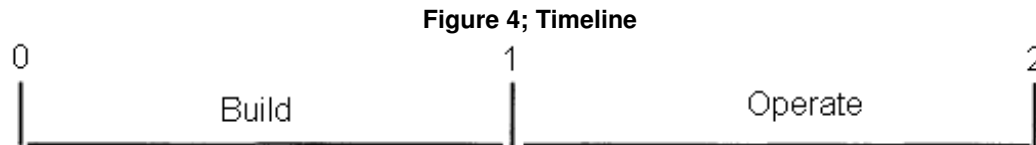
5.1 The model

Assuming that the lack of consensus in both theory and empirics is mostly blamed upon the incompleteness of contracts and the resulting effects on the incentives of the parties involved, just two models seem possible to apply. The choice between the model of Hart and the one established by Bennet and Iossa is the result of the assumption in the latter one, which endogenizes the ownership of the asset at the end of the contract. Since the contracts that are used, in the case studies and the foreign data set, in the remainder of the research do not question the ownership of the asset, it seems needless to make the analysis more complicated than necessary. Consequently the choice has been made to use the model of Hart (2003).

In his *"Incomplete Contracts and Public Ownership: Remarks, and an Application to Public-Private Partnerships"* (2003) Hart establishes a theoretical model in order to determine which factors play a decisive role in the ultimate outcome of PPPs. This model is built upon an initial theoretical setting, the HSV-model, which tries to evaluate the decision between privatization and public production (Hart, Schleifer and Vishny, 1997). Hart has used this as starting point and extended the theory to make it applicable for public private partnerships.

5.1.1 The assumptions

As made clear in the figure below the model consists of three dates, 0, 1 and 2. At date zero the public and private party agree upon a contract, between time zero and time one the construction is being built and between dates 1 and 2 the construction is being in operation and has to be maintained.



Source: Hart (2002)

The contract that is being used, for specifying the activities in the first period (in case of traditional procurement) or in the second period (in the case of PPP), is said to be incomplete in the sense that the builder can modify the nature of the construction or service in numerous ways without violating the contract (Hart 2003, p.C72). To be more precise, the builder can make two investments, a quality innovation referred to as “i” and a cost innovation referred to as “e” which influences the costs of operation (C) and the benefits to society that follow from the service (B)⁹:

$$B = B_0 - b(e) + \beta(i) \tag{1}$$

$$C = C_0 - c(e) - \gamma(i) \tag{2}$$

Equation [1] makes clear that the benefits to society from the availability of the service (B) and Operation costs (C) are, besides being partly determined by a constant, dependent upon both the cost innovations (e), leading to lower costs and lower quality, and the quality innovations (i), leading to an increase in quality and a reduction in operation costs. Where $\beta \geq 0$ is the quality increase resulting from the quality innovation and $b(e) \geq 0$ is the reduction in quality corresponding to cost innovation. The function b is essential in the model as it measures how much quality falls as a result of a cost cut, and as a result is in

⁹ $\beta: b(0) = 0, b' \geq 0, b'' \geq 0; c(0) = 0, c'(0) = \infty, c' > 0, c'' < 0, c'(\infty) = 0; \beta(0) = 0, \beta'(0) = \infty, \beta' > 0, \beta'' < 0, \beta'(\infty) = 0; c' - b' \geq 0$

practice subject to most of the critique upon outsourcing by the public sector. Similarly $c(e) \geq 0$ is the reduction in cost corresponding to the cost innovation and $\gamma(i)$ is the reduction in costs corresponding to quality innovations. Consequently, the total investment costs for the builder equal: $i + e$.

To clarify these two investments and make them more practical, an example will be given. A quality innovation in an infrastructure project could for instance be the usage of a more durable type of asphalt instead of the ordinary but cheaper type. Such an investment would probably increase the costs of construction, but also increases the durability of the project resulting in higher benefits for society and lower operating costs. A cost innovation on the other hand could be the opposite, in which the builder chooses to use the cheaper asphalt instead of the durable one. As a result operating costs are being reduced, but the same goes for quality and social benefit.

Assumptions with respect to convexity, concavity and monotonicity are standardized¹⁰. In addition it is assumed that i , e , b and c are observable to both parties, but are not verifiable and consequently can not be incorporated in a contract. The importance of this assumption will become clear in the next paragraph in which the analysis is done. Similarly, benefits for the public party, and costs for the private party are also observable but cannot be transferred nor are they verifiable, leading to the assumption that revenue and cost-sharing arrangements are infeasible (HSV, 1997, p. 1134). Considering the market, it is assumed that there is no facility available other than F that can supply society and there is also no other potential customer for the service, only the private party's labour services may be partially substitutable. Finally there are considered to be no welfare constraint and both parties to be risk neutral.

5.1.2 The analysis

First consider the first-best scenario, in which the assumption of non-verifiable investment is loosened and consequently the different investments that can be done by the asset owner are incorporated in a contract and are fully expected

¹⁰ $\beta: b(0) = 0, b' \geq 0, b'' \geq 0; c(0) = 0, c'(0) = \infty, c' > 0, c'' < 0, c'(\infty) = 0; \beta(0) = 0, \beta'(0) = \infty, \beta' > 0, \beta'' < 0, \beta'(\infty) = 0; c' - b' \geq 0$

by both parties. In this first-best scenario net social benefit will be maximized by means of, $B - C - i - e$;

$$B_0 - b(e) + \beta(i) - C_0 + c(e) + \gamma(i) - i - e \quad [3]$$

With the first order conditions being:

$$\begin{aligned} \beta'(i^*) + \gamma'(i^*) &= 1 \\ c'(e^*) - b'(e^*) &\leq 1, \text{ with equality of } e^* > 0 \end{aligned}$$

Since it is assumed that e is socially unproductive and consequently $c'(0) - b'(e^*) \leq 1$, the first-best solution will be a corner solution in which: $e^* = 0$. Any other level of unproductive investments –cost innovations– would only lead to lower levels of net social benefit. As a result the optimal level of cost innovations is zero in the first-best solution in which investments are verifiable.

But as mentioned in the previous paragraph the assumption of non-verifiable investments has been incorporated in the model, and as a result the first-best solution is ruled-out. Consequently the second best solutions are to be considered, in which the investments made by the builder are non-verifiable and consequently cannot be included in the agreement¹¹. Note that the provider can still observe i and e ; meaning that he knows what the costs will be.

Two cases will be considered, first the one in which the two activities are contracted out consecutively, the so called ‘unbundling’ case. The second case will be the one in which both activities are contracted out mutually, reflecting public private partnerships.

Unbundling

The unbundling scenario incorporates the fact that at date 0 the government sets up a contract with a builder to build a basic project between date 0 and 1 for price P_0 . Subsequently at the start of time period 1 the construction is completed and the government auctions off the contract to maintain/operate the

¹¹ Note that the incorporation of the assumption makes the distinction between a complete contract (first-best solution) and an incomplete contract (second-best solution).

specific project. If the supply of contractors will be competitive, the government will pay the operator a price equal to his operating cost:

$$C = C_0 - \gamma (\hat{i}) - c (\hat{e}) \quad [4]$$

In which \hat{i} and \hat{e} represent the equilibrium choices by the builder of the project for his innovations. So at date 0, the builder chooses i , e to solve;

$$\text{Max } (P_0 - i - e)$$

Since the builder will want to build the cheapest construction possible, his optimal innovation level will be for both i and e equal to zero. Although i and e affect the operating contract price for the government, it is not internalized by the builder as a result of the fact that these costs only occur during the maintenance stage. The builder is only involved in the first stage of the project and consequently has no reason to incorporate the costs that are associated with the second stage.

Still considering the competitive supply of builders, the price will be equal to the equilibrium levels of investments:

$$P_0 = \hat{i} + \hat{e} = 0$$

And so the net payoff for the government will be:

$$B - C - P_0 = B_0 - C_0 - i - e, \text{ evaluated at } \hat{i} = \hat{e} = 0$$

Clearly in the case of unbundling, the builder does not internalize the social benefits of the service, nor the costs that are involved during the operation phase. As a result both cost and quality innovations are set equal to zero. This means that too little of the productive investment will be done, but the right amount of the unproductive investment.

Bundling

The bundling scenario incorporates the fact that at date 0 the government offers a contract in which it specifies the basic quality of the service to be provided between dates 1 and 2 and a price P . Since the builder is now also responsible for the cost of service, the private party will internalize these costs in his offer. Consequently the private party now has two options, he can either provide the services himself, or he can subcontract it to a third party. In the latter case and still assuming a competitive suppliers market, he will pay the subcontractor a price equal to the subcontractor's cost;

$$C = C_0 - \gamma(i) - c(e) \quad [4]$$

At date 0 the builder chooses the level of i , e , now with the maintenance costs of the project internalized, to solve:

$$\text{Max } P - C - i - e = P - C_0 + \gamma(i) + c(e) - i - e$$

With the following first order conditions:

$$\begin{aligned} \gamma'(\hat{i}) &= 1, \\ c'(\hat{e}) &= 1 \end{aligned}$$

Still considering the competitive supply of builders, leading to the equalization of price with total costs:

$$P = C + i + e$$

Leading to the government's net payoff of:

$$B - P = B_0 - C_0 - i - e, \text{ now evaluated at } i = \hat{i} \text{ and } e = \hat{e}$$

So contrary to the unbundling case, the PPP-case makes clear that although the builder again does not internalize social benefit, he now does internalize the operating costs. This leads the private party to make more productive

investments, although still too little, but also more of the unproductive investment.

5.2 Hypotheses

The analysis made above leads to the following two conclusions; First, traditional procurement is beneficial whenever the quality of the building can be well specified, whereas the quality of service cannot be. The reasoning is that under these conditions underinvestment in the quality innovation will not be a serious issue, since the government is able to monitor and restrict the activities of the builder with the help of a clear qualification of the quality of the asset. This leaves little room to the private party to decrease quality by means of underinvestment in quality innovations. On the other hand overinvestment in cost innovations might occur under a public private partnership. Since in this case only the ultimate output of the service has been contracted upon, there is some room left within the contract for the private party to decrease the quality of the construction by means of cost innovations. The incapability of the public party to properly quantify the output requirements for the finale service does not incentive the private party to deliver high quality. And since quality isn't properly defined, the private party will mainly invest into cost reducing innovations. Leading to the hypothesis:

Hypothesis 1: *Whenever the quality of the construction can be well specified, whereas the quality of service cannot be, unbundling is the dominant contract form.*

Second conclusion argues that public private partnerships are the optimal choice whenever the quality of the service can be well specified –or as mentioned by Hart; the existence of good performance measures used to reward or penalize the service provider (Hart, 2002, p.C74) – , whereas the quality of the construction cannot be. The reasoning behind this conclusion is that under these conditions traditional procurement is most likely to lead to underinvestment in quality innovations, since the builder has no incentive to increase quality –not due to the strict contract and not due to possible results in

the maintenance stage– and solely wants to increase its own profits by decreasing its associated costs. On the other hand, overinvestment in cost innovations will under PPP not be the case, since the builder is bound to strict output measurements with respect to the quality of the ultimate service. As a result, quality reducing investments are no longer in the interest of the private party when this means a reduction of quality of the asset below the level agreed upon in the PPP-contract. This leads to the second hypothesis:

Hypothesis 2: *Whenever the quality of the service can be well specified, whereas the quality of the construction cannot be, bundling (PPP) is the dominant contract form.*

In the remainder of the analysis the hypothesis listed above will be the building blocks for the evaluation of the PPP-policy of the Dutch ministry of transport and waterworks. In his work Hart makes an implicit assumption that the dependence of the degree of which service and construction can be quantified differs between sectors and not specifically between projects within sectors. And although not specifically mentioned in his paper, Hart does imply that in general infrastructure projects are considered to be the one to fall into the first category, where the construction process is relatively easy to quantify and the services part is not. This would imply that unbundling would be the optimal way for implementation of these projects. But considering the little analysis that Hart has spend on this part of his model, these considerations will not be included into the empirical part.

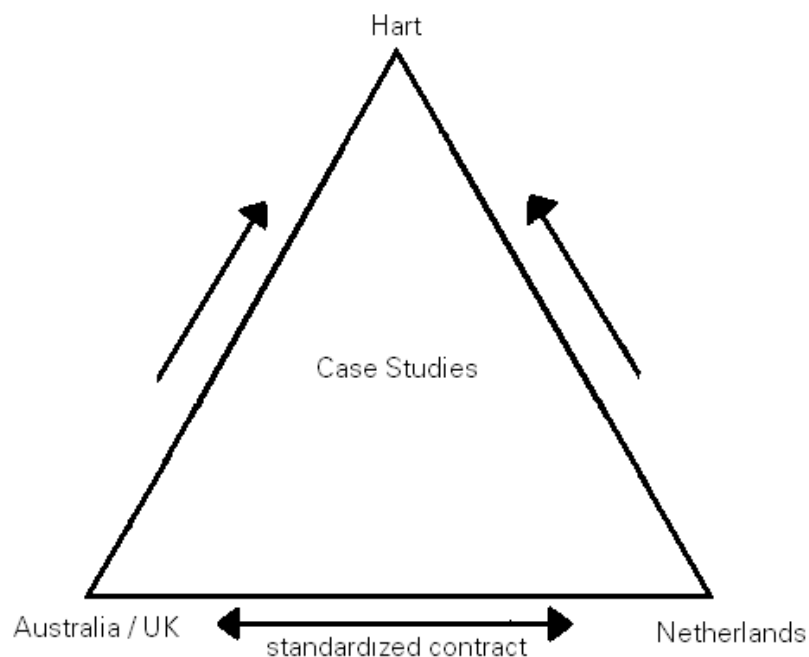
6 Methodology and Data

The model mentioned above clearly sets out the framework for the following research, but sheds too little light on the method used to work within this framework. Consequently, the method and data used are explained below.

6.1 The Methodology

The figure below gives a simplified visual perspective of the methodology followed in the analysis. The aim of this analysis is straightforward; evaluate the Dutch PPP policy. Roughly speaking two steps will be made to reach this objective. First the Dutch framework in which PPP projects are implemented will be examined by comparing the standardized contracts with those in the UK and Australia. Second step is the establishment of a relation between these different frameworks and the outcomes of PPPs in the three countries. This relation will be established in the light of Hart's incomplete contract theory, by focusing on the main variables of his theory. This means that at the same time the usefulness of Hart's model will be tested for in practise.

Figure 5: Comparison-triangle

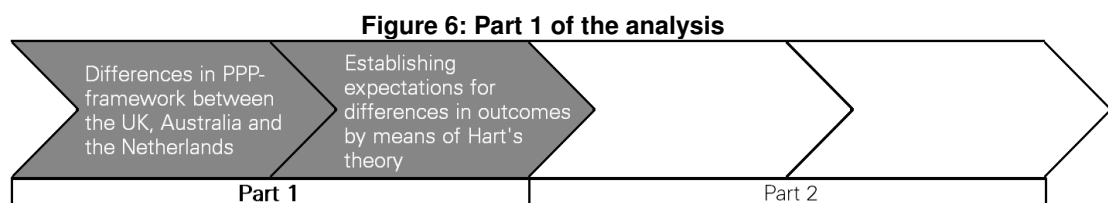


6.1.1 Part I; Examination of the PPP Framework

As mentioned the first part of the analysis consists of the examination of the Dutch PPP framework by means of a comparison with experienced PPP-countries like the UK and Australia. This will be done by means of a comparison between the Dutch standardized DBFM-contract and the ones used in the United Kingdom and Australia, contracts which form the fundamentals for the specified PPP-contracts that are used in individual projects and consequently can be referred to as the inputs for public private partnership evaluation.

The reason of incorporating these two countries is twofold. First this gives a benchmark for the Dutch ministry to which the policy can be compared. This is probably a more tangible comparison than evaluating whether the quantification of a construction can be specified well. Second, both the UK and Australia are far more experienced in the usage of PPPs. As a result it can be expected that their contracts are the result of decades of trail and error and are constantly optimized during that period. Also several studies regarding the partnerships in these countries have confirmed this assumption by emphasizing the effectiveness of their implementation, leading to the conjecture that these contracts are far more developed than those in the Netherlands and consequently form the best possible benchmark.

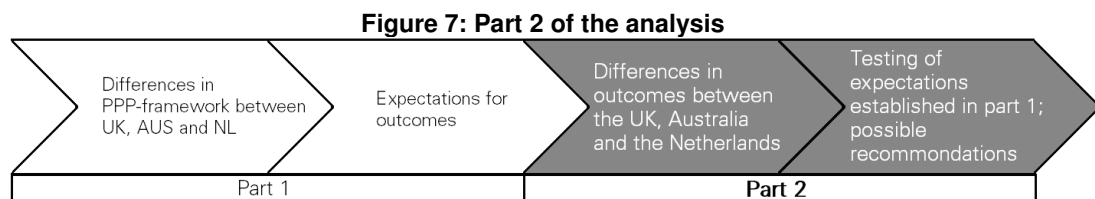
With the help of Harts theory the differences found between these standardized contracts will be converted into expectations for differences in the outcomes of PPPs. Consequently the main theoretical foundations established by Hart will form the basis for the relation that will be established between the deviations in contracts and the deviations in outcomes.



6.1.2 Part II; Relation with the outcomes

As mentioned, the differences found in the first part of the analysis will be put into expectations for the differences in final outcomes, with the help of Hart's model. First step in this part will be to find the differences in outcomes of PPPs

in the Netherlands and those found in the UK and Australia. This will be done by means of the examination of several Dutch case studies on the one hand, namely the road infrastructure projects “N31”, “A59”, and the “Tweede Coentunnel” and the rail infrastructure project “HSL-Zuid”. On the other hand the examination of several empirical surveys established by HM Treasury and the Australian government will be used. In order to prevent the analysis from being too broad and applying some consistency in the case studies these examinations will be done by focusing on the three universally most important output indicators of a public private partnership; Time, Money and Quality. In which the underlying reasons that determine the outcomes of these indicators will also be examined.



After the differences between the final outcomes have been made clear they will be tested for by means of the expectations established in the first part of the analysis. So the differences in input will be compared with the differences in output.

Consequently, the study consists of more than one objective. First the contracting out policy of the Dutch ministry is evaluated. This is done in the light of Hart’s theory, by a comparison with the experiences in the UK and Australia. Secondly, the applicability of the model by Hart will be tested. As these results should make clear whether the pillars of Hart’s theory are in fact also the main determinants of success in practise and whether it is useful to use this model for such an analysis.

Finally possible improvements in the Dutch contracting out policy will be mentioned. These improvements could be the result from positive outcomes in the UK and Australia and/or through the observed negative affects as a result of inconsistencies with respect to the theory.

6.2 Data

In order to assess the contracting out policy of the Dutch ministry in relation with the model discussed above, several case studies are taken from the Netherlands. As mentioned these case studies will be the N31, the “Tweede Coentunnel, the HSL-Zuid and the A59. Within these case studies several documents will be discussed, but emphasize will be put on the evaluation studies. Since most documents produced by the government are public goods, a bulk part is free available for third parties. Secondly some data that is used will not be free for every third party and as a consequence will either not be appointed directly to its source or not discussed in public.

The standardized contracts used are for the Netherlands the standardized DBFM-contract issued by RWS, the standardized PFI contract of UK issued by HM Treasury and the Policy and Guidelines issued by the Australian Government.

The benchmark of outcomes of PPPs in the UK will be established with the help of several empirical surveys set up by HM Treasury and surveys done by the National Audit Office (NAO). The Australian outcomes will be extracted from surveys done by the National PPP Forum, the National Audit Office and infrastructure departments like ACEA, Infrastructure Partnerships Australia and independent consultancy offices¹².

So as a result, a quantitative model like the one by Hart (2003) is analysed with the help of qualitative data. Perhaps this seems rather contrasting, in practise it is actually quite obvious. Variables like the ease with which specific objects or tasks can be quantified, isn't something that is rather easy to quantify itself into a variable. Let alone that the complexity of public private partnerships is more easily incorporated into a quantitative analysis. It is no coincidence that most empirical research related to this field also has a qualitative nature.

¹² When used, the specific reference of each source will be made clear, so that every aspect of the analysis that is extracted from external sources is traceable.

7 Part I: Standardized contracts UK, Australia and the Netherlands

As mentioned, first step in the analysis is the comparison between the standardized contracts used in the Netherlands and those used in the UK and Australia. Clearly due to the decades of foreign experience within the UK and Australia, the Dutch contracts are partly based upon the agreements established in those countries (RWS, 2010). As a result the standardized contracts will be very similar¹³ and possible deviations between them will probably be relatively little in size and number. Still these differences can have large implications when put into practice.

For this comparison the standardized PFI agreement of the UK that is established in March 2007 by HM Treasury will be used, the National PPP guidelines established by Infrastructure Australia in December 2008 and the standardized Dutch DBFM agreement created in July 2009 by RWS. For a proper comparison it is obviously important that the contracts from the UK and Australia are used for similar types of projects as in the Netherlands. Which means that the two contracts should be applicable for availability-based PPPs, preferably for road infrastructure, just like the DBFM contract of RWS is. For both contracts this is the case, as the UK contract applies to:

“all PFI contracts in England and Wales but does not apply to IT projects, for which separate guidance is applicable (see ICT Model Services Agreement and Guidance published for OGC on the PUK website). The PFI is not suitable for Projects with a capital value of less than £20 million”. (HM Treasury, 2007, p. 3)

For the Australian contract a slightly different approach is used with respect to the standardized contracts, as the national PPP guidelines are created by “Infrastructure Australia” it is consequently applicable for infrastructure projects. But important notification is the fact that solely social infrastructures are subject to this standardized contract;

¹³ To make the analysis not more elaborate than necessary the similarities between the contracts will not be mentioned.

“These National PPP Guidelines: Commercial Principles for Social Infrastructure (“CPs for Social Infrastructure”) detail the Commonwealth and State/Territory Governments’ current preferred commercial principles for social infrastructure public private partnerships (“PPPs”). In general, these principles apply to core services/accommodation type projects where the government payment is based upon availability and the facility reverts to government, at no cost, at the end of the concession term” (Infrastructure Australia, p. VII).

This means that PPPs that include economic infrastructures are not subject to these guidelines. The difference between these two types of infrastructures are said to be;

“Economic infrastructure projects are projects where the private party bears market (demand) risk and revenues are often derived from third parties. This differs from social infrastructure projects where government retains demand risk, traditionally through an availability based payment mechanism. Examples of economic infrastructure projects include toll-roads. Separate national commercial principles will be released which will apply to economic infrastructure projects” (Infrastructure Australia, p. VIII).

Main difference between the two types of infrastructures is the fact that within economic infrastructure the private party is responsible for its own revenue and consequently the demand risk is transferred to the private party. This aspect of the Australian standardized contract has no influence on the comparison with the Dutch contract, as all new Dutch PPP projects implemented by RWS are said to be “availability based payment mechanism”. Extra attention should be placed when comparing these contracts with the UK contract, as the latter one is applicable to all types of contract. When clear differences occur as a result of the different applicability of the contracts those will be mentioned, when this is not

done, the specific deviation will have no significant influence on the outcome of the analysis.

7.1 Most important differences

Examining the contracts in detail gradually indicates the main differences between the agreements, as besides the fact that they are much more elaborate than their Dutch counterpart, the main content of the UK and Australian contract is much more emphasized upon flexibility and risk transfer towards the private party. Several subjects will be discussed below in which these differences in obligations and responsibilities will become clear.

7.1.1 Supervening events

With respect to supervening events all contracts make a distinction between three types of events that could occur; Compensation events, Relief events and Force Majeure events. Compensation events are those events that lead to a compensation to the private party, relief events are events that involves the postponement of important dates within the contract and force majeure events could lead to both postponement and compensation, dependent upon the nature of the event. All three events are included in the three agreements, but their interpretation differs substantially. The compensation event in the UK for instance is regarded as events;

“which arise before the Service Commencement Date which are at the Authority’s risk and which result in a delay to Service Commencement and/or increased costs to the Contractor, although the concept can be extended to the Service Period” (p. 32, PFI 2007)

Consequently such an event would lead the Authority to compensate the contractor for any delay of the service commencement and for its associated loss. The case of extension to the service period is something that occurs only in very exceptional cases in which most of the time extension of the expiring date is offered instead of financial compensation. The specific cases in which these compensation events could occur are; an authority breach of an obligation --which includes a breach occasioned by third parties for whom the

authority is responsible, such as teachers or doctors--, authority changes and discriminatory or specific changes in law (HM Treasury, 2007).

Comparing this with the Dutch interpretation makes clear that the degree of risk transfer with respect to compensation events differs in the Netherlands, as compensation events incorporates;

“the circumstance in which the contractor is not able or only with financial loss, to meet its obligations under this agreement, as a result of one of the following circumstances and where this is not the result of a failure of contractor or a case of force majeure.” (p.69, RWS, 2009)

In which the “following circumstance” are defined as; a failure of authority, a change made by authority or law, actions resulting from safety procedures, actions resulting from third party access to the area or the mandatory making up of a slowdown. Clearly the UK cases are only in effect before the service commencement date, while the Dutch compensation events can occur during the whole contract period. Indicating that in the Netherlands less risk is being transferred to the private party after service commencement and consequently during the maintenance phase.

With respect to compensation events the risk transfer in the standardized contract used in Australia is somewhat comparable to the one in the Netherlands, as their interpretation of compensation events is more in accordance with the Dutch DBFM contract:

“Compensation Events are events which arise during the contract term which are within government's control or best managed by government and in respect of which government provides both Relief and Compensation.”(Australian government, 2008, p. 61)

This means that the Australian government incorporates several more exogenous developments into the case of relief events compared to the UK, as also industrial changes and all changes in law lead to compensations for the private party.

More profound differences can be found when looking at the relief events. The Dutch agreement emphasizes that in the occurrence of relief events that leads to postponement, the authority is obligated to pay the contractor a compensation that is equal to all cost associated with the delay and the duration of the delay and on top of that a day compensation for every day the project is delayed. These cases can occur among others in case of compensation and force majeure events (RWS, 2009). In contrast the UK standardized contract argues:

“The financial effects of delays caused by Relief Events are borne by the Contractor, so no compensation should be paid by the Authority on the occurrence of such delays. If a Relief Event occurs prior to Service commencement any long-stop termination date will be put back by a period equal to the relevant delay. In most cases the only relief given will be relief from termination (i.e. Relief Events are separate and distinct from Compensation Events and Force Majeure Events).” (HM Treasury, 2007, p.40)

Indicating that in contrast to the Dutch authority, the UK authority will by no means pay any compensation to the contractor in case of delay as a result of a relief event, directly following from the interpretation that relief events are strictly different from compensation and force majeure events.

Striking is probably even more the definition that the UK authority uses for describing relief events, as they include among others; fire, explosion, lightning, storm, tempest, flood, bursting or overflowing of water tanks, apparatus or pipes, ionising radiation (to the extent it does not constitute a Force Majeure Event), earthquakes, riot and civil commotion. Their argument is that;

“the events listed in Section 5.3.2 (Scope of Relief Events) may be outside the Contractor’s control, but that is not the appropriate measure of whether an event should appear on the list, as many events beyond a person’s control at the time they occur could in fact have been prevented by proper precautions (e.g. fire). In fact, the list

of events has been arrived at because the risk of the events concerned occurring is better borne by the Contractor as it is in a better position than the Authority to mitigate and manage the consequences. In some cases this will be with insurance, in others with a combination of insurance and proper planning and in others still, by risk management and planning (i.e. the events can be worked around for the period they exist).” (HM Treasury, 2007, p. 39)

This makes clear that within the UK much more risk is being transferred from the public to the private party, since in the Netherlands the risks associated with the events that occur out of the control of the private party fall under the authority of the public party.

This time Australia seems to take the middle road. On the one hand their interpretation of relief events is wider than the one used in the UK. Although the private party also shares the burden of risks that are outside their own control, still relatively more cases are interpreted as relief events, consequently the probability that the private party is being offered relief is larger. On the other hand only few jurisdictions offer compensation in the case of relief, as is argued;

“Provided that certain conditions are met, the occurrence of a Relief Event will entitle the private party to relief from default/termination. However, the private party will bear any additional costs or losses incurred as a consequence of a Relief Event unless that event is also a Compensation Event.” (Australian Government, 2008, p.54)

So with respect to relief events the Dutch private party seems to carry the least of the risk in comparison with the UK and Australia. In which the UK private party seems to be worse off than those in Australia in the sense that relief events include many events that occur outside the control of the private party, while in both countries often no compensation is paid.

This image is confirmed when finally also taking the force majeure events into account. Several events that in the UK contract were included in the relief events are in the Dutch and Australian contract included in the force majeure events, like for instance earthquakes. And again also the payments that result

from these events are different. In the Dutch contract emphasis is put on compensating the private party for their loss and sharing some of the cost that have hit both parties (RWS, 2009). While in the UK no such standardized payment is available. Emphasis is put on the negotiations that should take place in order to find a way to continue the project that was started. This could by exception involve possible changes in the payment mechanism to overcome potential problems that exist as a result of the force majeure event (HM Treasury, 2007). In Australia the financial relief differs by jurisdiction, some jurisdictions do not offer any financial relief, while most of them offer relief of certain debt commitments;

“In some jurisdictions, government will not provide any financial relief to the private party during the period for which it is otherwise entitled to relief from performance (e.g. to meet the private party's fixed operating costs). However, an appropriate compensation amount will be paid if the project agreement is terminated for a Force Majeure Event”. (Australian Government, 2008, p.85)

Clearly with respect to supervening events the UK authority transfers a higher amount of risk towards the private party. Their reasoning is that the results of most risks can be easier managed by the private party, and that the private party is always able to take insurance against these risks. The costs of these insurances will be passed through in the prices they offer, which would ultimately mean that the authority still pays for these events anyway.

The Dutch contract seems to be slightly more in line with the Australian PPP agreement, in which costs are one of the determinants of the optimal allocation of risks, and consequently somewhat more space is devoted to the protection of the private party (Victoria Government, 2006). Although the compensations and reliefs that are being offered to the private party seems to be much higher within the Netherlands than within Australia.

7.1.2 Early termination

The differences in definition of supervening events have several more implications than solely those mentioned above. Like for instance with respect

to the early termination of a project. All three contracts emphasize among others the following possibilities of early termination: termination on authority default, contractor default, force majeure and voluntary termination by authority. All contracts also adopt relatively similar compensation payments in these four categories, with the important notification that the amount of compensation paid is lower in the case of “termination by contractor default” in which the contractor takes a larger part of the burden upon itself, compared to the case of “force majeure” in which the burden is more evenly shared between the two parties. Due to the differences in definition the probability that an event falls under the category of force majeure is much higher within the Dutch DBFM contract than in the UK PFI contract. As a result, in relation with early termination, the probability that the private party is compensated by means of a higher amount is higher within the Dutch agreement than within the UK agreement. To characterize the high standard the UK PFI contract sets for force majeure events:

“The occurrence after the date of Contract of:

(a) War, civil war, armed conflict or terrorism; or

(b) Nuclear, chemical or biological contamination unless the source or the cause of the contamination is the result of the actions of or breach by the Contractor or its subcontractors; or

(c) Pressure waves caused by devices travelling at supersonic speeds, which directly causes either party (the “Affected Party”) to be unable to comply with all or a material part of its obligations under this Contract”. (HM Treasury, 2007, p 43)

The higher risk transfer in the UK towards the private party is again confirmed, as the wide range of events that are listed among relief events leaves the private party exposed to much more risk and in addition a higher probability to retain a lower compensation.

Including Australia into the comparison gives an even more striking conclusion. As the Australian contract makes clear; several jurisdictions do not even offer the opportunity to the private party to terminate the agreement. Consequently

the occurrence of an early termination as a result of Government Default is ruled out of the standard agreement;

“Certain jurisdictions do not allow for termination by the private party following Government Default. In other jurisdictions, the private party can terminate the project agreement by giving a specified period of notice, and assuming government has not cured that default during the notice period” (Australian Government, 2008, p. 99)

As a result the private party will be unable to terminate the agreement earlier than the contract expiry date and has no power in addressing the government with respect to any shortcomings. Clearly the amount of risk that is being transferred to the private party increases substantially when it is fully dependable upon the flawlessness of the public party. In addition the compensation towards the private party is again considerably lower within Australia. Since when the private party does terminate the agreement by means of for instance abandonment, several jurisdictions will offer no compensation. On top of that, in cases in which the default termination compensation amount turns negative, the private party is obligated to pay this amount to the government. This is very different with the UK and the Netherlands in which any negative amount is set equal to zero. Consequently in the case of early termination, the Australian contract seems to transfer the greatest amount of risk towards the private party, while again the Dutch contract seems to protect the private party the most.

7.1.3 Contract changes

The finding that the UK contract seems to be characterized by more risk transfer towards the private party and more flexibility is being supported when examining the possibilities and consequences of potential contract changes. Contract changes can occur by means of two events; changes by request of the public or private party and as a result of changes by law. The first event is in all contracts relatively similar defined but is differently incorporated. The UK contract for instance includes in every single contract a standardized change protocol which can be followed in the case one of the two parties proposes a

change in the contract (HM Treasury, 2007). Due to this inclusion the protocol is subject to extensive negotiations during the tendering phase, leading to less discussion during the contract stage. In contrast, in the Dutch and Australian contract no such protocol has been incorporated (RWS, 2009, Australian government 2008), leading to less structured negotiations and possibly higher transaction costs when potential changes are being introduced. This emphasizes a fundamental difference between the methods used in the UK and those in the Netherlands and Australia. The UK contract is legally correct in the sense that it will be practically impossible to find a flaw or a circumstance that is not included in the contract and connected to a standard procedure. The Australian and especially the Dutch working method with this respect is very different, as their contracts are more built upon the possibilities of negotiations and mutual agreement.

The second event is also subject to differences in interpretation, as in both the Dutch contract and the Australian contract any changes in law are regarded as an event of compensation, indicating that the public party takes the risk of changes in law upon itself. In contrast the UK contract transfers (part of) this risk towards the private party;

“Contractors have in the past expressed concern that change of law is a risk which they cannot control and which they regard as being within the control of the Authority or wider Government. In practice, however, many Authorities (particularly local authorities) have negligible influence over legislation whereas the private sector has traditionally proved adept at managing the effects of changes of law and minimising their impact on their business. Hence it is appropriate for the Contractor to bear or share in the risk.” (HM Treasury, 2007, p.99)

The perception within the UK is that the private party in practice even has more negotiation power to make any changes in law than the public party has and as a result should also carry part of the burden of the risk. Especially when the private party has the opportunity to earn back the cost made as a result of

changes in law by means of increasing the price. In cases where this is not possible, the risk of changes in law will be equally shared between the two parties (HM Treasury, 2007).

The Australian interpretation seems to be similar to the Dutch one, but again their implications regarding the compensation for the private party is different. Within several jurisdictions for instance, changes in law are only compensated during the operation phase (Australian Government, 2008), leaving the private party exposed to the risk of contract changes during the design and construction phase. Secondly they include a so-called three tiered cost sharing system. This means that:

“The private party will bear 100 per cent of the capital expenditure and hard operating cost effect up to a specified threshold (first threshold)” (Australian Government, 2008, p.76)

While above this amount the expenditures will be shared equally, until a second threshold above which the government will bear 100 per cent of the expenditures. Finally the costs that occur from changes in law affecting soft facilities management services –such as cleaning, security and catering–, are per definition for the account of the private party. Indicating that although the interpretation of contract changes in Australia is again rather similar to the one in the Netherlands, their financial consequences in the form of compensation is again rather different, leading to a higher transfer of risk than is the case in the Dutch DBFM contract. Consequently a consistent picture seems to evolve in which most of the risk transfer towards the private party occurs in the UK, the Netherlands and Australia on the other hand seem to offer similar conditions, but in practices the Australian private party is much less compensated than the Dutch one.

7.1.4 Shareholders and subcontractors

With respect to the subcontractors and shareholders the involvement of the public party and consequently the freedom that the private party is being offered becomes clear. Within the Dutch agreement, for instance, a change in subcontractors is only possible when approved by the Dutch public party. This

means that every new subcontractor will have to be evaluated when incorporated in the process. This is in contrast with the UK approach in which the private party is responsible and takes upon the risk of the subcontractor. Their reasoning is that the private party has appointed its own sub-contractors and can change them when ever they find it suitable;

“The Authority often has the perception that it must retain a large degree of control of a subjective nature over Sub-Contractors. This perceived need for control applies both to the performance of the Sub-Contractors and to any procedure for appointing replacement Sub- Contractors. The Contractor’s stated view is often that as it originally selected these Sub- Contractors and has taken risk on their performance, it should be entitled to change them at will (for example, if they are not performing) whilst recognising the legitimate interest of the Authority in the identity of key sub-contractors (as provided for in Section 16.1.5).” (HM Treasury, 2007, p. 117)

So within the UK the public party makes some basic demands clear which any subcontractor must satisfy, and only when these demands are questioned the public party will get involved. It makes clear that in contrast to the Dutch case, the private party is fully responsible for their own activities and the parties they hire to perform these activities. This leaves the private party with more responsibilities, but makes them also more flexible within the choice of their partner companies.

Australia seems to be somewhat in between of the UK and the Netherlands as there standardized agreement does incorporate the fact that many sub-contractors should be agreed upon by the government, but leaves changes with respect to some minor sub-contractors to the complete responsibility of the private party;

“a) The main construction and operation sub-contracts (to be determined on a project by project basis) are not to be amended, terminated, assigned or replaced without government’s prior written consent.

(b) The other material sub-contracts are also not to be amended, terminated, assigned or replaced without government's prior written consent where such amendment may impact on government's rights or the ability of the private party to satisfy its obligations under the project agreement and associated documents.

(c) Where prior government consent is not required; the private party must give government prompt notice of the termination or material amendment of a material sub-contract.” (Australian Government, 2008, p. 117)

However the high involvement of the public party does indicate that with respect to sub-contractors the Australian agreement is much more similar to the Dutch agreement than the UK contract in which the private party is fully responsible and sole decision-maker.

In every project several different stakeholders are involved, as besides the private and public party several investors are necessary in order to finance the investment. With respect to these stakeholders it becomes clear that the UK government not only stimulates flexibility within PFI contracts, but is also eager to keep some control over this flexibility. As in contrast to the Dutch contract, the UK public party is able to intervene in the trade of shares between such stakeholders by means of establishing a lock-in period in which no trade is possible. This is specifically set-up in order to prevent a change of ownership during the term of the project, while in exceptions the transfer between investors is possible. By means of such periods the government is able to put some influence on the process and trade of shares. Similarly the UK contract also incorporates the possibility to step-in and intervenes in the service process by means of a so-called “step-in” event. This provides the public party with the possibility to always intervene;

“(i) because a serious risk exists to the health or safety of persons or property or to the environment; 1 and/or

(ii) To discharge a statutory duty, then the Authority shall be entitled to take action in accordance with paragraphs (b) to (e).” (HM Treasury, 2007, p.240)

Similar procedure, although they in practice rarely appear, is possible within Australia in which the government is always and at any date, specified in advance, able to intervene in the process (Australian Government, 2008).

7.1.5 Payment mechanism

One of the most important aspects of the contract with respect to risk sharing and influencing the incentives of both parties is probably the payment mechanism associated with the project. Although the payment systems are for a great part roughly similar, an important deviation exists during the realisation phase. Where the UK principal is as simple as it is clear:

“The key features of a payment mechanism are;that no payments should be made until the Service is available” (HM Treasury, 2007, p. 48)

Indicating that no payments will be made until the construction is completed and the construction becomes available for the defined service. Similar perception is visible in the Australian contract, as their key requirement for every PPP agreement is formulated as:

“Payment of the service fee will commence (assuming full service delivery) from the later of the date the Certificate of Completion is issued and the Date for Completion. Government may, in limited circumstances, consider early payment (i.e. where Completion occurs prior to the Date for Completion). See also section 14.4 of Chapter 14 (Payment provisions) with respect to incremental payment of the service fee for phased projects”. (Infrastructure Australia, 2008, p. 27)

Similar to the UK their contracts are based upon an availability approach in which the private party fully finances its activities during the construction phase. Although the option for phased payments is left open, which could occur when a project is easily divisible into several facilities that offer individual services (Infrastructure Australia, 2008, p. 47).

In contrast the Dutch agreement does include a payment from the public to the private party during the realisation phase. As is mentioned in the standardized DBFM contract:

“The percentage of the Gross Availability Fee that will be paid during the realisation phase provides a compensation for the conservation costs associated with the Infrastructure Transition.” (RWS, 2009, p. 86)

It seems that the Dutch contract is quite different in this respect with the inclusion of compensation during the construction phase. The difference is figured in figure 8 below, where the Dutch payment mechanism is illustrated together with the investments the private party has to make during the process.

The payment referred to as “transition infrastructure payments” does not seem to exist in the UK and Australia. This difference probably finds its origin in the fact that the British PFI measures with respect to PFI projects are more strictly characterized by the availability-based payment mechanism than in the Netherlands;

“The risk of additional availability deductions then stays with the Contractor. It is important for the Authority always to preserve the principle of no-service no-fee and in an availability-based payment mechanism there should be no payment if the facility is unavailable”.
(HM Treasury, 2007, p 57)

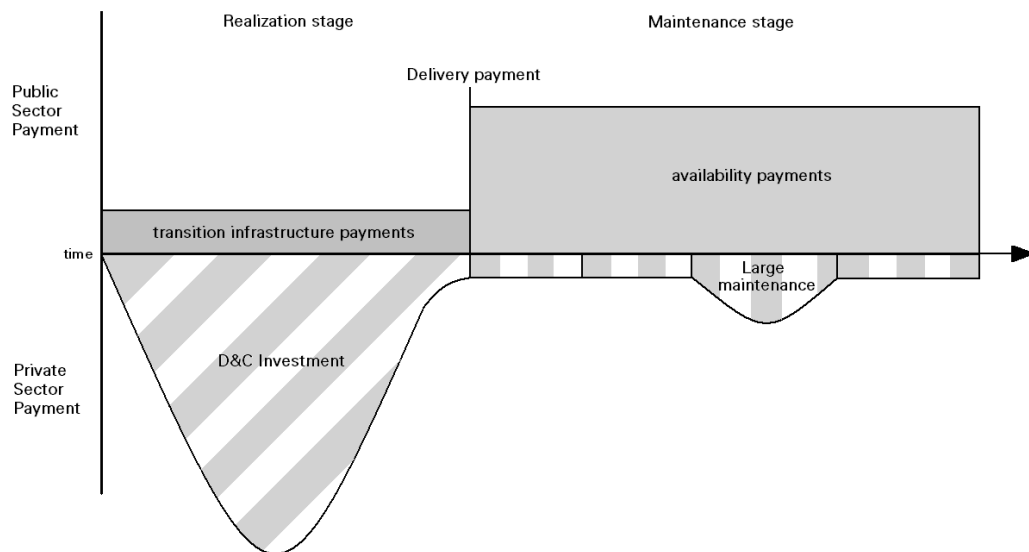
The Australian contract on the other hand does include some payments for difficulties during construction, but these will also be paid only when the service is delivered:

“In some very limited circumstances, there may be specific components of a project’s construction costs that may be highly uncertain, leading to those components being highly priced in bids. In these circumstances, government may hope to obtain a better value for money outcome by including a provisional” sum for that construction component in the service fee, which represents the expected cost of that component, but is subject to adjustment once the actual cost becomes known during construction”. (Infrastructure Australia, 2008. p. 45)

It seems that the idea of no payment until delivery has been more literally followed in the UK and Australia, compared to the Netherlands, with clear implications for the incentives and financial aspects for the private party. As visible in figure 8 below, the private party is now partly being compensated for their largest investment during the contract; the Design & Construct investment.

Figure 8 DBFM -payment scheme

DBFM - construction



Source: consultation with RWS on 21st of July 2010

This reduces their construction risk and their financial risk, as fewer of their own financial resources will be necessary than would be without this compensation. In other words, in contrast to the UK and Australia the private party in the

Netherlands is being compensated in the period it is exposed to the most risks as they make their largest investment.

7.2 Overall

The analysis above has tried to point out the differences that are incorporated in the standardized PPP contracts within the UK, Australia and the Netherlands. Clearly differences exist and clearly these differences will have consequences for the procedures that follow during the different stages of a public private partnership. The image that has been created seems to make clear that the UK agreement shifts most of the responsibilities from the public towards the private party, while the Netherlands seems to be the most reticent in this respect. Australia seems to be somewhat in between these two types by offering roughly similar contractual agreements as the Netherlands, but offering much less compensation towards the private party. As a result the private party is still left exposed to much more risk compared to the one in the Netherlands. The table below sets out the main results extracted from the analysis above.

The more liberal approach by the UK becomes obvious in several more aspects in the contract than just those mentioned above. Without pointing to any clear differences, their policy with respect to confidentiality for instance is formulated from quite a different perspective. Where the starting point in the Dutch contract regards the confidentiality of dealing with information, in which both parties are obligated to deal trustworthy and responsible with (potential) company sensitive information. The UK contract takes the perspective of public information as its starting point. They emphasize only the exceptions in which public information should be kept confidential and do not give a clear indication of protecting the private party against the loss of confidential information. And although, as mentioned, no clear differences can be identified and both contracts can pursue the same outcome, their different perspectives already make a lot clear about the differences in the overall tendency.

Table 1: Summarized comparison between standardized contracts

	<i>The Netherlands</i>	<i>Australia</i>	<i>The UK</i>
<i>Supervening events</i>	Compensation for events outside control private party	Compensation for extensive list of Force Majeure events	Only compensation for few Force Majeure events
<i>Contract changes</i>	Changes in law are compensation events	Compensation above a certain threshold	To the utmost an equal sharing of costs
<i>Payment mechanism</i>	Payment during the construction phase	No payment until delivery	No payment until delivery
<i>Sub-contractors</i>	All sub-contractors have to be approved	Almost all sub-contractors have to be approved	Almost no sub-contractors have to be approved
<i>Early termination</i>	High probability of large compensation fro private party	Private party not always able to terminate	More defaults are private responsibility
<i>Overall Tendency</i>	Private party relatively protected	Intermediate protection with relatively low compensation	High risk transfer to private party

7.3 Possible reasons for deviations

Before using the differences found in the previous analysis, it may be useful to put the differences in perspective by examining which reasons could be the cause for the differences in the established standardized contracts. Three potential causes will briefly be mentioned.

Differences in experience

The three countries differ substantially with respect to their experiences with PPP projects. The UK and Australia are both much more familiar with PPP agreements due to their more than ten years of experience and are consequently more confident in transferring a larger amount of risk. The Netherlands on the other hand has only little experience as they have only recently been implementing PPPs on a regular basis. As a result, the Netherlands could be very reluctant in immediately transferring that many risks and consequently increasing the possibilities of project failure. As a result it could be argued that their lack of expertise in PPP has withheld them from leaving every responsibility to the private party and has led them to keep some aspects of the project under its own control. But besides the reluctant among the public party to transfer a high amount of risk towards the private sector, the same can be obtained from the experience of the private parties and financiers involved. Private parties are unwilling to be suddenly overloaded with risks, as was also argued by the Australian government (2006);

“The allocation of risk between the public and private sectors has substantiality evolved over time, and private investors are now more willing to accept certain levels of risk including those of an operational nature.” (Victoria Government, 2006, p.18)

Important reason in this is that financiers are not eager to lend the private party money when the project is too risky. When there are no successful reference projects to compare the risks with, it will be hard for private parties to find financiers that leave the project still profitable.

Differences in economic policy

Especially the UK and to a lesser degree Australia are characterized by a much more liberal economic environment than the Netherlands is. As a result economic policy is adjusted towards the attitude in which solely the individuals themselves are responsible for their own success. Subsequently, everybody carries its own responsibilities and monitoring and support from the government is much lower than is the case in the Netherlands. These differences in economic culture are also visible within the differences of the contracts, in which every party carries its own bulk of responsibilities. Additional differences in culture include the fact that the Netherlands is known for its so-called “polder-model”, referring to the consensus model that was established by means of long negotiations and equal risk sharing, the UK is more accustomed in the writing of extensive protocols in order to make the specific agreement legally correct and leaving nothing to the “chance” of negotiations. As a result the UK contract includes standard procedures for every possible circumstance, the Netherlands on the other hand tries to resolve most (potential) problems by means of negotiating and consequently is much less legally protected.

Related aspects of these differences are the tasks and duties that are associated with the departments involved. RWS in the Netherlands has two main tasks; private and public tasks. Their private tasks are now being fulfilled with the help of private parties by means of DBFM-contracts, but their public tasks are still in their own control. These public tasks include, for instance, the responsibility for a sufficient infrastructure in the Netherlands and the traffic management with respect to that infrastructure. As a result RWS is very reluctant to transfer the responsibilities related to these tasks towards the private party. In contrast, the Highway Agencies in the UK feel no restraint in transferring a large amount of these responsibilities towards the private sector.

Differences in applicability of contracts

As mentioned at the start of the previous chapter, the three contracts are all applicable for infrastructure projects that are set-up by means of an availability payment mechanism in which the asset after the contract is being returned to the public sector. Although the contracts are thus used for the same projects,

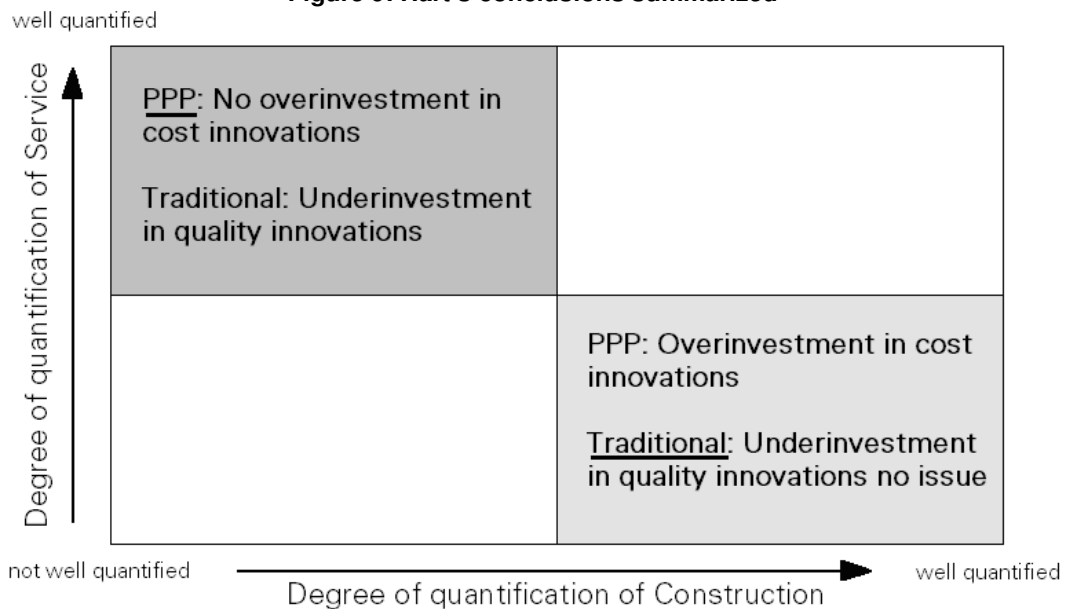
they are also used for different projects. Meaning that the UK contract is specified for usage in all sectors except IT, while the Australian contract is used for social infrastructure and the Dutch contract is only applicable for transport infrastructure. As a result it seems rather obvious that the UK contract, for instance, should incorporate several more details and aspects in order to fit to a wide a range of different sectors. And although this should have no consequences for the general content of the contract, it at least does stimulate the creation of an elaborate contract. The reason it does not interfere with the analysis is that it is not per se the sector that matters, but more the procurement method that is used.

8 Part I: Hypotheses

By means of the differences found in the previous chapter, the first part of the analysis will have to be finalized by forming expectations for the differences in outcomes between the Netherlands, UK and Australia. These expectations will not solely arise from the results of the previous chapter, but will also be built upon Hart’s model as given in chapter 5. However, in order to properly incorporate Hart’s theoretic model into the results from real-life experience, first a somewhat more practical interpretation of his hypothesis is necessary.

Roughly speaking Hart’s model consists of two main pillars; first the degree to which the construction and service of a project can be quantified and second the degree to which these quantifications form incentives for the private party to make cost innovations and/or quality innovations. His model is summarized in figure 9 below, in which the main conclusions are represented.

Figure 9: Hart’s conclusions summarized



The axes of the figure indicate the degree of quantification of the construction and the service. Roughly speaking both construction and service can either be well specified or not well specified. This figure is helpful in the sense that it makes clear what the objective of a PPP contract should be, as it indicates that in order for PPP to be the optimal procurement method the project should

incorporate a well-defined service outcome and a construction process which leaves room for the private party to give it their own interpretation. When in contrast, the construction is quantified in detail and the service isn't, PPP does not offer any benefits over traditional procurement as an overinvestment in cost innovations is likely to take place¹⁴. Consequently this will be the starting point for the resulting analysis, which ultimately must lead to the answer which contract is most able to place itself in the upper left corner, is consequently more suitable for PPP and is as a result expected to reap most of the potential benefits from the incorporation of a private party.

8.1 Quantification of construction and services

The quantification of the specific construction is not to be evaluated literally, which would also be impossible to do due to a lack of proper data, but instead should be approached as the degree to which private parties can give their own interpretation to the construction of a project and have the opportunity to make modifications consistent with this different interpretation. Consequently the extent to which the private party is able to determine the final outcome of the construction is dependent upon the degree to which the construction has been specified in detail in the contract. The less the construction has been specified beforehand, the more responsibilities and opportunities will be present for the private party. Associated with these responsibilities and opportunities are the risks to be transferred. So to put it another way; the less strict the construction has been quantified, the more risks are being transferred to the private party.

Second, as Hart already argued, the quantification of the service can best be evaluated by means of the reward and penalty scheme that has been included in the contract. Such a scheme incorporates the effects and measures that result from the performance of the private party, it includes for instance the penalties that are given as a result of insufficient availability and the rewards for early delivery. Consequently the degree to which the private party is being

¹⁴ Note that when both construction and service are well defined, there is no optimal procurement method as both contracts would offer the same outcome. This case would correspond to a "complete contract" (see Schmidt, 1996) and the first best solution in Hart's model. While when both construction and service are not well quantified, the project should not be procured at all.

rewarded, compensated and penalized during the term of the contract is being considered as the degree to which the service is being quantified into the contract. Reason is that these measures perform direct influence on the incentives of private parties to fulfil a certain service requirement.

8.2 Incentives regarding cost and quality innovations

As mentioned the second pillar of the model concerns the degree to which the private party's incentives to make cost and quality innovations are influenced by the quantifications mentioned in the previous paragraph. Within this respect the explanation can be short, as the differences in standardized contracts are being evaluated by means of the degree of quantifications as mentioned in 8.1. The effect these differences have on the incentives of the private party to make cost or quality innovations are being used to determine the outcomes. This means that the influence on incentives for the private party will form the argumentation behind the expectations in a similar manner as has been done in Hart's model and is visible inside the boxes of figure 10.

8.3 Expectations for differences in outcomes

The structure used in Hart's model will be used in order to emphasize the differences of the contracts and relate them with the theory. Consequently the degree of construction and service quantification will be treated subsequently for the establishment of the expectations.

8.3.1 Quantification of the construction

Clearly the UK contract seems to transfer most of the risks towards the private party; the Dutch contract leaves a great part of the responsibilities and decision-making in the hands of the public party, while the Australian PPP agreement seems to be somewhat in between these two. With respect to the quantification of the construction two deviations seem to be the most important; the ability to make changes within the contract and how to deal with them, and the extent to which the private party carries the responsibilities associated with these changes. Clearly, the less the construction has been quantified in the contract, the more responsibility the private party will have with respect to possible changes.

First of all the previous chapter made clear that there exists two means of contract changes; changes by law or changes initiated by the private or public party. The first event characterizes the differences in risk transfer between the contracts. The fact that the UK transfers a higher share of the risks of changes in law towards the private party indicates the higher responsibility that is carried by the British private party in comparison with the Netherlands and Australia. This higher risk transfer could have several implications; first it could lead to a higher price asked by the private party, as the higher insurance costs will be passed on to the public party. Second it could lead to a higher incentive to make cost innovations to compensate for these costs.

The second event characterizes the higher flexibility that is incorporated in the UK contract. With the inclusion of a change-protocol, the degree to which changes can be made during the term of the contract is determined beforehand. Consequently it can be expected that the implementation of changes will take less time in comparison to the Netherlands and Australia. This higher flexibility clearly points into the direction of a less defined construction period as more room has been created to make changes during the process.

Second important aspect of the analysis of the previous chapter concerns the degree to which private decisions are being controlled and/or evaluated by the public party. This deviation becomes most clear when focusing upon the degree to which the public party gets involved in the decisions of the private party with respect to sub-contractors and shareholders. Because where the UK government only in case of exceptions intervenes in the process of choosing and/or changing sub-contractors, the Australian and Dutch public party induce a high degree of control over this process. Within the Netherlands for instance, new sub-contractors are obligated to go through an extensive process of paperwork in order to get the approval by the public party to replace another subcontractor. This is especially striking as it seems to be in contrast with the general perception of a PPP process, which is built around output indicators and leaves the responsibility of reaching these indicators to the private party. In contrast the Dutch, and to a somewhat lesser extent also the Australian, public party exercises a great degree of control over this process. Such a high degree of control seems to be much more in line with traditional procurement, as it

reduces flexibility and the share of responsibilities for the private party. Clearly in this sense the UK contract seems to offer a much looser defined construction process than the Netherlands and Australia do.

8.3.2 Quantification of the service

As mentioned by Hart; the degree to which the service is quantified is highly dependent upon the reward and penalty scheme that is adopted in the contract. The stricter this system will be, the higher the stimulus will be for the private party and the better the service will be quantified. Consequently the degree to which the private party is being compensated, rewarded and punished has been used to compare the three contracts with respect to the quantification of services.

First point of deviation concerns the risk transfer with respect to supervening events (relief, compensation and force majeure). The fact that the Dutch private party is being compensated for costs that are made as a result of events outside their own control makes clear that relatively little risk is being transferred to the private party. In contrast the UK private party is obligated to take insurance against several more risks. And although it can be questioned whether this is the cheapest method¹⁵, the result is that the private party is subject to a much more strict compensation mechanism. The Australian private party on the other hand is especially burdened by the fact that the amount of compensation is often much lower than their counterpart receives in the Netherlands. Clearly in the case of supervening events the private parties in the UK and Australia seem to be punished harder than those in the Netherlands, this does however indicate that these parties are also more stimulated to either speed up the construction process in order to start the receiving of payments and/or increase the quality of the construction to reduce the possible damages as a result of a supervening event. Consequently it can be argued that underinvestment in quality innovations by the private party seem to be less likely in the UK and Australia than in the Netherlands.

¹⁵ Often the public party has the opportunity to insure itself against those risks at a much cheaper level than the private party can, as a result of the fact that the public party can diversify its risk over a portfolio of projects while the private party is unable to do so. Consequently the insurance that the private party passes through to the public party can lead to higher costs than if the public party would take insurance over several of these events.

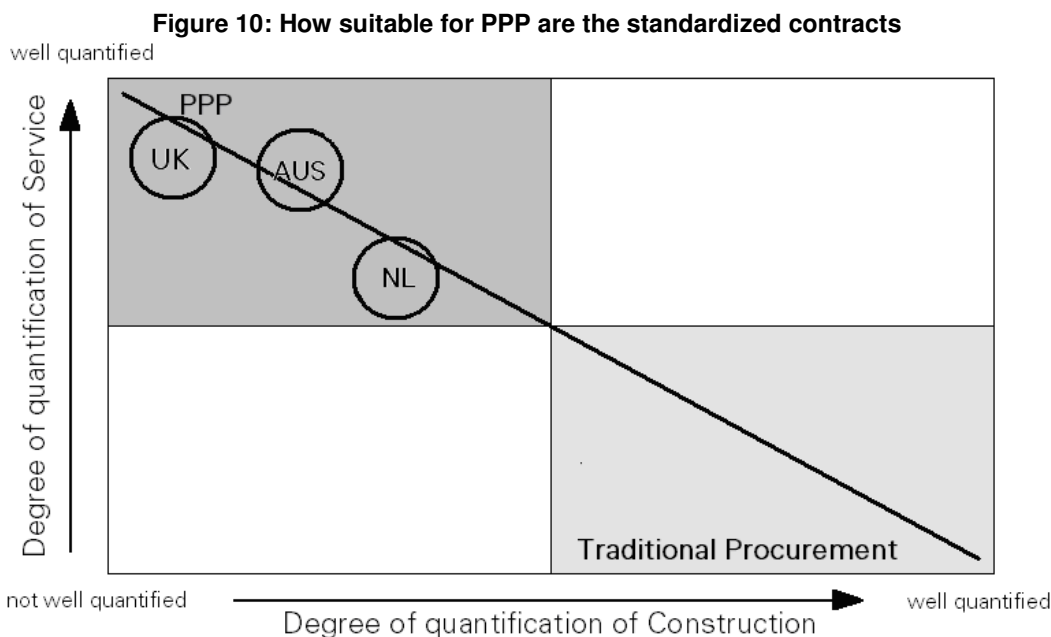
Similar results can be found when focusing upon the differences in the processes of early termination. Due to the more strict compensation methods in Australia and the UK, early termination by means of private party default is more likely in those countries than within the Netherlands. Consequently the probability that the private party will receive a large compensation in the case of early termination is more likely in the Netherlands. Especially compared to some jurisdictions in Australia in which private parties aren't able to terminate the contract by reason of public party default. As a result the again more strict agreements in the UK and Australia seem to reduce the probability of underinvestment into quality innovations and/or overinvestment in cost innovations.

Finally the deviations in the payment mechanism are being considered. These deviations mainly occur in the sense that the private party in the Netherlands is being paid during the construction stage, by means of a so called infrastructure transition payment. In contrast the UK and Australian government refuse to give any kind of compensation before the service is being delivered. As a result the private party has an higher incentive to meet the requirements, with respect to the service, as soon as possible. In addition, the fact that the Australian private party is in danger of paying the public party in case the reward payments turn negative, due to their lack of fulfilling the demands made by the public party, increases the incentives of the private party to meet the requirements. As a result the private party in the Netherlands seems to receive the lowest stimulus to finish on time and meet the demands imposed.

8.3.3 Resulting Hypotheses

Resulting from these expectations is the following figure. Again the axis incorporate the degree to which services and construction are being quantified, except now the procurement methods by the three countries are being used as indication of the position of the three countries within this figure. It makes clear that by means of the differences in standardized contracts the Dutch PPP contract seems to meet the requirements set by Hart to the least, especially compared to the UK and Australian contract. Their relatively low degree of risk transfer in combination with a relatively high control of the public sector leads to the consideration that construction is being quantified too strict, while the

penalty scheme with respect to service quantification is too loose. Whether this means that the procurement method established in the Netherlands is actually more suitable in the form of traditional procurement is hard to conclude. But the analysis above does make clear that it can be expected that a smaller part of the potential benefits from PPP will be obtained within the Netherlands, when compared with the UK and Australia.



The UK seems to be able to fit the requirements set by Hart to the most, as it offers a lot of room within the specification of the construction which the private party can fill in at its own needs. In addition, the penalties and rewards that are contracted with respect to the quantification of services seem to be the most strict when comparing it with Australia and the Netherlands.

Australia is short behind the suitability of the UK, as their contract does include a strict penalty and reward mechanism, but shifts a few less responsibilities in this respect towards the private party. Next to that some risks that in the UK are shifted towards the private party are kept by the public sector in Australia, indicating a more strict quantification of the construction.

As a result the expectations listed above indicate that the UK is the most able to take advantage from the incorporation of the Private party, while the Netherlands the least. The outcomes in the next chapters will be used to test whether these hypotheses should be rejected or not.

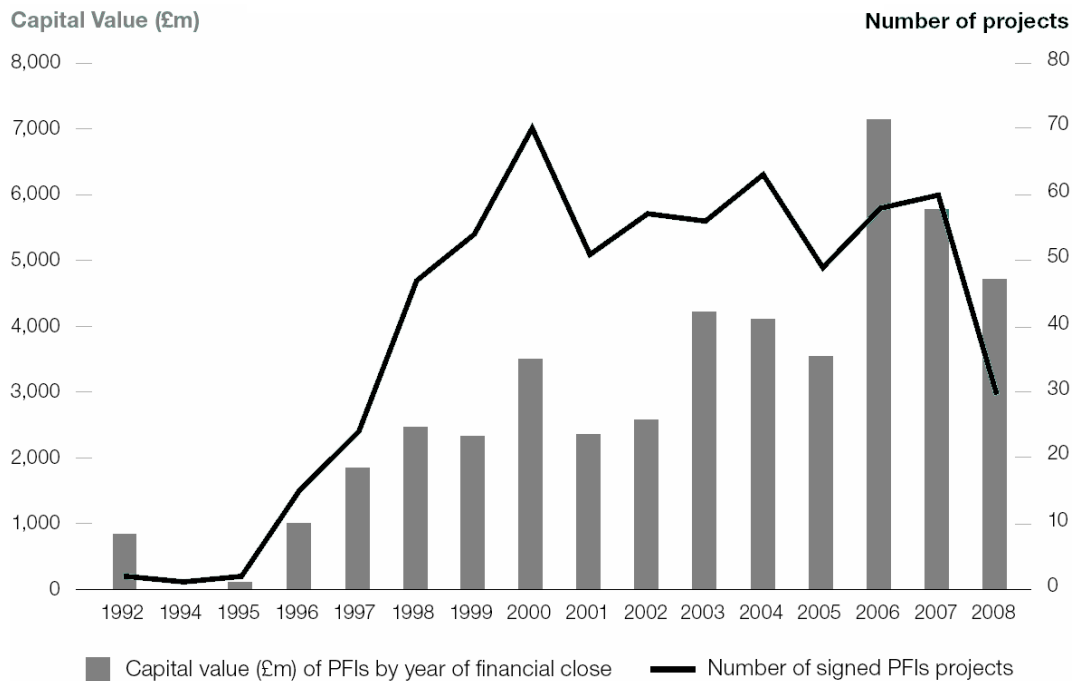
9 Part II: Public Private Partnerships in the United Kingdom

In order to be able to compare the results from the Dutch case studies, a proper benchmark should be created. This benchmark is built upon the results from public private partnerships in the UK and Australia and will be structured by means of their three most important output indicators; time, money and quality. As mentioned before, the reasoning behind the choice for these countries is that both are considered to be leading within the development of PPPs, and both have extensively evaluated their partnerships, which makes it relatively easy to create a reliable benchmark. These two factors combined also assure that in both countries the contracts are developed, as a result of trial and error, into probably the most efficient contracts in the field of PPP.

9.1 Developments PPP in the UK

To illustrate the booming number of PFI projects within the UK, the following graph represents the number and value of the amount of partnerships

Figure 11: Number and Value of PFI projects in the UK



source: National Audit Office, 2005

established by the UK government. The figure makes clear that the early 1990's initiated the use of Private Finance Initiatives. Clearly it took time before these projects really gained in the number of usage, as less than a billion of capital investment had been agreed with private companies by the end of 1995 (NAO, 2009). From 1997 onwards large projects were put forward in which private finance was used. At the same time, the NAO started extensive evaluations of these, still running, PFI and PPP projects, which were subsequently used to improve the contracts and conditions of future projects. The start of the twenty-first century meant a rapid increase in the number of PFI projects. The evaluations and experience paid off as the private finance sector matured and supporting departments and agencies were established to coordinate and advise the parties involved (NAO, 2009). Although not completely clear why, from 2006 onwards the number of PFI projects has decreased, despite the fact that PFI projects became more and more spread over different sectors. In contrast, their total capital value in 2006, 2007 and 2008 was never this high.

Nowadays, about 15 percent of the government's yearly investment in public services is initiated by PFI, as of September 2009 there were more than 500 different PFI projects operational in England, with a capital value in excess of 28 billion pounds (Partnership UK, 2008). Besides these PFI projects there are also numerous other types of projects which are by UK definition interpreted as PPPs. These include models like joint ventures and strategic infrastructure partnerships. But corresponding to their role in practise and the NAO evaluation, relatively little attention will be spent on these partnerships.

9.2 Empirical result UK

72 studies by means of the National Audit Office (NAO) have been done to evaluate the results from PFI projects. Of these reports, 54 relate to single projects, 7 to programmes and 11 to strategic themes in the implementation of private finance. As a result the NAO has examined over a hundred different projects, of a total of 641 projects that are under construction or operation (NAO, 2009). These aggregated results are, in combination with several other evaluation papers listed below and categorized into three important indicators; time, money and quality. Every subject will be treated by means of their main

outcome and the problems and circumstance that underlie these outcomes. Consistent with the applicability of the standardized contracts, the studies that are examined will incorporate no or a negligible number of IT projects.

9.2.1 Time

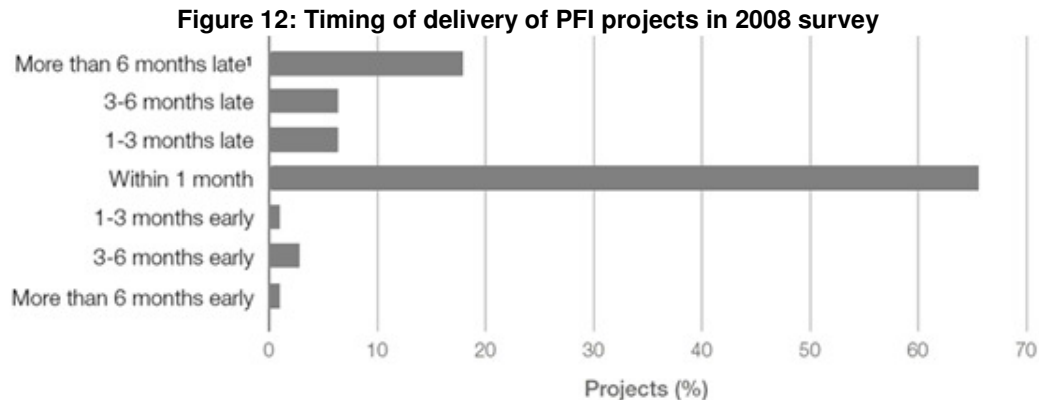
The indicator time reflects the measurement to which extent the different stages of the project run on schedule and especially to which extent the service is being delivered on time. Looking at the results from UK experience a positive picture seems to emerge, as in 2003 around three quarters of the projects were delivered on time, while in 2008 this number had slightly decreased to 69 percent of PFI construction projects that were being delivered on time (NAO, 2009), as visible in table 2 below. Although no clear reasons are being discussed, the difference could be the result of the samples that are being used, since the 2003 sample incorporates a much larger share of infrastructure projects. This would indicate that mainly these projects offer a time advantages,

Table 2: PFI Construction time delivery

	On time		Delayed	
	2008	2003	2008	2003
Year of Survey	2008	2003	2008	2003
Results	69%	76%	31%	24%
Range this % is likely to lie within	60-78		22-40	

Source: National Audit Office, 2005

In their survey the NAO emphasized that the underlying factor of these good on-time results were the clear output definitions. Also the majority of projects that were too late were mainly the result of financial difficulties by a large supplier, next to the lack of private party project management. Of those delivered late, 42 percent were delivered within six months of the agreed time as visible in figure 12 below. In addition, less than half of those delayed projects (43%) also incurred price increases (NAO, 2009).



source: National Audit Office, 2005

Comparing these results with traditional procurement, NAO makes clear that the initial large differences with PFI have been decreasing in recent years. A survey in 1999, for instance, made clear that 70% of the traditional procured projects were found to be delivered late (NAO, 2003) which is substantially higher than the 24% of PFI projects that ran late in 2003. However, in 2008 the NAO found that 31% of PPP projects was delivered late while the time performance of traditional procured projects had improved substantially with just 37% of the projects that ran over time, indicating that the differences in performance between the two procurements are evaporating.

Finally HM treasury also conducted an independent survey which included 70 different projects; their result confirmed the good on-time performance of PFI projects as their results indicated that 89% of projects were delivered on time or early while also 88% of construction was on time (HM treasury, 2008).

9.2.2 Money

The indicator money reflects the measurement to which extent the project is finalized within the given budget and if not which factors have influenced this process. First striking observation with respect to the money performance of PFI projects is the aspect that was found by the NAO concerning the lack of competitive pressure during the tendering stage. This could lead to the possibility that potential competitive benefits from the private sector are not fully captured within PFI. The high bid costs associated with PFI and an oversupply of projects are put forward as the main reasons for this problem (NAO, 2003). Carillo et al. (2008) has confirmed this problem by evaluating which aspects of PFI form the main barriers for private parties to make a bid on a specific PFI

project. From their dataset of 100 completed questionnaires, of which 48% of the respondents were client organizations and 52% were construction organizations, they estimated the following most significant barriers, in order of importance:

For client organizations,

- *high transaction and bidding cost;*
- *complex contracts; and*
- *lengthy negotiation periods.*

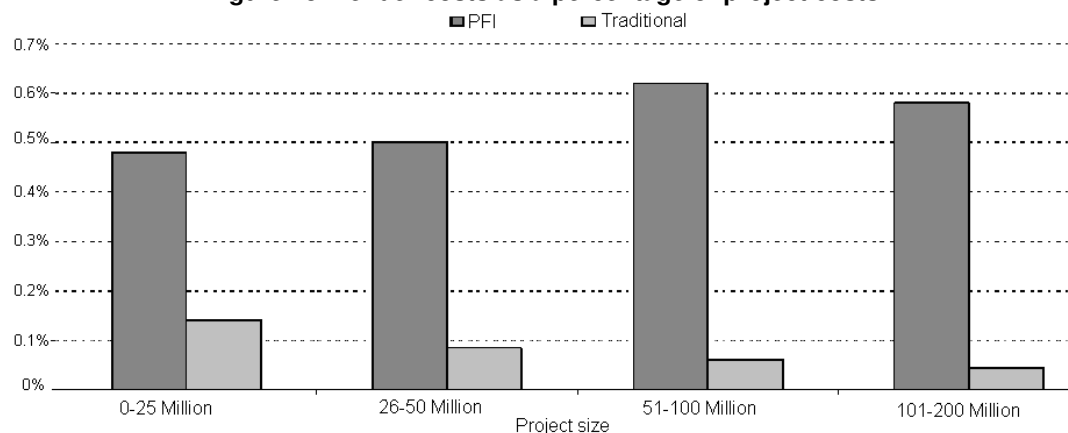
For construction organizations:

- *the high transaction and bidding costs associated with PFI*
- *track record;*
- *lengthy negotiation periods; and*
- *inexperienced staff*

While both organizations and clients also find the bidding process too long (Carillo et al. 2008), p. 141.

Similar results are obtained in other studies. A study initiated by the House of Lords (2009) for instance found that due to the increase in complexity of the contracts the bidding processes are becoming longer and competition is limited as fewer firms are able to meet the requirements. As a result it is argued that the good on-time and on-budget record of partnerships masked the large costs associated with this process (HoL, 2009). This problem is visualized in figure 13 below, where the striking differences in tender costs between PPP and traditional procurement are represented. These differences are argued to be

Figure 13: Tender costs as a percentage of project costs

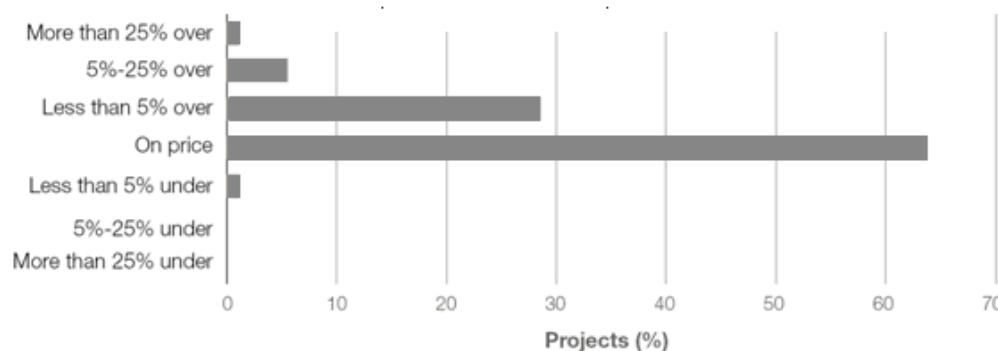


Source: Allen, 2003

the result of the high costs realized during the exclusive negotiations with one consortium. It is this stage where competitive tension is at its weakest and the private party has the most negotiation power. Since the public sector only rarely pulls out of these negotiations to focus on other procurement methods, the prices paid for risk transfer is often too high (HoL, 2009).

But on the positive side the NAO has estimated that PPPs in general deliver what the public authorities ask for, as 65 percent of PFI construction projects between 2003 and 2008 were delivered at the contracted price, as visible in figure 14 below and 94% was delivered on or less than 5% over price (NAO, 2009). Main reasons for this were the incentives and penalties associated in the contract, the clear output specifications, forward planning during procurement stage and the good quality of public sector management (NAO, 2009).

Figure 14: Price to public sector compared to PFI project



Source: National Audit Office, 2009

Those projects that were delivered late were mainly delayed due to public party changes during the project, which ranged from changes that already should have been included in the contract to changes that occurred as a response to changing circumstance (NAO, 2009).

A comparison with the public sector does again indicate the decreasing differences in performance. In 1999 traditional procurement projects were found to be more costly than agreed upon in the contract in 73% of construction projects (NAO, 2003). But over 2003-2008 the NAO found that under traditional procurement only 46% ran over budget. While the numbers for PFI projects had decreased to 35% over budget. Parallel to the on-time results of the previous chapter, also the on-budget results show that the gap between traditional procurement and PFI are decreasing.

9.2.3 Quality

The indicator quality reflects the measurement to which extent the projects deliver the expected quality and meets the requirements set by the public party, but also includes the quality of the complete process in order to incorporate the problems that were associated with respect to contract management. Finally also the aspect of innovations and related issues will be mentioned.

With respect to the tendering process the first remarkable point that becomes clear in the NAO evaluation is that many projects lack a clear justification for the use of private finance. Although many cases are subject to extensive quantitative analysis, a clear argument in favour of PFI is often missing due to the mistakes, manipulation and misuse of these analyses. The NAO blames the institutional incentives for this, which often pushes the public authorities to participate in private finance. Such problems could be overcome by increasing the number and extent of evaluations to properly learn from past success and failures, and consequently use these experiences to properly choose the most efficient method (NAO, 2003).

In their research in which interviews with several people involved in the projects were taking, the NAO found a clear consensus that PFI led to better maintenance than had been the case under traditional procurement (NAO, 2009). The only problem associated with this process is to quantify these results, as the NAO is unable to determine the cost differences in maintenance by means of figures.

With respect to innovation, PFI does not seem to have the complete desired effect. Several studies made clear that PFI has led to little innovation, as most projects are still aimed upon achieving time and cost benefits, which in practise is traded-off for the implementation of innovative measures. In order to increase innovations within PFI's, the public sector should loosen these strict objectives to create space for the private party to introduce innovations. In their poll-based research, Carillo et al (2008) for instance found that only 54% of respondents considered PFI to produce improved innovation in design.

The same research also considered aspects like risk-sharing and life performance of PFI and again came to relatively moderate results. For instance

only 52% of the respondents considered that risks and rewards were appropriately managed, and again only 52% considered PFI to provide value for money for the whole life performance.

In contrast, the NAO found that in general the projects assure Value For Money (VFM)¹⁶. The emphasize should be put on general, as also some projects seem to offer no VFM and part of the projects that are still in process represent a very uncertain picture for VFM. Given the difficulties of projecting the potential for VFM, it is easier to count the failures; a fifth of the projects that were examined have obviously failed to achieve VFM (NAO, 2009). Most of these failures were the result of poor tendering or contract management.

In 2006 HM Treasury initiated Partnerships UK to conduct a report describing the results of a 2005 survey of operational PFI projects. They surveyed 400 of those projects and received 105 responses. A further 12 projects were selected for detailed reviews using semi structured interviews. In Carillo et al. (2008) the conclusions from that survey were summarized as follows:

- *79% of projects reported that services standards were delivered always or almost always;*
- *96% of projects were at least “satisfactory”;*
- *89% of projects had services provided in line with the contract or better;*
- *83% of projects reported that their contracts always or almost always accurately specify the services required; and*
- *72% of projects report good or very good performance.(Carillo et al. 2008, p.7)*

Partnership UK (2008) also found that contract service levels are always or almost always achieved (94%). Reported user satisfaction is also good as 92% reported that the services that were being delivered were of an acceptable standard (Partnership UK, 2008, p.5). Finally also a large majority of the projects received good quality ratings, 53% even very good quality ratings, compared to just 22 percent in 2003, indicating that the developments in contracts have been beneficial for the quality of the projects (NAO, 2003).

¹⁶Value for money is a measure to find, for the price being paid, the solution that most effectively meets the Government's economic and social objectives (Government of South Australia, 2010, p. 1)

9.3 PPP in the UK: in summary

To simplify the comparison with Australia and the Netherlands, a short summary will be helpful. Below the main results are listed in a table. PFI projects in the UK seem to offer clear advantages over traditional procurement, both by means of time and by means of costs. Downside of this is the high costs in terms of money and time that is associated with the tendering stage of the contracts. With respect to quality the projects seem to offer what is expected or more, although there is still room for improvements with respect to innovations, the quality ratings are very high and keep improving. Finally the improved performance of traditional procured projects could be connected to the spill-over of knowledge resulting from public private partnerships.

Table 3: Summary of PPP results UK

UK	Positive Results	Negative Results
Time	<ul style="list-style-type: none"> • Large share PFI on time • Time advantage over traditional procurement 	<ul style="list-style-type: none"> • Tendering takes lot of time • Decrease in time advantage over traditional procurement
PPPs offer time advantage over traditional procured projects		
Money	<ul style="list-style-type: none"> • Large share PFI on-budget • Cost advantage over traditional procurement 	<ul style="list-style-type: none"> • High tendering costs • Decrease in cost advantage over traditional procurement
PPPs offer cost advantage over traditional procured projects		
Quality	<ul style="list-style-type: none"> • Delivery meets requirements • Most projects rated “satisfactory” or higher 	<ul style="list-style-type: none"> • Lack of clear justification PPP • Low level (50%) of innovations
PPPs offer high quality with 50% consisting innovations		

10 Part II: Public Private Partnerships in Australia

As mentioned shortly before, the Australian PPP market is strictly divided into two sections; the one concerning social infrastructure and one concerning economic infrastructure. The main difference between the two is that social infrastructure includes a transfer of the asset back to the public party, while in economic infrastructure the private party becomes owner of the asset and is responsible for its own revenue, for instance in the case of toll roads. Since the Australian standardized contract is based on the method of availability payments, emphasize in the Australian outcomes below will be put on those projects concerning availability payments by referring to those evaluation studies that have focused mainly on social infrastructure.

10.1 Development PPP in Australia

The development of PPP in Australia can be divided into two era's, the one of the 20th century and the one of the 21st century. The main differences between these two periods are the result of a lack of specific PPP procurements and guidelines in the first period. While nowadays Australia has established one of the most supportive and structured frameworks for PPP development and implementation in the world (Taseska, 2008).

To be precise, the first period started in 1980, in which Queensland's Gateway Bridge was one of the earliest projects that were implemented in a comparable way as the public private partnerships we know today. From that year until 2006 a fast increase in the number of PPPs was visible, which ultimately led to a documentation of 49 different PPPs, with a total value of 35.669 million dollars and spread over eleven different sectors (Taseska, 2008). And the market is still growing, according to the Financial Times the Australian market comprised \$9 billion of projects between 2000 and 2006 and is expected to grow to \$100 billion in the next ten years (Minder, 2006). In order to reach this amount the market share of PPPs should rise significantly. Considering that infrastructure spending in Australia in 2008 was estimated at \$38 billion and is expected to grow to a total of \$320-\$400 billion over the next decade, would imply that PPPs should capture a market share of roughly 25% in order to reach this goal

(Minder, 2006). Clearly these amounts are from a different level than those from the UK, but taking the relative size of the economy into account makes clear that PPPs have definitely established a comparable strong position within the Australian economy.

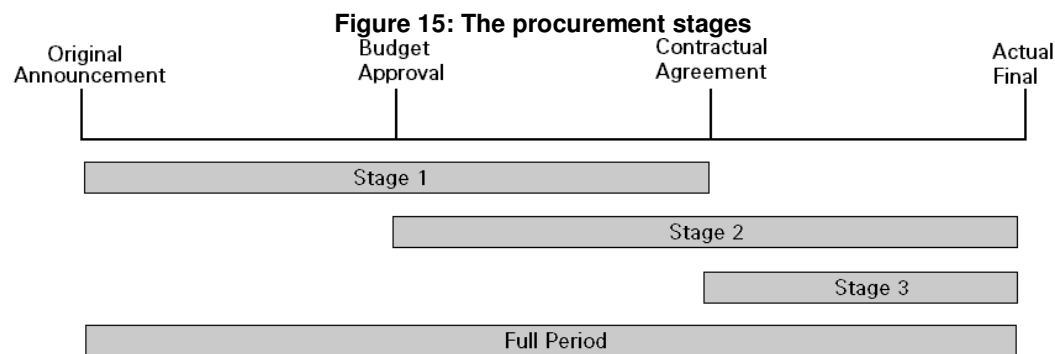
10.2 Empirical result Australia

Several surveys have examined the possible benefits and drawbacks of Australian PPP introduction. And although their database clearly consists of less projects than those in the UK, the comparison made with traditional procurement still gives rise to a representative benchmark on which can be built.

In 2007 an extensive comparison made was performed by the Allen Consulting Group (ACG), which covered 21 public private partnerships, which were compared to the results of 33 projects that were implemented by means of traditional procurement. These projects were spread over 4 main sectors; social infrastructure (10 PPPs and 14 traditional), transport (7 PPPs and 16 traditional), water (2 PPPs and 1 traditional) and IT (2 PPPs and 2 traditional). Second extensive survey used was established by the PPP forum in 2008, which covered 25 different PPP projects and 42 traditionally procured projects. This dataset is overlapping with the previous study mentioned and consequently covers similar sectors like social infrastructure (15 PPPs and 17 traditional), transport (4 PPPs and 19 traditional), sustainability (3 PPPs and 6 traditional) and IT (3 PPPs and 1 Traditional). Aggregating these studies indicates a clear emphasize on social infrastructure projects, as more than 50% (25 projects against 21) of the PPPs involved fall into this sector.

Both studies make use of a similar analysis in which all projects were divided into 4 stages, as visible in the figure below; “Full Period: Original Announcement to Actual Final”, “Stage 1: Original Announcement to Contractual Commitment”, “Stage 2: Budget Approval to Actual Final” and “Stage 3: Contractual Commitment to Actual Final”¹⁷.

¹⁷ Since most stages are immediately clear by their name, a full explanation is not included in the main text but is given in appendix A.



Source: National PPP Forum, 2008

Finally the National Audit Office has evaluated the PPP performance of several construction projects by means of a qualitative analysis in which participants of the process were interviewed; also these outcomes are incorporated.

10.2.1 Time

With respect to time ACG found that in a majority of the different stages PPPs had less time overruns than traditional procured projects, although this difference was not statistically significant, as visible in table 4 below. But perhaps more striking is the fact that overall PPPs have higher time-overruns than traditional procured projects (ACG, 2008), as visible in the first column.

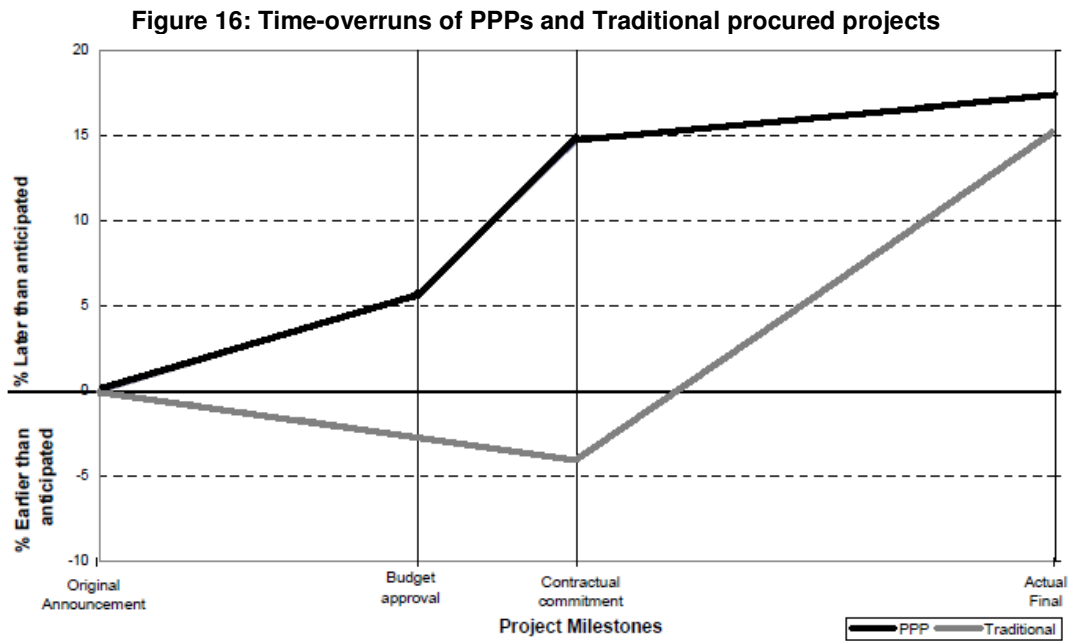
Table 4: Time over-runs in traditional and PPP projects (%): Raw Data

	Full Period	Stage 1	Stage less outlier	Stage 2	Stage 3
No. Obs.	34	33	34	20	36
Traditional Procurement	17,6%	17,6%	12,7%	12,4%	3,6%
PPP	24,3%	10,1%	24,1%	11,8%	2,5%
Stat. Sig	n.s.	n.s.	n.s.	n.s.	n.s.

Source: ACG/University of Melbourne, 2007

The PPP forum (2008) found similar results by estimating that PPPs had an average time over-run of 17,4% compared to 15,4% for traditional projects. Similarly their survey also found that PPPs were mainly faster implemented during stage 3, in which PPPs had average time over-runs of just 1,4% compared to 25,9% for traditional projects. Indicating that mainly after the contract is set-up, PPPs are much more efficient. Unlike stage 1, in which it was found that traditional projects were much more efficient, indicating that the

tendering and negotiation process is much harder to handle within PPPs than within traditional procured projects. This is best visible in figure 16 below, extracted from the survey of the National PPP Forum.



Source: National PPP forum, 2008

The figure graphs the time over- and under-run of PPPs and traditional procured projects. Clearly PPPs suffer from delays during the tendering and start up phase, but is able to win back most if this loss during the contract term. Finally a division has been made in the sample with respect to the time-overruns. To highlight the importance of project-size and to show their effect on the time it takes a public party, in comparison with a private party, to fulfil a project, the time-overruns are weighted by project size. This time PPPs seem to offer time advantages over traditional procured projects, as table 5 makes clear that, relative to the budget, traditional projects were most likely being delivered later than PPPs. Focusing on stage 3 again makes clear that PPPs were found to be completed 3.4 percent ahead of time on average, while traditional procured projects were completed significantly later with an average of 23.5 percent behind time (ACG, 2007). This large difference was mainly the results of large traditional projects. It was found that project size had a significant negative impact on time over-runs when looking at traditional procured projects (ACG, 2007). A relation that was not found with PPP projects, indicating that the

time advantage of PPP seems to increase with the size and complexity of a project.

Table 5: PPP and Traditional Procured Projects (%): Value weighted time over-run

		% Weighted Time over/ under -run
Full Period	<i>Traditional</i>	25,6%
	<i>PPP</i>	13,2%
Stage 1	<i>Traditional</i>	28,8%
	<i>PPP</i>	13,3%
Stage 2	<i>Traditional</i>	8,9%
	<i>PPP</i>	16,5%
Stage 3	<i>Traditional</i>	23,5%
	<i>PPP</i>	-3,4%

Source: ACG/University Melbourne, 2007

Finally, construction companies made clear that within the PPP projects, the incentives in the contract to deliver the good on time were very good stimulus to fulfil the deadline (ACG, 2007). Consequently the fact that no payment is received until the service is being delivered forms a good encouragement for rectifying problems quickly without any additional costs.

10.2.2 Money

With respect to costs it was found that Australian PPPs were much more efficient than traditional procured projects, leading to cost savings ranging from

Table 6: Cost over-runs: Traditional & PPP projects relative to estimate (%)

	Full Period	Stage 1	Stage 1 less outlier ¹⁸	Stage 2	Stage 3
No. Obs.	35	22	21	36	37
Traditional Procurement	44,7%	62,1%	24,7%	24,6%	13,8%
PPP	13,9%	11,5%	11,5%	3,0%	2,4%
Difference	30,8%	50,6%	13,2%	21,6%	11,4%
Confidence	96%	89,6%	87%	96%	99%

Source: ACG/University Melbourne, 2007

¹⁸ In Stage 1 the very large observed relative cost differential (50.6 percent) in favour of PPPs was found to be the result of an outlier Traditional project. When this outlier was removed, the differential fell to 13.2 percent in favour of PPPs, but remained statistically significant with 87 percent confidence (ACG, 2007, p.32).

11.4 percent, when measured from contractual commitment to the final outcome, to 30.8 percent when measured from the start of the project (ACG, 2007, p.38). The complete overview of cost overruns is visible in table 6, including the high confidence level associated with these results.

This cost advantages was also visible in comparing the absolute cost overruns, as traditional procured projects worth 4.5 billion dollars led to a cost overrun of 673 million dollars. On the contrary, 4.9 billion dollars worth of PPP projects resulted in a net cost overrun of 58 million dollars (ACG, 2007). Table 7 below makes clear what implications these cost overruns on average have for the budget and total costs of the different projects.

Table 7: Total cost of PPP and Traditional Projects (\$M)

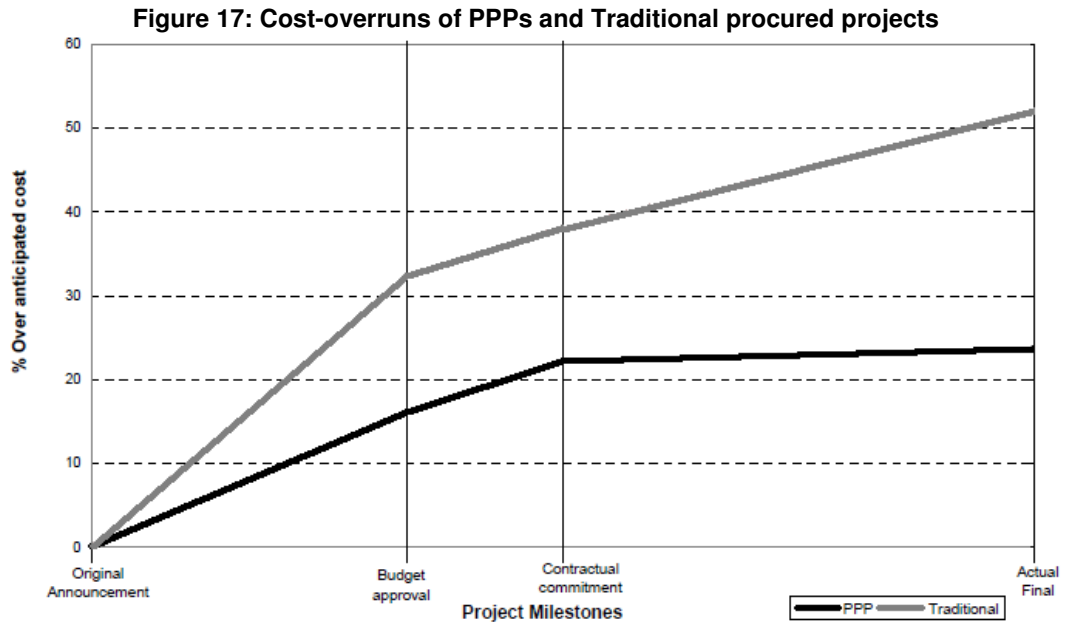
	Expected Cost	Net cost Over-Run	Final Cost	% Cost Over-Run
Full Period				
<i>Traditional</i>	3.082,0	1.087,6	4.169,6	35,3%
<i>PPP</i>	4.484,4	519,3	5.003,7	11,6%
Stage 1				
<i>Traditional</i>	3.440,1	729,4	4.169,6	21,2%
<i>PPP</i>	4.543,2	460,5	5.003,7	10,1%
Stage 2				
<i>Traditional</i>	4.132,0	994,1	5.126,1	24,1%
<i>PPP</i>	3.891,4	91,3	3.892,7	2,3%
Stage 3				
<i>Traditional</i>	4.532,6	672,5	5.205,1	14,8%
<i>PPP</i>	4.946,1	57,6	5.003,7	1,2%

Source: ACG/University Melbourne, 2007. Note: the traditional outlier has been removed from stage 1 which would otherwise have been a 44% cost over-run

The most striking statistic is found in stage 3. This stage is the period between contractual commitments to the actual final outcome. Consequently, the outcome of this stage is mainly determined by the contracting party. The table makes clear that within PPPs the private party had on average a 1.2% overrun of the budget, which is statistically not different from zero. This is in stark contrast with the 14.8% of traditional procurement.

Similar results were found by the PPP forum (2008), which estimated the difference in performance for the full period even at 28.2%. Their survey also indicated a large difference between the cost performance in the first stage, with

a relatively high percentage of 22.2%, and the final stage in which an average cost overrun of just 4.3% was achieved. Again the results were visualized in a graph, visible below. Clearly PPPs offer cost advantages over traditional procured projects, as during every stage, lower cost-overruns are incurred.



Source: National PPP forum, 2008

10.2.3 Quality

Several surveys point into the same direction with respect to the Australian PPP tendering process, indicating similar problems. Among them also the ACEA (2008) who confirmed that the inefficient tendering process will have to improve in order to encourage potential bidding companies to participate into the process. A reduction in both time and in costs is necessary, as private parties are now losing money by means of intellectual property cost, time lost with unsuccessful bids, the lost resources that were used preparing this bid and the hours of skilled professional time that were lost (ACEA, 2008). The high bidding costs, as a result of the high transaction costs, also leads several surveys to create concerns regarding the degree of competition as only few firms participate in the process (Victoria Government, 2006; Infrastructure Partnerships Australia, 2008). Secondly and related issue, the process requires more standardization, as often in every project similar information is being reproduced. Standard procedures would reduce time and money during the

tendering process (ACEA, 2008). Similar conclusions are drawn by O'Flynn and Wanna (2008) who also add that the increasing complexity plays a role in the high costs associated with the process. Striking is the lack of governmental supervision to control these contracts and increase the general understanding of the agreement. O'Flynn and Wanna (2008) even argue that it is rare to find members of parliamentary committees who themselves understood the contracts. This clearly asks for;

“the need for the State to have the administrative and the intellectual capacity to understand these deals, to monitor them as they operate and to manage them as they evolve with time.” (O'Flynn & Wanna, 2008, p. 103)

Problems associated with the operation phase are mainly associated with the position of the public party. Hodge (2005) for instance, made the point that;

“government had clearly moved from its traditional stewardship role to a louder policy-advocacy role. With the result that the government now forms the middle of multiple conflicts of interest in which it acts as policy advocate, economic developer, steward for public funds, elected representative for decision making, regulator of the contract life, commercial signatory to the contract and planner (O'Flynn & Wanna, 2008, p.100)”

Clearly this position could lead to a conflict of interest and has been a point of critique from private parties. Which was again confirmed by O'Flynn and Wanna, who found that 35 of the 46 recommendations, that resulted from 2 PPP reviews, relate to three governance concerns; “private finance preference”, “financial complexity”, and “accountability and governance matters” (O'Flynn & Wanna, 2008, p.104). This makes clear that it has been especially the lack of proper governance that was reason for extensive discussions.

But also some positive results were obtained, the NAO for instance found that parties involved in the construction process had positive experience with PPP in the sense that construction consortia were working closer together and took a

more long term view than was the case within traditional procurement (NAO, 2003). Also the bundling of the assets has often led construction companies to increase the quality of the construction with lower maintenance costs as result. Finally the fact that over time the public party put more emphasize on the quality of the design also stimulated the companies to increase the quality of the construction (NAO, 2003). This new development was mainly the result of the criticism on the PSC evaluations, as they would initially focus too much on costs. It seemed that the minimization of costs has become the sole objective which undermines the development of quality-enhancing measures (Victoria Government, 2006). Next to that the government was blamed of a “lack of focus on good project delivery outcomes” (Victoria Government, 2006, p.9). Finally, a negative aspect mentioned by the construction companies was the lack of innovation possibilities as every consortium had to compete on exactly the same terms, consequently restricting alternative methods (NAO, 2003) and in other case was the competitive pressure too low to stimulate innovations among private parties (ACG, 2007).

10.3 PPP in Australia: a summary

Similar as in the UK, the results seem to refer to PPP as a successful procurement measure. PPPs offer a great advantage over traditional procurement, in terms of costs. On the contrary the tendering stage seems to take up a lot of time and leads to a negative time-advantage compared to traditional procured projects.

The quality of the project refers to two striking results; on the one hand the cooperation seems to be very good, just like the profits from bundled activities. On the other hand the internal process needs improvements, as governance problems and high transaction costs undermine competition during the tendering phase and consequently the potential to innovate during the design and contract stages.

Table 8: Summary of PPP results Australia

Australia	Positive Results	Negative Results
Time	<ul style="list-style-type: none"> • Time advantage in final stage over traditional procurement • Time advantage increases with complexity 	<ul style="list-style-type: none"> • Tendering takes lot of time, leading to overall time disadvantage. • Competition is diminished due to high costs
PPPs do not offer a time advantage over traditional procured projects		
Money	<ul style="list-style-type: none"> • Large share PFI on-budget • Strong cost advantage over traditional procurement 	<ul style="list-style-type: none"> • High tendering costs • Not suitable for small projects
PPPs offer a high cost advantage over traditional procured projects		
Quality	<ul style="list-style-type: none"> • High degree of cooperation within consortia • Higher quality leading to lower maintenance cost 	<ul style="list-style-type: none"> • Unclear position public party leading to governance problems • Low level of innovations
PPPs offer quality constructions but low level of innovations		

11 Part II: Public Private Partnerships in the Netherlands

Public private partnerships are a relatively new development within the Dutch economy and are consequently by far not as much evaluated and developed as is the case of the United Kingdom and Australia. Only recently a substantial increase in the usage of PPPs have been visible, spreading towards sectors like schooling, hospitals, defence and infrastructure. This latter sector will be the one incorporated into this research, by means of four case studies that are developed in the past few years by the Dutch ministry of Transport and Waterworks. This choice is partly built upon the availability of data, and partly upon the importance of the infrastructure sector within the Dutch PPP market, which are obviously two related issue.

11.1 Case studies in perspective

The executive power of the Dutch ministry of transport and waterworks, Rijkswaterstaat, has been the agent in most of the public private partnerships within the Dutch infrastructure. Consequently a short explanation of this agency and its recent developments is helpful to put the case studies in the right perspective.

Ever since 1798 RWS has been the main authority with respect to roads, rail, dams and other waterworks. But it wasn't until the 1970's that a clear relationship between the public and the private sector was established. As in this period the government started outsourcing the productive parts of several projects to the market. Still leaving the public sector with all the control, but leaving the production with the private sector. This development has formed the start of public private partnerships as we know them today.

During the start of the 21st century the traditional working methods of RWS became subject to a growing amount of critique. The organization was said to hold on to inefficient working methods resulting in numerous severe problems that created a negative image around the organization. More than ones RWS appeared not able of staying inside their given budget, or within the estimated

deadline of delivery. They became known as a non-transparent organization, unable or unwilling to meet the customers demands and not capable of justifying their high expenses (AEF, 2010). It seemed the organization was dominated by a negative environment of inefficiency, high expenses and low stimulus. In order to overcome this negative environment, RWS made a change of direction. Instead of their former role as provider and keeper of the Dutch infrastructure, RWS wanted to change into a public-oriented government company functioning as a network-manager (RWS, 2004). Most important objective in order to reach this goal was the creation of a separation between policy, implementation and supervision. RWS had to change from a full-service infrastructure provider to a manager of the whole system. This meant that it had to contract out the more implementation-related activities in order to increase their efficiency in the policy and supervising fields (RWS, 2004).

This development has led to a new outsourcing policy by RWS, which is best illustrated by their new motto, characterized as: "The Market, unless..."(RWS, 2008). It makes clear that RWS shifted its priorities from the public to the private sector, unless this is somehow impossible to accomplish. This new policy also meant a different approach to the market. As before the ministry only worked with so called "activity oriented contracts", in which RWS had a specific assignment on which private parties could sign in, in the new approach these contracts were replaced by three other contracts: "performance contracts" for fixed or small flexible maintenance. The basis of these contracts is the execution of fixed maintenance, while the flexible maintenance is something that can be discussed upon. "Design & Construct contracts" for construction and reconstruction activities, they form a step-up towards public private partnerships in which the design and constructing are bundled, but finance is still in the hands of the public party. And "DBFM contracts" for public private partnerships, which are used within large projects, which mean that they form an option for projects with a lower bound of € 60 million. For road infrastructure projects an additional demand is set, indicating that the specific trajectory should be at least 10 kilometres, including several artworks. The case studies that will follow are partnerships that are created according to these DBFM-contracts.

Four case studies will be examined in detail, they include the highways A59 and N31, the railway HSL-Zuid and also de “Tweede Coentunnel which is an infrastructure project that incorporates the construction of a tunnel. Similar to the outcomes from the UK and Australia, the results will be structured by means of the output indicators; time, money and quality.

12 A59

The project A59 consisted of the reconstruction of the former N59, a highway of 9 kilometres that was put to discussion due to the high number of accidents and traffic jams it caused. Also surrounding cities suffered from the traffic that tried to avoid the highway (Deloitte, 2003). The reason it was being outsourced by means of a DBFM contract was mainly because of the faster implementation. Initially the traditional construction was being postponed towards 2007 which led to a lot of criticism. As a result it was proposed to implement the project by means of a DBFM contract in order to profit from private financing and speed up the process.

The project started in August 2003 with a realization phase that was projected to last for somewhat more than 2 years, until December 2005, after which a maintenance period of 15 years would follow. Consequently financing was determined by an availability compensation for the period of 17 years, with a value of € 12.5 million per year, which included maintenance. The guaranteed payment at time of delivery would be around € 75 million, while the contract amount was roughly € 218 million (Commission Private Finance of Infrastructure, 2008).

The tendering phase consisted of a closed procedure for which seven consortia registered. The final decision appointed the consortium “Combinatie DBFM Poort van Den Bosch” as the contractor, which consisted of three companies; Koninklijke BAM NBM BV, Boskalis BV and Fluor Daniel BV (Deloitte, 2003). With this project the first DBFM-infrastructure project in the Netherlands became reality.

12.1 Time

One of the reasons to implement the project by means of a DBFM-contract was the faster implementation. Consequently, time management was crucial in order to give substance to this objective. But due to the fact that the project was the first to be implemented as a public private partnership, problems, delays and ambiguities were inevitable.

Most problems started during the tendering stage, in which the private parties were quite reserved in taking upon all risks accompanied with the project. Also risks that were outside the control of the private party were initially transferred to the private party. One of the parties actually retreated from the tendering as it was unable and unwilling to meet these demands by the public party (Deloitte, 2003). Finally the public party took back a share of these risks, which were especially those risks outside the control of the private party.

Consequently due to the delay in the tendering stage, no room for any delay was left in the realization phase. During this stage the contractor, for instance, had claimed three cases of relief; none of them was approved by the public party. Instead all three claims were combined and included in so called acceleration measures. These are measures that are included in order to prevent delays or catch up on existing delays. Although they are associated with the increased deployment of personnel and material, their costs for both the contractor and the public party are often lower than in the case of a relief event (Deloitte, 2003).

From the start of the project the public party has always put a lot of attention into the prevention of the project from falling back into its old and familiar procedure of traditional procurement. This had especially its implications for the methods used with respect to contract changes. In order to prevent them from evolving to trace-changes, contract changes were minimized. Any deviation from the contract was namely argued to be a contract change for which the party that caused the change had to pay (Deloitte, 2003). During the process it became clear that the implementation of such changes was a long, costly and complex process. In order to prevent these highly bureaucratic and formal changes from influencing both the planning and the payment regime, both parties aimed at reducing the number of changes to a minimum.

Also much time was lost as a result of the unclear positioning of the several parties involved. The shared responsibility between private parties, community, ministry and the department led to several time-consuming negotiations and miscommunications with respect to subjects like finances and licenses. These experiences have led to the conclusion that the ministry in the future should not put the risk of changes in law with the contractor, as he is unable to carry the

burden of the risk (Deloitte, 2003). Similar reasons underlie the problems that occurred with respect to the budget of the project, which led to extensive delays during the tendering stage.

Finally, one month before the projected delivery date, the service was being delivered as all requirements were met (Province Noord-Brabant, 2006). Which means that despite the extended tendering phase, the service was being delivered on time and the aim to speed up the process by means of a DBFM construction seemed to pay off.

12.2 Money

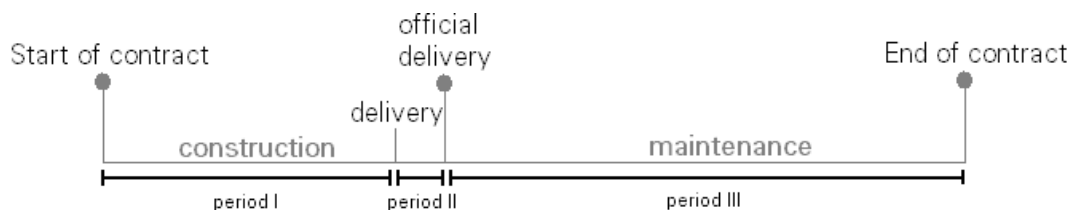
The fact that the tendering stage consumed a lot more time than estimated beforehand had also reflected on the costs of the project as it became subject to relatively high transaction costs. The evaluations made clear that decreasing the number of final bidders, below the five that were now involved, would have decreased the transaction costs considerably. Consequently private firms were also burdened by these high costs, as they made clear that the accounting compensation by the province was insufficient for the costs they made (Deloitte, 2003). Second important downfall of the tendering stage was the fact that the province was very eager to hold on to the previously prepared trace decision. Consequently the private consortium was only to a very limited extent able to implement its own ideas into the project. It is argued that the public party could have saved millions of Euros when the private party was also being involved in the design of the construction (Deloitte, 2003).

With respect to the financial gain of the project, a dilemma occurred. On the one hand it was positive that all offers made by the private parties were lower than the estimated amount that was projected by the PSC. On the other hand, the bids were all above the given budget. Consequently a long period of negotiation within the public sector started, with ultimately led to the result that extra budget was freed in order to pay for the project. Finally the projection of the final contractor still indicated a cost advantage of €9.5 million over traditional procurement (Deloitte, 2003), indicating a potential financial advantage of 14%. This advantage was the result of cost savings in the materials used and cost savings as a result of efficiency gains, and was estimated by the assumption

that no major drawbacks would occur during the term of the contract. But the advantage was lower than it could have been due to the higher transaction and capital costs that occurred due to the faster implementation of the construction (Deloitte, 2003).

In contrast to an ordinary payment scheme, the associated scheme of the A59 was divided into three stages, as figured in figure 18 below. This was mainly due to the fact that during construction, the highway needed to be, at least partly, available for traffic.

Figure 18: Payment periods in Dutch DBFM contract



Consequently the availability payments were divided into a period that corresponded to the time that construction activities were present (period I), a period until the date of delivery estimated beforehand by the province (period II) and a final period until the end of the contract (period III). The difference between “delivery” and ‘official delivery’ is that in the first the construction is solely available for use, while in the latter the construction also meets all requirements and as a result is formally completed (Deloitte, 2003). Consequently the private party was being compensated during every stage of the project, including the realization phase, in which the height of the compensation differed between the three periods.

The method with respect to risk pricing was subject to a lot of discussion, as all bidders had problems with the amounts of compensation with respect to the risks involved. For example the amount that would be withheld as a result of a decrease in availability was by many parties considered to be too high. This ultimately led the province to introduce some changes in the penalty and guarantee plan (Deloitte, 2003). The penalty scheme was somewhat adjusted in the sense that one penalty point didn't have any financial consequences, only

when five points were received the private party received less compensation. Reason was that this way financial benefit for the public party was not to be considered the starting point; instead the quality of the construction should be (Deloitte, 2003). In practise the penalty points and the resulting financial cuts were received rather quickly. This meant that the fifth penalty would no longer be proportional to its cause. Especially in the first periods of the project, the private consortium received numerous penalty points (Deloitte, 2003).

Finally also the length of the highway, with its 9 kilometers, caused some financial problems as it was relatively little with respect to the maintenance costs made by the private party. Due to the relatively small size of the project, the public party felt obligated to control several management tasks by itself, in order to keep the project profitable for the private party. It was argued that the size of the project was definitely at the lower bound of being still profitable in the form of a DBFM construction (Deloitte, 2003). This however has not prevented the private party to take advantage from the bundling of construction and maintenance by working with durable and more expensive materials in order to decrease cost in the maintenance stage, and consequently contributing to the financial advantage of the project (Province Noord-Brabant, 2006).

Even though the transaction costs were relatively high, especially at the start of the project, the project is still proposed to offer a financial advantage of 14% over traditional procurement, although this required some substantial changes during the process.

12.3 Quality

As mentioned already shortly, the private consortium was able to take advantage of the DBFM concept by making use of durable material in order to reduce costs during the maintenance period. But this wasn't the only opportunity the private party took to increase the quality of the construction, as it also was able to include maintenance activities into the construction process. As a result maximal availability of the highway was achieved (Deloitte, 2003).

But the opportunities to benefit from the advantages that the inclusion of the private sector offers were not completely obtained, as a result of the earlier mentioned minimization of changes. The consequence was that innovative

methods could only be implemented with respect to the process and the choice of material but not in the design stage (Province Noord-Brabant, 2006).

In addition, the unclear allocation of tasks and duties between the different parties involved had a negative influence on the degree of cooperation within the project. Especially during the project, the province got to deal with several different departments of the ministry, which made it unclear for which questions which departments should be approached (Deloitte, 2003). The process was even more obstructed due to the presence of a clear division within the public party between proponents and opponents of the DBFM-concept, leading to a constant internal struggle with respect to the advantages and disadvantages of the project (Deloitte, 2003).

On the other hand the evaluation did make clear that the financial incentives that were included in the contract definitely paid off. First the lane reduction appeared to work properly as a financial measure to maximize the availability of the road. Second the penalty scheme seemed to induce safety and quality during the process, and was also argued by respondents to be constructive and effective. Thirdly the deadline date in combination with the private financing seemed to be working in putting pressure upon the private party to finish the work on time (Province Noord-Brabant, 2006) as it also induces financial institutions to put pressure upon the performance of the private party.

In conclusion, the project seemed to offer the quality that was pursued from the start, as all requirements were met and the project is expected to offer both social and financial benefit. Downfall is that the quality and costs could probably have been increased and decreased respectively when some changes were made in the procedure. Also the social benefit achieved is not primarily the result of the DBFM construction, as it is argued that several other procurement methods could have achieved similar results. The ministry of Traffic and Waterworks even considers the project to have a negative social value, due to the necessary increase in the initial budget¹⁹.

¹⁹ The ministry argues that due to the increase in budget, the project is at the expense of other projects with a higher priority (Deloitte, 2003).

13 N31

The project N31 consists of the reconstruction of a highway between Leeuwarden and Nijega, in the Northern part of the Netherlands. Besides the highway, the realisation phase of three years also includes the design and construction of an aqueduct and a bridge, after the realization phase the project includes a maintenance period of 15 years. The contractor receives a guaranteed payment of around € 40 million at time of delivery and a periodic availability compensation. The contract value was estimated at € 120 million (Commission Private Finance of Infrastructure, 2008).

Similar to the A59, the N31 was initially not set up as a DBFM-project, but budgetary problems were again one of the main reasons for the decision to choose for a PPP construction. Still RWS initially preferred a Design and Build project, or possibly a DBM-contract with a relatively short maintenance period instead of DBFM. But finally the fact that the knowledge centre PPS²⁰ had a strong preference for DBFM persuaded RWS to offer the project by means of a DBFM-contract (Buck Consultants, 2004).

The contract was offered by means of an open procedure which resulted into the bidding of seven different consortia. After two rounds the consortium Waldwei.com became appointed as contractor for the project, which started the realization phase at the beginning of 2004 (Buck Consultants, 2004). Similar to the A59, the project is seen as a type of pilot, which should make RWS and the private sector familiar with the methods of public private partnerships.

13.1 Time

Similar to the A59, the tendering stage took up more time than anticipated beforehand. In addition the lack of knowledge and expertise, that underlies this delay, resulted in many missed opportunities during the starting phase. The final decision concerning the sharing of risks for instance was again one of the most time-consuming aspects of the project, together with the valuation of maintenance. Also the creation of a support group could not overcome this

²⁰ The knowledge centre PPS is an advisory organ of the Dutch ministry, with respect to public private partnerships.

problem. In fact the involvement of several different parties led to contrasting objectives, delaying the outcome of a final contract (Buck Consultants, 2004).

But compared to the A59 some changes had been made with respect to the tendering phase. This time the procedure was divided into two stages; a negotiation stage and prior publication. This gave the public party the opportunity to limit the number of bidders to four, which reduced the transaction costs substantially, leading to cost benefits for both the public party and the private bidders (Buck Consultants, 2004).

The financial aspects were in comparison to the A59 more detailed, in order to decrease the uncertainty and questions surrounding it. But the result was that the financial aspects were argued to be highly complex and rigid (Buck Consultants, 2004). Ultimately no time advantages were achieved as the resulting negotiations from these complexities were one of the main contributors for the longer tendering stage.

Again the tendering stage took more time than anticipated beforehand. But clearly some lessons were learned from the A59 project as the new structure of the tendering phase increased the ability to follow the projected planning. This new structure had its results, as the final delivery of the project was 6 months before the estimated delivery date (Commission Private Finance of Infrastructure, 2008). So similar to the first project the longer than expected tendering stage had been recovered during the construction stage, leading to an early delivery.

13.2 Money

For the realisation of the project the budget was estimated at € 60 million, while € 20 million was reserved for the maintenance of the construction (Buck Consultants, 2004). Parallel to the A59 project and visible in figure 18, the availability compensation was divided into three periods; one during the construction, one until the delivery date and one until the end of the contract. This in combination with the penalty scheme was argued to offer good financial incentives to the private parties.

Due to the lengthy tendering stage the start of the project was already accompanied by higher transaction costs than estimated beforehand. But still the project was estimated to offer financial benefits that could run up to 30% compared to traditional procurement. This advantage could for 10% be contributed to the circumstances in the market, as a downfall in the sector has led to much lower offers by the private parties. The resulting 20% was attributed to benefits that were achieved in the design and implementation of the project (12%), the large maintenance done by the private consortium (4%), the yearly maintenance (3%) and the planning of maintenance (1%) (Buck Consultants, 2004). Comparing the projection of the public party with the final bid, it became clear that the maintenance stage offered relatively the most benefit, as the maintenance costs projected by the private party were 57% lower than the public party projection (Buck Consultants, 2004).

These results indicate that the procedure to choose the final contractor on a 90% basis of price and a 10% basis of quality has paid off, as the project is expected to lead to substantial financial benefit (Buck Consultants, 2004). In this respect it should be noted that this was not a decision that was subject to a lot of discussion, as the budget for the project simply did not offer any opportunity to increase the percentage concerning the importance of quality within the tendering procedure.

But the financial advantage could have been higher when the private consortium offered more freedom with respect to adjustments in the contract. Now the consortium had spent much time, effort and money into the development of several new ideas to increase the value of the project, which were all being rejected by the public party (Buck Consultants, 2004). Also the high requirement demands imposed by the public party led to higher bidding costs for the consortia than necessary.

And finally the duration of the maintenance stage was reason for extensive negotiations, it seemed a relatively short period to fully benefit from all potential advantages bundling activities. Private parties argued that the relatively short period reduced the cost advantages that could be achieved. Notwithstanding the maintenance period remained at the projected 15 years, but it did lead the

public party to take more risk upon itself in order to keep the project profitable for the private party.

Besides the again higher transaction costs than estimated, the DBFM-construction of the N31 seems to offer clear financial benefits over traditional procurement, which could run up to 30%.

13.3 Quality

The division of two phases within the tendering stage gave the opportunity to a general negotiation phase. As a result the private parties were given the opportunity to negotiate upon the specifics of the contract and were from the start actively involved (Buck Consultants, 2004). Consequently the contract included a fair division of risks and also left the opportunity for private parties to increase the creative and innovative character of the project. The result of these negotiations were among others the fact that again a share of the risks initially projected to be for the private party were taken back by the public party. Especially the unlimited risks of the construction were being transferred back to the public sector, due to the fact that the final consortium involved could not carry the burden as they owned a relatively small amount of equity (Buck Consultants, 2004), together with some cases of claims, risks associated with obtaining licenses and the discount on financing costs with contract changes.

Problem with the tendering stage was the effect of the long duration. As the public party wanted to speed up the process and tried to follow the planning, the spillover of knowledge became less of a priority. In addition, the involvement of several different participants led to an unclear allocation of responsibilities leading to both communication and governance problems. These two factors in combination with some administrative inefficiency have led to a qualitatively poor preparation period (Buck Consultants, 2004).

Besides the changes in the tendering process as mentioned before, the requirements for participating in the process were also increased. Due to the complexity of the project, the ministry demanded for instance that the bidders would all have experience with the different parts of the project. In addition, the consortium was also prohibited to change from composition during the contract term (Buck Consultants, 2004). Despite strong resistant from the final

consortium, which claimed that this was an inflexible demand that did not take account of the developments within the market, this strict requirement remained valid during the process. Ultimately these requirements have decreased the degree of competition and also increased the bidding costs for participating consortia (Buck Consultants, 2004).

In conclusion; the early involvement of the private party seems to pay off with respect to the quality of the construction, as the design is being improved. On the other hand the quality of the process itself seems to leave plenty of opportunities for improvement, especially with respect to an increase in standardization.

14 HSL-Zuid

The “HSL-Zuid”, literally the High Speed Line South, is a railway line that is established in order connect the Netherlands with the High Speed Network of Belgium and consequently also indirect with other countries. The general perception is that a connection with the European Railway network in combination with a good domestic infrastructure would benefit the International competitive position of the Netherlands.

The project consists of 120 kilometre of railway, of which 85 is newly built tracks. Beside the track itself, 170 assets of civil engineering were included in the project, ranging from bridges to viaducts and tunnels. As a result the project was too complex to include into one contract, consequently the project consisted of several categories of contracts, of which obviously only the DBFM contract will be discussed in this section. This contract started at the end of 2001 and was built around a construction phase that lasted for 5 years, after which a maintenance phase of 30 years would take place. The contract value was estimated to be around € 500 million, the availability compensation that was paid yearly concerned an amount of 100 million euro's (Commission private financing infrastructure, 2008).

The tendering stage was similar to the one of the N31-project, which led to the bidding of four different consortia. Finally the contract was awarded to the superstructure HAS (Primus, 2009).

14.1 Time

Several participant that were active in the DBFM process of the HSL argued that the whole process was characterized by a strong “all or nothing” principle. This principle was also visible within the contract and consequently attributed strongly to the perception of every participant that the project needed to be finished on time. But this could not prevent the tendering stage from being subject to several delays and difficulties. First of all it was unclear for the consortium which agreements were made with respect to providing proof to the public party that the contractual requirements were fulfilled. This was mainly the result of the fact that the relevant procedure consisted of too much paperwork

and was too bureaucratic, leading to a lot of misunderstandings and wasted time and energy (Stichting Traverse, 2009). Similar results were found as a result of the late inclusion of some of the stakeholders. The counties should for instance be sooner involved into the project in order to prevent them from not overseeing the financial consequences of contractual changes they want to make. This late inclusion also took up a lot of time as the parties had to learn how to work with the contract during the process. Finally, as a result of the large gap that existed between the estimated costs of the PSC and those by the private consortium, the bidding process took up also more time than expected (Stichting Traverse, 2009).

Although the above overview does not seem to represent a very positive picture with respect to time, the delivery of the project was on time. Again the long tendering phase was overcome during the construction period. But additional problems occurred, as the train producer wasn't able to deliver the right amount of trains at the time of the delivery date. Consequently the railroad wasn't in full use until September 2009 (Dutch Ministry of Finance, 2010).

14.2 Money

The process incorporated too little attention to the possibilities of making changes in the contract. As a result only few changes have been made in order to reduce the accompanied high costs. Also the pressure from the financiers of the project, who were always focused upon the effects these changes had on the availability of the project and the probability of receiving a penalty, did not stimulate the private party to make contract adjustments.

In general these penalties did however seem to work properly, as especially with relatively low malfunctions the penalties were a good incentive to overcome any small problem. Whenever the problem got bigger, however, the penalty seemed to be so high that it discouraged the contractor (Stichting Traverse, 2009).

With respect to the financial benefit of the project the results are somewhat different. On the one hand the ministries of traffic and finances informed the

government that the project would be 5 to 10% cheaper than under traditional procurement. The general audit office questions these results by indicating that this calculation is subject to several uncertainties which could change the final outcome. On the other hand the commission for private finance and infrastructure argued that financial benefit will be somewhere in between 1% and 5%, a result that is roughly confirmed by Klijn and Twist (2007) who argued it to be somewhere between the 2% and 5%.

Although the estimates do differ, it is clear that they are substantially lower than in the previous two cases. The reason for this could be the fact that the Dutch contractors seemed to be very successful in diminishing the degree of competition with respect to obtaining the different contracts (Stichting Traverse, 2009). Six out of the seven contracts of the project were tendered among only Dutch consortiums. Consortiums that differed in name but consisted of the same companies, as several firms subscribed within more than one consortium at the time. In combination with the fraud that was determined at the time within the Dutch construction sector, it became clear that the state was negotiating with different members of the same construction cartel (PEB, 2002). Consequently there wasn't any real competition, which was confirmed when the bids of the private consortia came in; all bids were over 40% higher than the estimates of the ministry of transport (Priemus, 2004; Dorée, 2004).

Although the delivery of the construction was on time, the usage of the construction was not. Consequently the consortium had to deal with financial penalties, as the state was unable to use the construction for its predetermined tasks. As a result the user fee was lowered with more than €17 million, resulting in the change of the concession amount from €181.686.655,- to €164.530.219,- (Ministry of Transport and Waterworks, 2009).

Although the DBFM construction seems to offer financial advantage over traditional procurement, the degree to which they offer this is limited by several complications during the process. This is also visible in the estimated financial advantage, as it is much lower than obtained in previous projects.

14.3 Quality

Interviews with the participants of the process made clear that everyone shared the opinion that a DBFM Construction incorporated clear advantages. Most respondents were convinced that the project could not have been finished on time in any other construction, particularly because this was the optimal way to combine all technical expertise that was vital in order to accomplish the innovations that were now realized (Stichting Traverse, 2009).

Due to the different parties involved, in both the public and the private part of the project, cooperation became rather difficult as it was unclear with which parties when to deal. These difficulties more than ones led to high tensions which had to be resolved by means of extensive negotiations. As a result the quality of the organizational process was again something that was difficult to ensure (Stichting Traverse, 2009). Next to that the quality was also difficult to maintain as it was dependable upon only a few people. Reason was that just few participants were able to fully understand the procedure and methods used, consequently the quality of the process was very vulnerable (Stichting Traverse, 2009).

Again the possibilities to make adjustment in the contract were very low, as even small changes were subject to extensive monitoring by the financiers involved which were mainly focused upon maintaining the availability in order to ensure the availability payments (Stichting Traverse, 2009).

Not for the first time the quality of the internal process was reason for discussion. The complexity of the project probably even made this discussion more important compared to previous projects. At first sight the quality of the delivery does not seem to suffer from the circumstances. Especially the fact that more attention is put to the implementation of innovations and the input of own ideas indicates that more than before the attention has shift from the cost perspective to the quality perspective.

15 Tweede Coentunnel

The “Tweede Coentunnel” consists of the reconstruction of two highways, A8 and the A10, and the reconstruction of the existing Coentunnel. The project is by far the largest of the three case studies involving road infrastructure as it is planned to run for a period of roughly 30 years, consisting of a realization phase of 5 years, between 2008 and 2013, followed by a maintenance period which is due to expire in 2037. The contract amount was set at circa € 500 million (Commission private financing infrastructure, 2008).

The project has been planned to take place for already more than 25 years, but the finance of the project has always been a problem that prevented it from starting. After extra budget was freed at the start of the twenty-first century, the project could finally take place. Similar to the N31, the project was initially set-up to consist of several Design and Build contracts, but in 2004 RWS decided to offer the project as a DBFM-contract (Horvat and Partners, 2007).

The tendering stage resulted in the bidding of five different consortia, after two rounds the consortium Coentunnel Company was chosen as final contractor.

15.1 Time

Again the tendering phase was became subject to delay. This time it was mainly the result of the delay during the planning phase, which lasted twice as long as projected. Next to that the objection period in which private consortia could appeal to decisions made by the public sector was not taking into account beforehand (Horvat & Partners, 2007). In addition, the procedures regarding the implementation of innovations and consequently changes in the trace decision were too long. This was again the result of a predetermined trace decision, which was created without the help of private parties. At the time they got involved, they proposed several changes, leading to lengthy negotiations and contract changes (Horvat & Partners, 2007). Finally the structure of the negotiations also contributed to extensive negotiations as participants were free to determine the agenda itself. As a result the meetings were characterized by extensive discussion about a too broad range of subjects (Horvat & Partners, 2007).

Again the tendering stage led to the delay of the project. Since the delivery of the project is estimated to be in 2012, not much can be said about the on-time delivery of the project. Although it should be argued that in previous projects the consortium was always able to make up for the delays of the tendering stage.

15.2 Money

The problems during the tendering phase led to higher transaction cost than anticipated. In fact the costs were twice as high. This forced the public party to increase the design compensation for private parties. Although this still meant that most of the increased costs were incurred by the private party as the payment did not fully compensate for their losses made (Horvat & Partners, 2007).

The risk of delays within the trace decision was initially transferred to the private party. This meant that any cost of delays due to changes would be incurred by the private party. Private parties estimated this as unfair and demanded a transfer back to the public sector in order to prevent being confronted with high costs in the tendering stage; this transfer back ultimately came (Horvat & Partners, 2007).

But nevertheless the private party had to face high costs as a result of an inconsistent guidance that was being accepted as a concept trace decision. In practise the prospects formulated in the guidance of the project were inconsistent with the ultimate outcome. But by the time this became known, the private parties had already made several costly investments in accordance with the aspects that were incorporated into the guidance. This had led to substantial sunk costs, as the investments appeared to be unnecessary (Horvat & Partners, 2007).

In contrast to the previous to DBFM contracts the tendering stage was projected on basis of a 70% cost advantage and 30% on quality, indicating that more attention was spent to the quality of the project than in previous tendering stages (Ministry of Economic Affairs, 2009). Still the financial advantage of the project is estimated to be between the 21 and 24 percent as argued by the ministry in their process report of 2010. This prediction is in line with estimation of the commission "private finance and infrastructure" (2008), although it should

be noted that the project had started only recently, and is consequently exposed to many upcoming risks.

Although part of the costs that were initially transferred to the private consortium was transferred back to the public party, the project still seems to consist of higher costs within the starting phase than the previous projects. Still the projected financial advantage over traditional procurement is in the region of 20-25 percent.

15.3 Quality

Due to the high frequency of personnel changes within the project organization, the quality of the internal process suffered. Also the pressure during the tendering process was too high as experienced by participants. Second the communication of the tendering process was not optimal (Horvat & Partners, 2007). Especially with respect to areal indicators the private parties would have liked to be better and sooner informed, as these indicators could have important implications for the plan of the construction (Horvat & Partners, 2007).

The process was characterized as formal and direct, which had a positive influence upon the quality. Downfall of this procedure was the little room available for creativity and own interpretations (Horvat & Partners, 2007). Which was also the case due to the fact that the management plan that was set up by the public party was argued to be too strict and too much focused upon the operational level and too little upon the strategic level (Horvat & Partners, 2007). Again the project initially incorporated strict requirements with respect to experience and expertise. These demands were at the start of the project let go in order to increase the number of bidders.

Again the quality of the internal process of the project is subject to some restraints, which prevents it from running optimal. This also has some implications for the quality of the construction as aspects like innovation and creativity seem to suffer from these restraints.

16 PPP in the Netherlands; a summary

To ease the comparison with the UK and Australia a similar conclusion will be formulated with respect to PPP in the Netherlands. Table 9 below represents a summary of the outcomes found in the case studies mentioned above. Several results of the different case studies are overlapping and can be aggregated into a single conclusion in order to create a general perception of the working of PPP in the Netherlands, formulated in table 10.

Table 9: Summary of Case Study results

Netherlands	Positive Results	Negative Results
A59	<ul style="list-style-type: none"> • Delivery 1 month in advance • 14% financial advantage • Benefit from bundling 	<ul style="list-style-type: none"> • Tendering stage takes (too) long • High transaction costs • Changes very difficult
N31	<ul style="list-style-type: none"> • Delivery 6 months in advance • 30% financial advantage • Benefit from earlier involvement of private party 	<ul style="list-style-type: none"> • Limited possibilities for contract changes • High transaction costs • Inefficient internal process / low competition
HSL-Zuid	<ul style="list-style-type: none"> • Delivery on-time • 1-5% financial advantage • More attention for innovations. 	<ul style="list-style-type: none"> • High transaction costs • Problems with competition • Inefficient internal process / low competition
Tweede Coentunnel	<ul style="list-style-type: none"> • Delivery on-time • 20-25% financial advantage • Process was formal and direct. 	<ul style="list-style-type: none"> • Long tendering stage • High transaction costs • Limited possibilities for contract changes

First of all every project seems to suffer from the lack of expertise and knowledge with respect to PPP that is present in the parties that are involved. As a result especially the starting phase of the project is more expensive in terms of costs and time than expected beforehand, although this has not prevented all projects from being delivered early or on time. When compared with traditional procurement the DBFM construction seems to offer a clear time-

advantage, as most projects were being set in the market by means of a DBFM project in order to speed up the process. Although this has occurred in all cases, it should be noted that the faster implementation of the projects is mainly the result of the usage of private capital. Most projects could not have been taking place when initiated solely by the public sector, as their budget was not sufficient. Even during the preparation of some of the DBFM contracts the budget needed to be adjusted. This is rather surprising as the final costs of the projects are still expected to be much lower than would be the case under traditional procurement, indicating that the expectations by the government beforehand were quite optimistic.

With respect to quality, two important facts seem to return in the project. On the positive side, the bundling of activities seems to pay off in the sense that private consortia have made use of the advantages this combination offers. On the negative side, the internal process is of relatively low quality, especially with respect to contract changes and competition. As a result cooperation is often too low, just like the transfer of knowledge is. The implications for the outcomes is that the process negatively influences the degree of creativity and innovations that take place during the project, which leaves many potential benefits unused.

Table 10: Summary of PPP results Netherlands

Netherlands	Positive Results	Negative Results
Time	<ul style="list-style-type: none"> • PPP delivery on time • DBFM speeds up the process. 	<ul style="list-style-type: none"> • Tendering stage takes a lot of time • Lack of expertise and standardization takes up a lot of time
PPPs offer a time advantage over traditional procured projects		
Money	<ul style="list-style-type: none"> • Expected strong cost advantage over traditional procurement 	<ul style="list-style-type: none"> • High transaction costs • Difficulties in the establishment of budget.
PPPs offer a high cost advantage over traditional procured projects		
Quality	<ul style="list-style-type: none"> • Benefits taking from bundling of activities • Requirements are being met. 	<ul style="list-style-type: none"> • Unclear position public parties leading to governance problems and low degree of cooperation, knowledge transfer and competition. • Low level of innovations and creativity due to limited possibilities for contract changes
PPPs do not offer higher quality than traditional projects do		

17 Part II: From theory to empirics; hypotheses testing

Looking back to chapter 8, in which the expectations for the final outcomes of the public private partnerships were established, it was expected that the Netherlands would be the least able to profit from the benefits that arise as a result from a partnership with the private sector. While the high degree of risk transfer to the private party would form the main reason for the UK and Australia to fully profit from the advantages a partnership offers. When comparing the results it turns out that the outcome isn't as black and white as proposed in this manner. In contrast, several aspects seem to be contradicting with these expectations. Below the most important findings will be listed.

It is clear that all three countries suffer from the complexity of the process and have to deal with delays and higher costs than expected during the tendering stage. The often referred to "quality of the process" is in all three cases far from optimal, but still an important distinction should be made between the UK on the one side and Australia and the Netherlands on the other.

Most striking is the fact that both Australia and the Netherlands suffer from governance problems, in the sense that the high number of parties involved lead to an unclear allocation of duties and tasks. Obviously these problems lead to unnecessary lengthy negotiations which delay the whole process. On the contrary the UK seems to benefit from its protocol-method of contracting in combination with its high degree of risk transfer towards the private party, as they face no problem with respect to governance. Their extensive agreement clearly indicates the responsibilities and tasks of the stakeholders involved, which prevents uncertainty with respect to this allocation. As a result the quality of the process in the UK is higher compared to Australia and especially the Netherlands.

The main difference between the tendering process in the Netherlands and the ones in Australia is the fact that those in Australia are said to offer a high degree of cooperation. In the Netherlands, on the contrary, the governance and transaction costs problems seem to take up all the time that could have been spent on cooperation between public and private parties. Consequently the

degree of knowledge transfer between the private and public sector, something that occurs especially as a result of intensive cooperation, is relatively low within the Dutch projects. In the UK and Australia on the other hand the improved performance of traditional procured projects does indicate a spill-over from public private partnerships.

As mentioned, two aspects of the UK contract prevent the governance problem; first the elaborate task description of every party involved, and second the high degree of risk transfer. The fact that almost all risks are transferred to the private party is beneficial in this sense as it leaves little room for discussion. The Dutch contract, on the contrary, does not offer a clear division-line between the public and private risks, which gives plenty of reasons for discussion. Consequently a clear specification of the responsibilities and associated penalties seems to benefit the quality of the process.

But there also exists a downside to this high degree of risk transfer. As was already shortly mentioned in chapter 8, the high transfer of risk towards the private party is not per se the cheapest option available. Since the private party is not able to diversify its risk to the manner that the public party is able to, the insurance costs will be higher when risks are transferred to the private party. And although no clear one-for-one relation can be established, striking is that the cost advantages achieved in the UK seem to be lower than those in Australia and the Netherlands. This makes it hard not to assume that the higher insurance costs in the UK seem to put a depressing pressure upon the profitability of the project. As a result it can be argued that the choice between the transfer of a high or low amount of risk is in fact a trade-off between the quality of the process on the one hand and the cost benefits achieved during the contract term on the other.

But this trade-off cannot be estimated in isolation, as it is in turn related to the differences that are observed between the quality of the constructions that are established. As it becomes clear that although all three countries are satisfied with the quality of the constructions, there do exist some differences with respect to the degree of quality. Most important in this sense is the fact that within UK projects it was estimated that in roughly half of the projects, innovations had taken place. Although this was lower than expected, it seems to

be higher than in Australia, in which one of the most heard complaints was the low degree of innovations, and certainly higher than in the Netherlands in which a clear indication for any innovation has yet to be made. These differences can be traced back to the degree of construction specification. As argued, the UK offers a lot of room within the specification of a specific construction, while Australia to a somewhat lesser extent does the same. On the contrary, most of the Dutch PPP contracts were characterized by a trace-decision that was created without the help of the final contractor and in which the possibilities to make changes were minimized. Consequently, the quality of the construction was mainly determined by the quality of the trace-decision, which had been created by the public party itself. So it is no surprise that innovations were very rare in the Netherlands, as the construction was much too strictly quantified in the contract. And since almost no deviations of the construction that was specified beforehand were possible, the public party was able to select the contractor almost solely on a basis of price.

This puts the earlier mentioned trade-off in a somewhat different perspective, as the degree of risk transfer does not simply decrease the potential cost advantage associated with the construction but is besides being able to improve the quality of the process also able to increase the quality of the project as a result of a less strict quantification of the construction.

Finally two important aspects of the analysis should be taken into account. First with respect to the complexity of projects; In Australia the complexity of the project has a positive effect upon the advantages with respect to traditional procurement. The results indicated that the more complex the project is and the more money is involved, the higher the benefit of the project will be relative to traditional procurement. On the contrary the case study of HSL-Zuid indicated that the most complex project also yields the lowest cost advantage. Although many factors could play a role here it could, at least partly, indicate that the concession model used in the Netherlands, in which most agreements are based upon negotiations and mutual trust²¹, will probably lead to excessive high transaction costs when projects become complex. And as a result seems less

²¹ See paragraph 7.3 for further explanation with respect to the difference in economic models concerning negotiations.

suitable for large and complex projects. The more protocol-model used by the UK and Australia on the other hand, in which the procedure of almost every potential problem or issue to negotiate upon is included in the contract, seems to perform better when contracts become more complex and consequently more suitable for large projects.

Secondly, the degree of competition within all three countries has been subject to discussion. It are mainly the high transaction costs and lengthy start-up processes that prevent more competitors from participating in the bidding process. In all three countries competition could well be improved by respectively changing the strict requirements for bidders, increase standardization, decrease high tendering costs and/or more strictly monitoring the participating consortia during the tendering stage. As a result the bids were often much higher than could have been the case in perfect competition. This indicates that still a lot of possible profits are in reach, as increasing competition would not only be beneficial for the financial benefit of the project, but could also diminish the time and money spent during negotiations, as the bargaining position of the private party will be weakened.

18 Concluding Remarks

This research has tried to evaluate the Dutch Public Private Partnership policy of Rijkswaterstaat by comparing it with the more experienced policies of Australia and the UK. The analysis was based upon the comparison of the standardized contracts used in all three countries, the so-called inputs of PPPs. The comparison was in particular focused upon the general perception of the contracts and the degree of risk transfer incorporated. By using Hart's (2003) incomplete contracting model the differences in contracts were translated into several expectations with respect to the outcomes of PPPs, which hypothesized which country would be best able to take advantage of the potential benefits from PPP. Finally these expectations are compared with the outcomes of extensive evaluation surveys that were undertaken in the UK and Australia, and four case studies of the Netherlands. The main results of this analysis will be discussed below.

18.1 Results and recommendations

Table 11 summarizes the main results by listing the most important characteristics of the different contracts and the probable influence they have on the three output indicators; time, money and quality. In which quality includes both the quality of the process and the quality of the construction. The table shows quite some similarities but also some important differences between the three procurement measures.

Hart's (2003) model hypothesized that public private partnerships are more suitable for contracts in which the construction is hard to quantify and the service is easy to quantify. In the opposite case, in which construction is easy to quantify but the service isn't, traditional procurement would be more suitable. With respect to these hypotheses, the following conclusion can be made; A low specification of the construction and a strict service specification is indeed beneficial for the quality of the project, with respect to both the quality of the process and the quality of the construction, and stimulates the on-time delivery of a project. The downside of this combination is that, given that a low

specification is only possible in combination with a high level of risk transfer towards the private party, it decreases the potential cost advantage as a result of the higher insurance costs that private parties face. On the other hand, a strict construction specification in combination with a loose service specification has a deteriorating effect upon the quality of both the process and the construction, but overcomes the high insurance costs and is consequently able to accomplish higher cost advantages.

Table 11; Summary of results analysis

	Contract Characteristics	Process	Costs	Construction
UK	<i>Loose construction</i>	No governance problem; still high transaction costs; time advantage over traditional procurement	Cost advantage	Quality ratings are very good; 50% of projects is innovative.
	<i>Very high risk transfer</i>			
	<i>Protocol methods</i>			
Australia	<i>Loose construction</i>	Governance problem; high transaction costs; cooperation is excellent; time disadvantage	Very high cost advantage	Quality is good, low level of innovations
	<i>High risk transfer</i>			
	<i>Strict Negotiation methods</i>			
Netherlands	<i>Strict construction</i>	Governance problem; high transaction costs; low cooperation & knowledge transfer; time advantage	High cost advantage	Quality is sufficient, very low level of innovations
	<i>Low risk transfer</i>			
	<i>Negotiation methods</i>			

This observation has several implications for the contracting policy of RWS. First, results from the UK and Australia and also the first indications of the Dutch projects make clear that, even when not executed optimally, public private partnerships do offer several advantages over traditional procurement. Assuming the projected calculations will become reality at the end of the project, there should be no reason to question the recent usage of the Dutch

ministry of DBFM-contracts. Even when the real objectives of the ministry aren't solely to achieve those benefits, as argued by Klijn and Twist (2007), the results are consistent with the hypothesized objectives.

Second, there appears to be a general trade-off within PPP-contracts; On the one hand quality can be the main objective, which is best achieved by means of loose construction definition in combination with a high risk transfer. On the other hand low costs can be the main objective, which is best achieved by minimizing the role of the private party, by restricting it to specific construction quantifications, and a low degree of risk transfer. Questionable should be why this latter method will be used in the case of a DBFM-contract, when it is actually quite similar to traditional procurement²² only with exceptional high transaction costs. As transaction costs in PPPs seems to decrease the financial advantage substantially. Taking this into account, it seems that the first option should be the one the countries should aim for when they pursue a public private partnership. This leads to the third conclusion that the results from the UK and Australia indicate that there still are some potential improvements to be made in the methods used by RWS, which are listed below.

First, a lot of participants in the case studies examined indicate that an increase in standardization could substantially reduce time and transaction costs during the first phase of the project. This standardization will be something that will evolve over time as a result of the knowledge and expertise that will be built up, but is also related to the contracts that are used. The problems associated with copying the contract from the A59 into the N31 project has made clear that every project includes its own specific characteristics, which asks for a standardized contract which is applicable for several different studies. Although these seems to be evolving over the years, with the final product being version 2.0 of the standardized DBFM contract, an elaborate version could reduce risk and uncertainty considerably. This does not per se mean that a protocol-like contract as used in the UK should be adopted. But whenever the ministry wants to make use of DBFM-contracts in more complex projects, a more extensive

²² See also figure 10 and 11, a strict Construction specification and low risk transfer would lead a project to end up in the upper right corner. As argued in the respective chapter, no clear differences between traditional procurement and PPP are visible in this case.

contract is needed in order to reduce negotiations and prevent the transaction costs from making the project already unprofitable before construction starts.

Second, the construction of most DBFM projects in the Netherlands is too strictly defined, meaning that the construction is being imposed by the public party, instead of being the product of a partnership between the public and private party. The little room that was offered to the private parties involved has decreased the opportunities to increase the quality of the project, work with innovations and/or transfer knowledge. As a result the construction stage of most Dutch DBFM projects could be characterized as a traditional procured construction with private financing. In this sense, it is no surprise that all projects meet the requirements set by the public party, as the private party does not have much choice than to strictly follow the trace-decision established by the public party itself. Consequently, if RWS wants to fully benefit from the quality and expertise that private parties can offer, it has to loosen the quantification of construction and leave more room to the private party. Only under these circumstances will the delivery of the project offer additional benefits and requirements on top of those formulated in the trace-decision.

Thirdly and strongly related to the previous issue, a higher degree of risks should be transferred towards the private party. This is not directly following from the results of the UK, in which private parties bare most of the risks, but is more the indirect result of the fact that a loose construction specification seems to be most beneficial. Whenever a construction is not well specified a high degree of risk should be transferred, in order for this to be profitable. The reason is as follows; low specifications mean that the private party is free to implement the construction by own perception. However, when a large part of the potential risks that are associated with this implementation are carried by the public party, the private party has little incentive to avoid risky investments. Consequently, it is willing to let the construction be exposed and volatile to more risks, if this could decrease their costs. As a result, low quality is achieved, while the government is still exposed to high risks.

It should be noted that the actual implementation of these changes will be constraint to some potential. The economic culture of the UK is, for instance, far

more in line with a high degree of risk transfer, than the one in the Netherlands. The problems that were now already obtained during negotiations, with respect to some uncontrollable risks, indicate that it will be difficult to establish a high degree of risk transfer in an economy like the Dutch one.

18.2 Constraint of research

It is important to put the previous conclusions and recommendations into the right perspective by pointing out the constraints and limitations of this research.

First of all, since it is a qualitative research involving qualitative indicators, the method used and the resulting outcomes are always subject to different opinions and interpretations. Irrespective of the specific analysis, a qualitative research is unable to completely protect itself from these constraints.

Second there are some constraints of the analysis itself. First of all, the financial advantages of the Dutch case studies are estimates as a result of the fact that most projects are unfinished, consequently they cannot be interpreted as certain outcomes. This is however not something that could be overcome by the analysis, as the only answer to this problem would be to wait until all projects are finished. In this respect the first reliable evaluation would not be possible until 2017.

Second, the data sets used from the UK and Australia are much more extensive as they involve a much higher number of projects. Consequently these datasets are obviously more reliable than one that is built upon four case studies. Again, this could not be prevented, as the Dutch PPP market is simply relatively small compared to Australia and the UK.

Thirdly the results from the UK were established by means of outcomes for PPPs in several sectors, as a result of the fact that the contract is also used in several sectors. This makes the comparison with solely infrastructure projects somewhat restraint. Possibly only the results of infrastructure projects could be incorporated in the UK analysis. Problem is that the empirical surveys that are available do not make a clear distinction in their analysis between the different

types of projects. As a result it is not possible to make a distinction between the results of different sectors when the full dataset is not at my disposal and only aggregated results are available. However this should not prohibit the results from being reliable, as priority should be that the standardized contracts are consistent with the sectors of which outcomes of PPPs have been extracted. Whenever the relation between the inputs and outputs are regarded as consistent in every country, a proper comparison can be made between the three countries. Although the specific sectors will have some influence on the results, they are made subordinate to this consistency.

And fourthly, the standardized contracts that are analysed are not all literally used in every PPP project. Reason is that this research has made use of the newest standardized contracts, which is a product of experiences collected in recent years. So although the main content of the contracts will be similar, they are not the exact contracts used in all projects that were examined in the results. In the worst case the standardized contracts could have been the result of adjustments made in response to the specific problems that have been pointed out in this analysis. In addition the different jurisdictions in Australia offer slightly different contracts, which are not taken into account. But in defense of the method used; the analysis and conclusions established above have not been restricted to just some specifics. On the contrary, in both the comparison of the contracts and the comparison of the outcomes, the analysis has tried to find the general differences that were found in more than one occasion. As a result the analysis and corresponding outcomes should not be dependent upon the changes of certain specifics. Secondly, the only legitimate method to fully overcome this constraint is by linking every project with its standardized contract of that time. Not only does this make the analysis extremely complex it is also dependent upon the availability of a large amount of contracts that aren't used anymore. Thirdly, the differences in the general application of the contracts is also a product of a country's economic perspective. Assuming that this perspective has been rooted in a country's economy for centuries, it is reasonable to assume that the products of this perspective in the past decade will be rather consistent.

Although the restraint mentioned above are numerous, they do not seem to prevent the analysis and resulting conclusions from being consistent. This is mainly due to the fact that the majority of the constraints is hard or impossible to overcome. Those restraints that can be overcome leave the opportunity for further research.

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20 Appendices

20.1 Appendix A

Full Period: Original Announcement to Actual Final

The originally announced project data is based on the least robust information for the project. Frequently this data is announced prior to a detailed scope of work being defined or robust costing developed. None the less this time point becomes an important milestone in public projects as it is against this original announcement information that projects are frequently reported against by interested parties and the media. In the context of this study it is also important as it is a definitive milestone that is independent of the processes used for either PPP projects or Traditional projects.

Stage 1: Original Announcement to Contractual Commitment

The period from original announcement to contractual commitment is the period whereby a project is fully scoped and expectations and requirements of client and end users should be fully developed, understood and confirmed by the market place clarifying what is required and the price to deliver the project. In many ways a comparison based on this time period is an indicator of the accuracy and adequacy of project procurement processes within government.

Stage 2: Budget Approval to Actual Final

Project success is often internally measured and reported as performance against an agreed budget. Ideally such comparisons would be made based on linking approved budget to scope of work delivered, such as via the Earned Value Technique. This is frequently not done and in fact budgets are often adjusted as the need arises. To avoid errors in the benchmark study that would occur if current budget data was used this study adopts the final approved budget prior to going to market as the milestone. This particular metric is the one adopted in the previous studies by Mott MacDonald, the NAO and Fitzgerald and thus it is useful as a comparator. However, it could be argued that this particular period simply gives an indicator of the accuracy of the budget estimate and that differences in the answer may be attributed to different levels

of optimism at budget stage due to the rigour of the estimate. To avoid problems associated with optimism bias at budget approval it is considered comparisons based on the full period are more appropriate as optimism bias is reduced.

Stage 3: Contractual Commitment to Actual Final

Comparison of performance from contractual commitment to actual final is a measure of the robustness of the risk transfer within the contractual forms. It is also a good check on the price certainty that is obtained via either contractual approach.