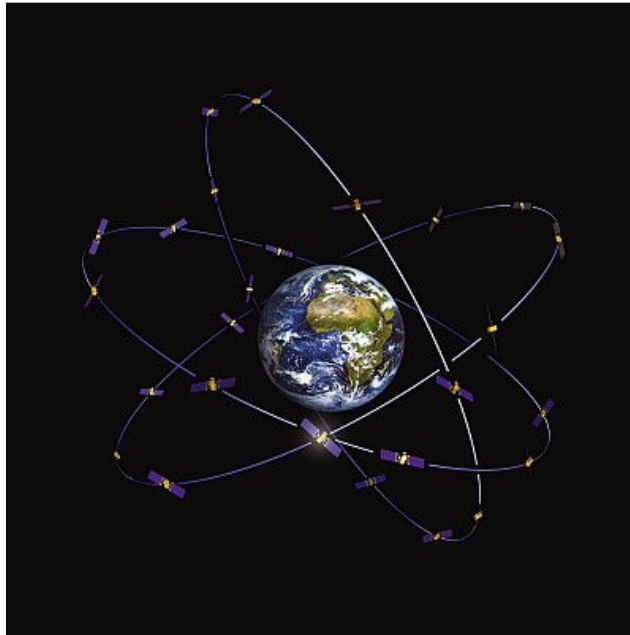


Public Private Partnerships in complex governance arrangements

The case of Galileo

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21.06.2009



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Abstract

Public Private Partnerships (PPP) are nothing new. For a long time they have been deployed on the national level as an alternative to public procurement. On the European Union (EU) level PPPs are, however, a new phenomenon. This study addresses the question of whether PPPs are possible in such governance arrangements which are as complex as the EU. The Galileo Satellite Navigation System, the first PPP attempt of the EU, which in the end failed to become a PPP, serves as a case study. By analyzing it in terms of PPP options and models it is found that problems related to structural decisions are more important in determining the success of setting up a PPP than operational decisions. Furthermore, difficulties that arose on the structural level in the case of Galileo are not related to the complexity of the EU setup. It is concluded that PPPs are indeed possible in complex governance arrangements.

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Introduction

In 2000 the European Union (EU) came up with a new strategy that aims at making it the “most dynamic and competitive knowledge-based economy in the world capable of sustainable economic growth” (EU-Presidency, 2000, p. 2). One part of this Lisbon strategy also includes the focus on research and development. In particular innovation should be encouraged especially by means of Public-Private-Partnerships (PPPs). PPPs in general are “contractual arrangements formed between a public agency and private sector entity that allow for greater private sector participation in the delivery of projects” (US-Department). There are various kinds of PPPs depending on the degree of public versus private involvement. The basic principle behind PPPs is that the risks are being allocated at the party which is best positioned or equipped to manage them (US-Department).

At the national level PPPs are not a new phenomenon. In the Netherlands for instance the first kind of PPP is said to be the “Verenigde Oost-Indische Compagnie” which was founded in 1602 (Bult-Spiering, Balken, & Dewulf, 2005). The relation between public and private actors in the course of forming a PPP is therefore already well studied. The different forms of PPP have been classified and it is known what kind of problems one encounters during the negotiations for and the formation of a PPP. However, PPPs in complex government arrangements such as the EU do not go without saying. Despite the fact that there have been earlier international attempts of PPPs – such as the HSL-Zuid Infraprovider which is providing a high-speed train connection between Amsterdam and Brussels (Bult-Spiering, Balken, & Dewulf, 2005) – the development of a PPP initiated by a higher international entity is rather new. In fact there have been only a few international projects which involved two or three states at the most and no higher international institution.

The new aim of the EU set by the Lisbon Agenda concerning the commitment to the initiation of PPPs, therefore, creates a new situation that is not yet studied. One knows how PPPs work at the national level and there are some experiences with international projects. But how do PPPs work in a large scale international setting? Here a lot more actors are involved, several levels of government all try to have an influence to get their interests realized and the supranational authorities have no prior experience with PPPs. The main research question this study is, therefore, trying to answer is *whether PPPs are even possible in such complex governance arrangements as the EU?*

Because PPPs have been and are used quite often on the national level the details of how this works are known. There are also several studies that concern themselves with PPPs and how they work on the national level. To give some examples the “Handbook PPP” (“Handboek publiek-private samenwerking”) by Bult-Spiering et al, the article “Coming to terms with Public Private Partnerships” by Linder (Linder, 1999) or the guidebook for PPPs in the field of police work: “Ten steps of PPPs” (10 stappen van Publiek-Private-Samenwerking”) by van Pel and Wever (van Pel & Wever, 2002). Quite a lot of studies and books exist in this field. Thus the interaction of actors when it comes to setting up a new PPP on the national level is well known. However, as already indicated above, there is no study that explicitly looks at how PPPs work on an international level with supranational features.

With the plan of a PPP at the EU level a new situation is created that cannot be explained by national interactions in PPP formations due to the added complexity of the interaction between actors. The research will, therefore, first focus on what PPPs mean in the European context. For that purpose it

will be studied what PPPs are in general. This includes an overview of different models that can be chosen when setting up a PPP. In particular the EU's views on PPPs and how to set them up will be of concern. Of course EU legislation will also be part of this study to find out how decision making procedures and negotiations are designed for the development of a PPP at the EU level.

The second step will then be to turn to an actual case, the Galileo Satellite Navigation System, for an analysis of PPPs at the EU level. Galileo was designed to be the first major project of the EU to realize its plan of welcoming new PPPs with the EU directly involved. It was launched in 1999 to enable the EU to take part in the promising market of global satellite navigation. Despite some delays the project made good progress until the mid of 2006 when the concession negotiations seemed to be being finished by the end of that year. However, it did not come to a concession contract that would have fully established the PPP. In the summer of 2007 it was then decided by the EU not to go on with the initial plan of the PPP. Rather it was decided to finance the whole project out of funds from the EU.

The question arises why this PPP failed. During the research this question will be investigated in order to give an idea of problems that arise when setting up a PPP at the EU level. The insights gained in the first part will be used to describe what happened with Galileo. It will become clear that the specific structural decisions are of crucial importance for a successful PPP. Thus the analysis will especially look at the problems that arose in the light of the chosen governance structure as it is related to the structural level. The negotiations for the concession between an institution set up for this purpose and the private partner is the main area of analysis here because their failure ultimately meant the failure of the PPP. Interviews with experts, who were involved in the process (Carlos Des Dorides the Chief negotiator of the Galileo Joint Undertaking and Norbert Schuldt representative of the German Ministry of Transport, Building and Urban Affairs), as well as documents and articles will serve as the main sources of the analysis.

The structure of the thesis reads as follows. The first part, as already indicated, will be on PPP theory. The second part will give a short historical overview of the Galileo project and will also look at the planned governance structure. A third part will then analyze the different problems that did arise and set them in context to the complexity of the EU setup. This will then enable to give an answer to the research question. In the end there will be a conclusion that will summarize the findings and give some recommendations.

Part I: Public Private Partnerships

This part is going to give an introduction to Public Private Partnerships (PPPs). For this purpose it will be divided as follows: First a definition of PPPs will be given. This will give insight in what PPPs are in particular, in which situations they are frequently used and for what purposes. The next section will shortly introduce PPPs in the EU context to give an idea of what the EU has said on this matter so far. The last section will talk about how PPPs look like identifying different dimensions of PPPs in a governance perspective. A scheme will then be developed of different PPP models drawing on the information introduced until then. It is to give an overview of what different types of PPPs exist.

What are PPPs?

The definition of PPPs given above (PPPs in general are “contractual arrangements formed between a public agency and private sector entity that allow for greater private sector participation in the delivery of projects” (US-Department)) does not cover all important aspects about PPPs. Therefore, some specifications have to be made to come to a definition that will be used in this research. *Additionally, it will be of concern here why PPPs are used and in which circumstances. Advantages of PPPs will also be addressed.*

Different meanings of PPPs

First of all it has to be said that the term PPP is used in different circumstances in different ways. Emanuel Savas identifies three different meanings of PPPs in his book “Privatization and Public Private Partnerships”: First a rather loose definition according to which PPPs refer to “any arrangement in which the public and private sectors join together to produce and deliver goods and services” (Savas, 2000, p. 105). Second the term PPP is used for “complex, multipartner, privatized, infrastructure projects” (Savas, 2000, p. 106), which is also the definition used in his book. Third, PPPs can also refer to “a formal collaboration between business and civic leaders and local government officials to improve the urban condition” (Savas, 2000, p. 106). Weihe goes as far as saying that there are five different meanings of PPPs. He classifies them by identifying them as different approaches that attach different qualitative meanings to the term PPP: local regeneration approach, policy approach, infrastructure approach, development approach and governance approach (Weihe, 2006). Despite the fact that there are all these different meanings of PPPs, which are not that relevant to this research in detail, Weihe points out that most of what has been written on PPPs is in fact using the infrastructure approach. (Weihe, 2006)

The EU does not explicitly make any distinction as to different meanings of PPPs in different contexts. As the research at hand is concerned mainly with the EU and a case at the European level the definitions the EU provides will be of special importance. However, because there are these different meanings of PPP it is nevertheless important to identify what will be meant by PPPs throughout this research in order to prevent misunderstandings. It is rather straight forward that the development approach is of no relevance here as well as most of the other meanings. Because the Galileo project is identified as an infrastructure project and further because PPPs are most commonly referring to infrastructure projects this approach is the one that will be used here as well.

Defining PPPs

Having now identified that PPPs in this research will generally refer to infrastructure projects it can now be moved towards a more specified definition of PPPs. Again various different definitions of PPP exist apart from the one given above:

“PPPs are “a cooperative venture between the public and private sectors, built on the expertise of each partner, that best meets clearly defined public needs through the appropriate allocation of resources, risks and rewards” (CCPPP)

“PPP consists of sustainable cooperation between public and private actors, who, from their own interests and perspectives, develop mutual products and/or services, and who share risks, costs, and benefits. PPP involves collaboration between public and private parties, which focuses on achieving a common aim.” (Edelenbos, 2008, p. 616)

These two are to give an idea of how definitions differ but also how they emphasize similar aspects such as the allocation of risks, resources/costs and rewards/benefits. The EU in its green paper on PPPs points out that there is no definition at Community level. This simply means that PPPs are not legally defined. However, it does give some kind of definition which includes more or less what other definitions also address:

“In general, the term refers to forms of cooperation between public authorities and the world of business which aim to ensure the funding, construction, renovation, management or maintenance of an infrastructure or the provision of a service.” (Commission, Green Paper on Public-Private Partnerships and Community Law on Public Contracts and Concessions, 2004)

A slightly different definition is given by the DG Internal Affairs:

“A PPP is a contractual agreement between the public and the private sectors, whereby the private operator provides services that have traditionally been executed or financed by a public institution.” (Internal Policies, 2005, S. 1)

Even though these two definitions do not explicitly talk about the allocation of risks, costs and benefits they make clear what a PPP is by defining it in a rather simple way. They do not get too long as the one by Edelenbos for instance. The second definition is the one that will be used throughout this research because it is a bit more specific and also the later dated one. The EU further specifies what is meant by PPPs and what they look like. This however, goes beyond a mere definition and is, therefore, incorporated in the following paragraphs as well as the next section.

Why PPPs?

PPPs are mainly used for infrastructure projects, even though there are also some applications for schools, hospitals or prisons. Anyway, the infrastructure context is the one of concern in the present case. By providing goods and services through a PPP rather than public procurement several advantages occur. First of these results from the basic principle behind PPP mentioned in the introduction: the risks are being allocated at the party which is best positioned or equipped to manage them. This means that on the one hand responsibilities, often especially of financial nature, are shifted from the public to the private sector. Thus, the provision of the good or service is to be

achieved in a more cost efficient way by reduced overall costs, faster implementation and better quality of the service. On the other hand is a PPP also an opportunity for private partners to become more involved in a public project than with a pure public procurement. The public sector can in return draw on the expertise of the private partners which it would otherwise not get in such a way. The DG paper on PPPs puts it this way: “[...] the main justification for the adoption of a PPP is the possibility to exploit the management qualifications and the efficiency of the private sector without giving up the quality standards of outputs, thanks to the appropriate control mechanisms from the public party.” (Internal Policies, 2005, S. 1)

Second, the allocation of risks plays a major role as well when looking at the benefits of PPPs. Because risks are being shared, projects can be realized that otherwise would not have been possible both for the public (lack of expertise) and the private (lack of resources, jurisdiction) sector. Thus, PPPs are especially well suited for high risks projects that involve high costs. It is therefore not surprising that most PPP projects are long term projects: “PPPs generally take the form of a long-term (e.g. 30 years) agreement between public and private entities, whereby the private partner commits to perform some or most of the phases of the service or asset provision” (Internal Policies, 2005, S. 1). Another very important aspect about PPPs is that they should create “value-for-money”. According to the EU this is the ultimate goal of a PPP. It can be achieved by for instance reduced life-cycle costs, more efficient allocation of risks, faster implementation, improved service quality or additional revenue. (Internal Policies, 2005, S. 1) The decision to go for a PPP should only be made “if the benefit-cost ratio of private provision outweighs the results obtainable with “traditional” government intervention” (Internal Policies, 2005, S. 3) thus if enough value-for-money can be expected.

Before setting up a PPP it has to be taken into account that PPPs “require effective government regulation, which should be based on a stable and trusted system of enforceable laws concerning property rights, contracts, disputes, and liability” (Savas, 2000, p. 250). The government should “clarify the level of quality that the private party is bound to achieve in performing its contractual obligations” (Internal Policies, 2005, S. 3). For this there is the need to set up “effective means to ensure that the private operator actually delivers the expected output” (Internal Policies, 2005, S. 3). Savas also talks about the importance of monitoring and further points out that the regulatory regime “must be limited, transparent, fair, and consistent and government must keep its promises” (Savas, 2000, pp. 251-252). Thus the regulatory and governance structures of a PPP are important not only during the setting up of a PPP but also later during the operational phase.

PPPs in the EU

In 2004 the Commission published the already mentioned Green Paper on Public-Private Partnerships and Community Law on Public Contracts and Concessions. There are two preceding documents. One is a set of “Guidelines for successful PPPs” by the DG Regional Policy. The other one clarifies the difference between contracts and concessions under Community Law (Commission Interpretative Communication on Concessions and Contracts under Community Law). Thus, contracts and concession, which will both be of major concern in the coming section, are legally defined under Community Law. However, there is no binding legal framework for PPPs yet. The green paper was followed by a white paper but these are mere guidelines and not Community law anyways. Besides these two documents, the whit/green paper and the guidelines for successful PPPs, the only other

document on PPPs is the paper by the DG Internal Policies of the Union: Public-Private Partnerships Models and Trends in the European Union from 2005. Nevertheless, the EU does define different PPP models and other important aspects about PPPs. Additionally, some of these involve legally defined concepts such as contracts and concessions. In the following section the specific aspects these EU documents address will be explained in detail and will further be incorporated to develop a scheme of different PPP models.

PPP models

It has to be mentioned first that just as there are different contexts in which PPPs mean different things along with the various different definitions of PPP there are also different ways of classifying PPPs. It is rather confusing when some scholars talk about the legal form of a PPP while others talk about the financial setup of PPPs and in the end they talk about the same thing. After an extensive study of a lot of different interpretations a scheme could be developed that summarizes and combines the important aspects of the different views. The scheme is most influenced by three views. First of all, the EU documents mentioned in the previous section played a major role. The second source is the National Council of PPPs (National Council). The idea of how to organize and arrange the different PPP models was taken from a scheme in an article of the ITS (Nazer, 2008) and can be seen below (Figure 1). It shows how the different PPP models vary in their involvement of private and public sector. They are depicted on a continuum from high public sector involvement to high private sector involvement showing for each which tasks the partners have to fulfill.

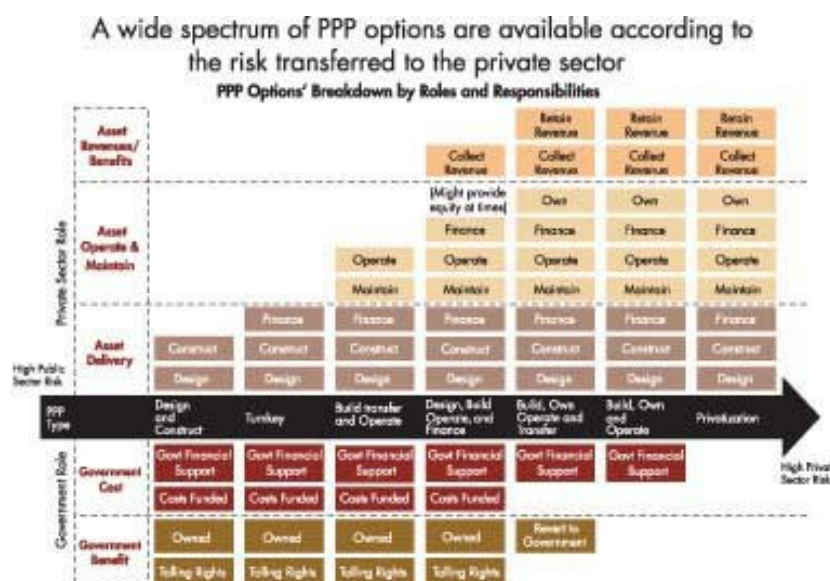


Figure 1 PPP Scheme ITS International

When looking at the figure above it becomes clear that in terms of what could be called the rules of the game of having a PPP there are different roles and responsibilities. Here these roles and responsibilities are mainly connected to risk allocation. But other aspects that also follow from roles and responsibilities such as a legal form and governance structure are important as well when talking about PPP models. The legal form and governance structure are aspects that come up in the literature about PPPs (e.g. Savas (2000), Leinemann (), Siebel (2008) and others). Thus, in terms of rules of the game one can distinguish between three dimensions: the governance structure, the legal form and the risks. They will be each explained in detail below.

1st dimension: governance structure

The importance of an effective governance regime was already discussed earlier. Here it will be shown what forms of governance structures are available for PPPs. There are generally two different possibilities: contractual and institutionalized PPPs. Contractual PPPs are “of a purely contractual nature, in which the partnerships between the public and the private sector is based solely on contractual links”, while institutionalized PPPs involve “cooperation between the public and the private sector within a distinct entity” (Commission, Green Paper on Public-Private Partnerships and Community Law on Public Contracts and Concessions, 2004, p. 8).

Contractual PPPs

The contract is the main basis of cooperation in a contractual PPP. There is a contractual agreement between the partners “to provide a service in exchange for some form of compensation from final users or through regular payments by the public authority” (Internal Policies, 2005, S. 2). The public sector thus remains responsible not just for the financing but also for the good or service being provided. It is the legal owner of the good or service and thus also liable. Private partners are only responsible for delivering the agreed good or service.

Institutionalized PPPs

An institutionalized PPP involves the creation of an entity held “jointly by the public and the private operators” (Internal Policies, 2005, S. 2). This entity can either be “newly established or derive from the transfer of an existing structure from the public to the private party” (Internal Policies, 2005, S. 2). With the creation of an entity different responsibilities arise than with purely contractual PPPs. Public and private sector directly carry out duties and responsibilities together. In this way the public sector has a greater control over the whole project and its development because it is present in the “body of shareholders and in the decision-making bodies of the joint entity” (Internal Policies, 2005, S. 2). In a contractual PPP this control is more limited and has to be incorporated into the contract itself.

2nd dimension: legal form

Concerning the legal form of a PPP there are also two different types: contracts and concessions.

Contract

A public (works) contract is under Community Law a contract “for pecuniary interest concluded in writing between a contractor and a contracting authority, which have as their object either the execution, or both the execution and design, of works [...] (Commission, Interpretative Communication on Concessions under Community Law, 2000, p. 3). The “cost of construction is essentially borne by the awarding authority and the contractor does not receive remuneration from fees paid directly” by the user of the construction (Commission, Interpretative Communication on Concessions under Community Law, 2000, p. 3).

Concession

Public (works) concessions are contracts “of the same type [as works contracts] except for the fact that the consideration for the works to be carried out consists either solely in the right to exploit the construction or in this right together with payment” (Commission, Interpretative Communication on Concessions under Community Law, 2000, p. 3). The main factor that distinguishes contracts from

concessions is the right of exploitation. The right of exploitation means that the concessionaire is allowed to charge users of the construction with fees for the agreed time period of the concession. The time period thus is of major importance in a concession because the concessionaire does not get awarded by the public sector but rather has to ensure its return on investment through user charges. A second result of the right of exploitation is that there occurs a “transfer of the responsibilities of operations” in technical, financial and managerial matters (Commission, Interpretative Communication on Concessions under Community Law, 2000, p. 3). As a consequence the concessionaire bears not only the construction risks, as in an ordinary contract, but also has to bear most of the financial, management and demand risks. Thus, demands a concession much more commitment from the private sector than a normal contract especially considering the long time period for which PPPs are usually set.

3rd dimension: risks

The last dimension is that of risks. Different types of risk allocation determine different PPPs. In general, the more risks are allocated at the private sector the more privatized the PPP and vice versa. The EU distinguishes between five types of risks: construction risk, financial risk, performance and availability risk, demand risk and residual risk. *Construction risk* is the risk that includes everything connected to the construction of an asset: the design, the construction and the building of it. *Financial risk* is rather straight forward. It concerns all factors that influence costs, thus the financial contributions to a project namely for the delivery, the operation and the maintenance. The *performance and availability risk* includes risks connected to the “delivery/availability of the asset against contractual specifications” (Internal Policies, 2005, S. 3). These are for instance operating, managing and maintaining. *Demand or market risk* is the risk inherited in the existing need for a project. The main responsibilities here are the collection of revenues and the retaining of revenues thus the residual claim. The last risk, *residual risk*, is a risk that only plays a role when the PPP includes the transfer of the asset from the private back to the public sector. It is the future market price of the project.

Below, in table 2, you can see an overview of the different risks, which risks are included in these main risks and what obligations and responsibilities the different risks bring along.

Type of Risk	Risks included	What
Construction Risk	Time, technology	Design, construct, build,
Financial Risk	Ownership	Finance delivery, finance operation/maintenance
Performance/Availability Risk	Technology, maintenance, third-party liability	Operate, maintain, manage
Demand/Market Risk		Collect revenues, retain revenues
Residual Risk		transfer

Table 1 Risks Overview

The scheme

All the three dimensions play a role in determining different PPP models. The Scheme below, table 3, shows this by putting the different PPP models on a spectrum ranging from high public sector risk to high private sector risk. The risk dimension is thus the main determinant for PPP models here. The other two dimensions, though also important when considering different PPP models, are less easy to be incorporated in such a scheme. This is because as for the first dimension PPPs can generally take either form (contractual or institutionalized). Even though an institutionalized PPP does involve more commitment, and thus also more risks, from the private sector it does not mean that PPP with high private sector risks necessarily need to be of the institutionalized form. The second dimension is a bit less mixed: PPPs to the right side of the spectrum automatically involve the right of exploitation and are, hence, PPP concessions rather than contracts. This dimension is, therefore, also incorporated into the scheme below as the light gray row below the PPP types.

Now each PPP type is going to be described shortly starting on the left hand side with the PPP that has the most public sector risk. There are six categories of PPP: Public Authority, Service Contract, Operation and Management Contract, Leasing, Turnkey and DBFO. Some of these have subtypes. It has to be noted here that the type Public Authority is not really a PPP as defined because it comes too close to public procurement. Nevertheless it is included here for the purpose of the case study because this type was an option for the case at hand. The corresponding type to public authority or public procurement would be privatization which is also not a strict PPP any longer. This type however was left out because it is not relevant for the case at hand.

Service Contract

A service contract is usually used for short term projects: “the private party procures, operates and maintains an asset for a short period of time” (Internal Policies, 2005, S. 4). Other responsibilities such as management, financing and the ownership remain with the public sector. It is a rather limited PPP where the public sector remains in control of most aspects of the asset. This type of PPP also appears in a contractual form with a contract as the underlying legal basis.

Operation and Management Contract

As the name already suggests this type is also of contractual form with a contract laying down the conditions of the agreed partnership. The management, operation and maintenance are passed to the private sector. The public sector remains owner of the asset as well as responsible for the financial risks. Private partners may also invest own capital but this does not happen often (National Council). Because the private partner is responsible for the performance and availability risk this type of PPP promises high efficiency gains and the improvement of service quality (Internal Policies, 2005).

Leasing

In a leasing partnership the private sector does not only bear the risk of performance and availability but also considerable parts of the demand risk. This is because it is allowed to collect the income streams of the asset for a fixed lease payment to the public sector. The public sector thus has fewer risks to bear. It still remains owner of the asset and finances also most of the asset. Typically leasing PPPs just as the preceding types involve assets that already exist and are in public ownership. Additionally they are also of a contractual form with a contract as document.

High Public Sector Risk						High Private Sector Risk					
Private Sector Role	Construction risk					(design, construct delivery) Build	design, construct delivery build	(design, construct delivery) build	design, construct delivery build	(construct, design delivery) build	design, (construct) delivery build
	Financial risk - ownership			may invest own capital for operation	may invest own capital for operation		finance operation finance delivery	finance operation/ maintenance finance delivery	finance operation/ maintenance finance delivery	finance operation/ maintenance finance delivery	finance operation/ maintenance finance delivery
	Performance / availability risk	maintain	(operate) maintain and/or provide procure	operate maintain manage	operate maintain	operate maintain	operate manage	operate maintain	operate maintain	operate maintain	operate maintain
	Demand risk				Collect revenue (retain revenue)		Collect revenue	collect revenue retain revenue	collect revenue retain revenue	collect revenue retain revenue	collect revenue retain revenue
	Residual risk				(transfer)	transfer	transfer	transfer			
PPP Type		Public Authority	service contract	operation and management contract	leasing	BTO	Turnkey (BOT)	BOOT	DBO	BOO	DBFO
Legal form			contract	contract	contract	contract	contract	concession	concession	concession	concession
Public Sector Role	Construction risk	(Already existing)	already existing	already existing	already existing						
	Financial risk	Finance	finance	finance	finance	financial support	finance	financial support	financial support		
		Own	own	own	own	own	(own)		own		(Own)
	Performance / availability risk	Operate	operate								
		Manage	manage								
Demand risk	x	x	x	x	x	x	x				
Residual risk											

Table 2 PPP Models

Turnkey

This type is the most common type of PPPs for infrastructure projects (Savas, 2000). It involves already a considerable commitment of the private partner. He takes the construction risks and performance and availability risks while the public sector remains responsible for the financing and the demand risk. With this efficiency gains can be accomplished as the private partner has to take maintenance costs already into account during the construction phase. This type of PPP can take different forms: Build-Transfer-Operate (BTO), Build-Operate-Transfer (BOT) or Build-Own-Operate-Transfer (BOOT). These differ in the allocation of risks. While all Turnkey PPP involve the transfer mechanism, which means that at a certain point the asset is returned to the public sector, it is important to see when this transfer takes place. Thus, the BOT involved more private sector risks than the BTO because the asset is only returned to the public sector at the end of the contract which means that the actual value of the asset is still of importance then. The BOOT has an even higher risk for the private sector because the Own element is explicitly included which also involves more financial risks. In general these types of PPP can either be of contractual or institutionalized nature. However BTO and BOT are based on PPP contracts while BOOT is a PPP concession.

DBFO

The DBFO (Design-Build-Finance-Operate) is the PPP that asks the most private sector commitment. The private partner does not only take the construction, financial and performance and availability risks but also most of the demand risks. This means that this type of PPP can only exist as a PPP concession. The public sector only has to play a minor role. It sometimes still owns the asset, gives some financial support but other than that is not that much involved any longer. There are again several different forms of this category: Design-Build-Operate (DBO), Build-Own-Operate (BOO), DBFO. BOO for instance involves less financial and construction risk than DBFO but more performance and availability risk than DBO. These types of PPPs are mostly realized through an institutionalized PPP while a pure contract is also possible.

A last remark on the scheme and the three dimensions

Important to notice is that the scheme and especially the three dimensions only touch upon the structural aspects of a PPP. The rules of the game are connected to the structural setup of a PPP. But in setting up a PPP many operational issues also play a role. Decisions need to be taken on this operational level that influences the success of a PPP as well. While the decisions taken on the structural level follow from rules of the game, decisions about operational matters are merely a matter of preferences for different methods. They are, thus, not as profound for the success of a PPP but nevertheless play a role. This will become more apparent in the next part.

Part II: Galileo Satellite Navigation System

In this part an introduction to the Galileo Satellite Navigation System of the EU will be given. The theory of PPPs discussed in the previous part will be used here to describe what happened with Galileo. Three steps will be discussed in chronological order: the launching of Galileo, the early stages of Galileo and the tendering and negotiation for the PPP concession. For each step or period it will be first described what happened and was planned and then this will be looked at in terms of different PPP models, assessing which PPP types could have been options at the different stages. What will be discussed reaches only until the failure of the concession negotiations. This is because on the one hand the purpose of the case study is to identify problems that led to the failure of the negotiations and on the other hand is Galileo since the failure of the negotiations not a PPP any longer and thus even more so not of interest to this study.

1 Launching Galileo (1999)

The launching of Galileo is the initial starting point of the project. It is documented by the Commission Communication: "Galileo – Involving Europe in a new generation of Satellite Navigation Services" of February 1999. (Commission, Galileo - Involving Europe in a new generation of Satellite Navigation Services, 1999) This communication formed the basis for the whole project. It was then also decided what kind of PPP would be aimed at. It is, therefore, reasonable to first see what options in terms of PPP models one could have thought about for this kind of infrastructure project. Then this section will look at the actual decision taken by the EU. The initial setup and plan of the project will also be described.

What PPP models could have been an option?

This is going to be a mere theoretical consideration assessing what kind of PPP models could have been chosen for Galileo. It is not supposed to be an analysis of PPP models that were realistically feasibly in practice. Thus, only by looking at the scheme developed in the first part some PPP models can already be dismissed as not practically an option in the Galileo case. Service contracts, operation and management contracts as well as leasing were not at all options for Galileo because these PPP models most of the time involve assets that already exist. All other models could have theoretically been an option even though it is doubtful that the DBFO would have been realistic in terms of financing. This type is maybe asking too much of the private sector concerning responsibilities and commitments. Hence the following PPP types together with public authority could have been an option in the Galileo case: BTO, BOT, BOOT, DBO, BOO. Below you can see a figure (figure 1) depicting all of them in terms of risk allocation and involvement:

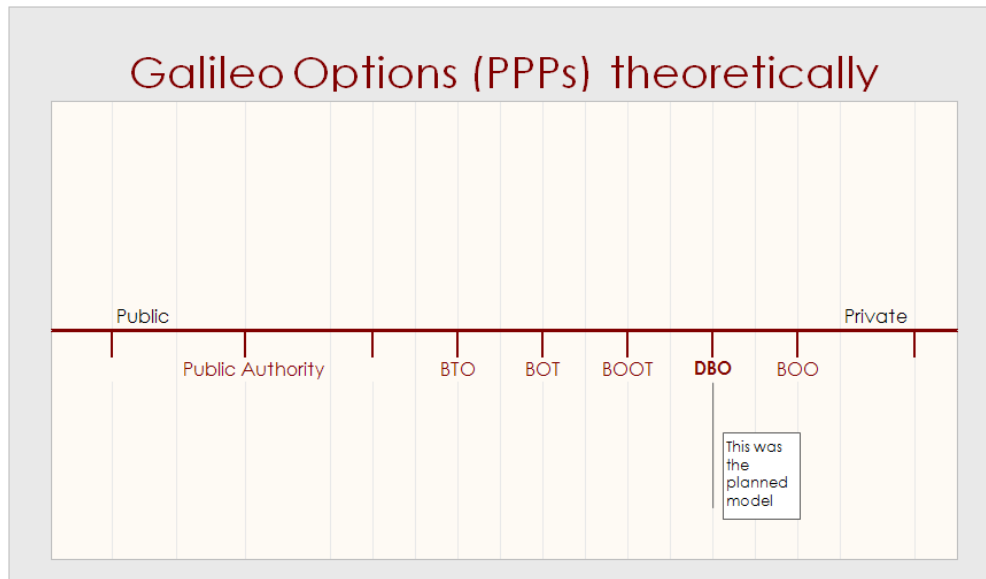


Figure 2 Galileo PPP options at launching

The EU plan

PPP model

As can be observed in the figure above the DBO model is the one that was chosen by the EU for Galileo. The reason why this particular model was chosen lies in recommendations a Commission Communication on PPP made in 1997 and a pre-study conducted by Price Waterhouse Coopers together with the Commission. According to it the private sector should be involved in a PPP as early as possible, PPPs that include a vehicle company are most effective and risks should be allocated “according to scope to control them” (Commission, Galileo - Involving Europe in a new generation of Satellite Navigation Services, 1999, p. 18). The Commission reasoned that a DBO in an institutionalized form is therefore the ideal approach. It involves industries from the designing of the project onwards. However, the Commission also notes that one has to take the uniqueness of the Galileo project into account when engaging in a PPP. The idea was to award a concession for a period of 20 years. Several aspects needed further specification still: performance requirements, identification of risks and how to share them between public and private, and the identification of revenue streams. (Commission, Galileo - Involving Europe in a new generation of Satellite Navigation Services, 1999)

The four phases

The Commission Communication also introduced four phases the programme would have which will be shortly discussed below. The second to fourth phase were still to be specified during the first phase.

Definition Phase

The definition phase was planned to be finished by the end of the year 2000. It should for instance define and clarify the issues mentioned above that still needed specification. Further, this phase was to prepare for the following phases by setting up the vehicle company and negotiating with the private sector for a PPP. (Commission, Galileo - Involving Europe in a new generation of Satellite Navigation Services, 1999)

Development Phase

According to the Communication of 1999 the development phase should, hence, already be realized under a PPP. This would also be in line with the DBO model. For the development phase the vehicle company which would involve both public and private sector would have to be set in place. The public sector should at least during this phase be still financially involved to give initial incentives to the private sector. During this phase the infrastructure would be developed. There is no time plan present in the Communication for this and the following phases. (Commission, Galileo - Involving Europe in a new generation of Satellite Navigation Services, 1999)

Deployment Phase

During the deployment phase the PPP would be fully in place (the Communication points out that if a PPP cannot be set up for the development phase due to limited time it should at least be established for this phase). The public sector would only be involved through an overall programme oversight and for regulatory purposes from this phase on. It is the phase during which the satellites would be deployed and set into orbit. (Commission, Galileo - Involving Europe in a new generation of Satellite Navigation Services, 1999)

Operational Phase

During the operational phase the PPP would also work. It would be the phase during which Galileo would be fully available to users. The private partners would through revenue streams get their return on investment as agreed for the PPP. (Commission, Galileo - Involving Europe in a new generation of Satellite Navigation Services, 1999)

2 Early stages in the development and validation phase (2000/2001)

This period is the end of the definition phase and the beginning of the second phase, the development and validation phase, from roughly 2000 to 2001/2002. A Commission Communication to the Council and the European Parliament on Galileo (COM, comm. 2000) informed about the results of the definition phase. Furthermore, the vehicle company for setting up the PPP was finally established in May 2002 by a Council Regulation. These two documents are the most important incidents of this period. They do not only specify the different phases of Galileo and lay down basic rules for the governance structure of the PPP but also show the development of the PPP. Thus, first the Communication of 2000 will be looked at, followed by the regulation setting up the vehicle company and at the end implications for PPP options will be analyzed.

Results of the definition phase

The mentioned Communication of the Commission specified three different aspects of the project as the result of the definition phase: the three remaining phases, the services and the management structure.

The three remaining phases

Development and validation phase

This phase began in 2001 and was planned to be finished by 2005. It was to be funded entirely by public funds coming from the Community budget as well as European Space Agency (ESA) funds. These funds were to amount of 1.1 billion Euros, which were the estimated costs. They were already secured and “no further contribution by the Member States” was going to be needed. (Commission,

Galileo - Involving Europe in a new generation of Satellite Navigation Services, 1999, p. 25) In this way the initial plan to involve industries in the project through a PPP as early as possible was already void. The second phase would be financed by public funds and managed as a typical ESA project. When the ESA awards assignments it works with the principle of geographical return. This means that those Member States that contribute the most to the Agency have the guarantee that their industries are also involved the most in projects. Hence for the development phase the ESA awarded assignments also according to this principle. Due to the fact that the European space industry has a limited number of companies most of them were already involved in Galileo in the development phase. This later led to some problems in the next phase.

Deployment phase

The deployment phase should according to the Communication last from 2006 to 2007. The costs of approximately 2,1 billion Euros would be shared between the public (0,6 billion) and the private sector (1,5 billion). For this the planned PPP would be set in place. There were already several European consortia that expressed their interest in the matter. (Commission, Galileo - Involving Europe in a new generation of Satellite Navigation Services, 1999) Until the beginning of the third phase negotiations would have to take place to finalize the PPP. A management structure is proposed that will be discussed below.

Operational phase

During the operational phase the PPP would still be in place as it was planned for 20 years. It would start in 2008 and no funding from the public sector was planned for this phase as the private sector would be responsible here through the PPP. (Commission, Galileo - Involving Europe in a new generation of Satellite Navigation Services, 1999)

Galileo services

Galileo is planned to have five different services available to users. First, the *open and free basic service* is designed for the "general public and services of general interest" (Onidi, 2002, p. 3). This service can be compared to the GPS service but will have improved accuracy and quality. The second service is the *commercial service* for professional users that will provide "enhanced performance compared with the basic service" (Onidi, 2002, p. 3). Third, the *Safety of Life service* with "very high quality and integrity" is intended for "safety-critical applications, such as aviation and shipping" (Onidi, 2002, p. 3). Then there is a fourth service for *Search and Rescue* reasons such as searching for missing people in the mountains. This service will enable for quicker and better searching and rescuing. The last service is the *Public Regulated Service (PRS)* designed for public authorities who are responsible for "civil protection, national security and law enforcement" (Onidi, 2002, p. 3).

The management structure

The interim management structure of Galileo would look as follows. The Commission would be responsible for the steering of the system's setup (political responsibility) while the ESA would be responsible for technical matters (the technical design and development). The final structure of the programme would then follow from the interim structure. (Commission, Galileo - Involving Europe in a new generation of Satellite Navigation Services, 1999) For this there was, however, not a detailed plan yet. The Commission points out in its Communication that the final structure has to "enjoy a certain amount of legal and financial independence" and that the management would later go over to the private sector when the PPP is set in place (Commission, Galileo - Involving Europe in a new generation of Satellite Navigation Services, 1999, p. 31).

The PPP vehicle Company: Galileo Joint Undertaking

The Galileo Joint Undertaking (GJU) was established in May 2002 by the Council Regulation (EC) No 876/2002. It was first set up to exist for four years and was to be succeeded by a follow-up organization that was to be the vehicle company of the PPP. The tasks of the GJU were to “negotiate by way of a competitive tendering process with the private sector an overall agreement for the financing of [the ...] phases that sets out the responsibilities, roles, and risks to be shared between the public and private sectors” (Council, 2002, p. Article 2 Statutes of GJU). This should further take place “in cooperation with the Commission, the ESA and the private sector” (Council, 2002, p. Article 2 Statutes of GJU). The governance structure of the GJU looked as follows:

An Administrative Board composed of the members of the GJU was responsible for financial matters and administrative issues. It should meet at least twice a year and would generally vote with simple majority. The number of votes of each member was to be set according to the share of capital they put in. The Commission and the ESA were to have the same number of votes which had to be at least 40% of the total votes. Concerning the members of the Joint Undertaking there was the possibility for especially industries (the consortium for the PPP) to become members at a later stage. In the beginning just the Commission and the ESA were members. Besides the Administrative Board there was also an Executive Committee. This would meet on a more frequent basis, deciding by unanimity and being comprised of one representative of each party represented in the Administrative Board. The director of the GJU as well as one representative from the Member States (the presidency) were to be present as well during the meetings of the Executive Committee. The committee was among other tasks to advise the Administrative Board, approve the tendering process and “perform tasks entrusted or delegated to it by the Admin. Board” (Council, 2002, p. Article 9 Statutes of GJU). Another important aspect of the GJU was that it had the Supervisory Board which was comprised of one representative of each Member State of the EU and one representative of the Commission of the Admin. Board to ensure political control and flow of information. It could take decisions on the agenda of the Admin. Board and put additional items on the agenda. Furthermore, it voted by qualified majority (without the representative from the Commission) (Council, 2002, p. Article 3). Below you can find an overview of the different bodies of the GJU.

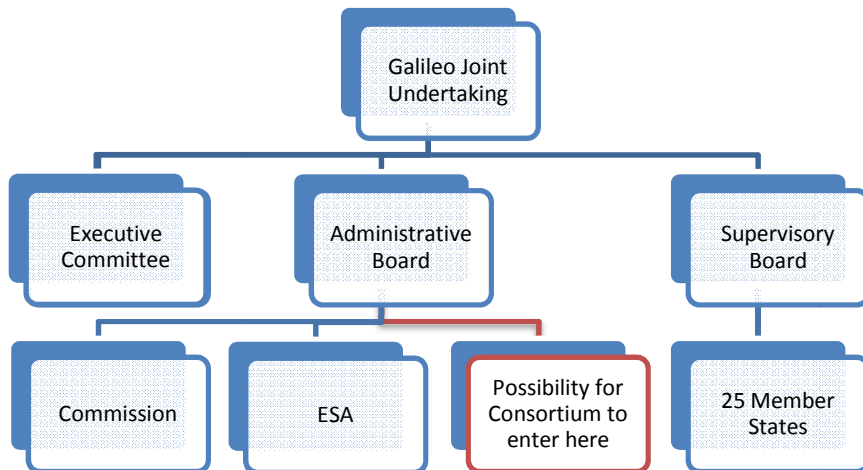


Figure 3 Galileo Organizaztion Chart

PPP options at this point

It became apparent above that the initial plan to have a PPP of the DBO model was not/could not be executed. Rather, by financing the development and validation phase via public funds, a new and different model was actually aimed at: a Build-Operate (BO) model. Because this is not one of the standard types described in the first part it had to be incorporated in between the other models to fit on the scale. Below you can see (Figure 2) that it was placed to the right of the DBO model because it involves fewer risks for the private sector (less construction risks) and also to the right of the Turnkey models because it does not involve as much risks as these models either.

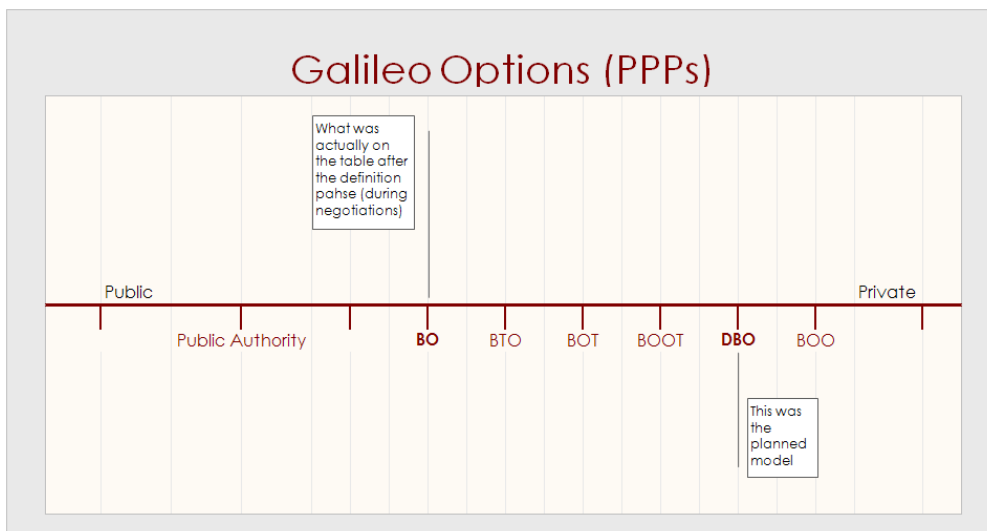


Figure 4 Galileo Options at the beginning of the development and validation phase

3 Tendering and negotiations for the PPP concession (2002-2007)

After the end of the definition phase the development and validation phase started. During this phase the tendering and the negotiations for the PPP concession took place parallel to the development of the programme. It is important to first have a look at the tendering procedure

before turning to the actual negotiations. This is because what happened during the tendering had a great influence on the negotiations. Therefore, this section talks first about the tendering procedure and then about the negotiations. These will be followed until its failure in the beginning of 2007. At the end there will again be a short evaluation of whether different PPP models were at stake during the whole period.

The tendering procedure

In 2003 the Commission officially started a call for tenders. The GJU was responsible for talking to the tenders, negotiating and in the end awarding the concession to a winner. There were four tenders that expressed their interest until the set deadline in December 2003. Each tender was a consortium of several companies. After the first deadline the JU examined the applications and shortlisted those that would make it to the second stage of the procedure, the competitive dialogue or negotiations described below. Two of the four consortia were not considered good enough according to the criteria. These were the ability to fund the remaining phases of Galileo, the ability to “develop and promote the use of the Galileo system at a global level” and “the account taken of the interests of the public authorities” (Commission, Communication from the Commission to the European Parliament and the Council, 2004, p. 14). The two remaining consortia in the end also more or less represented all of Europe’s space industry. These divided Europe roughly in a northern and a southern consortium. The latter was the GALA consortium with Thales and Alcatel as the biggest companies while the former, GEMINUS, was united under EADS. The idea with the competitive dialogue was to award the concession to the best bidder. However, with this geographical division political difficulties were not long to wait for as will become apparent below.

The PPP concession negotiations

The concession negotiations started in 2004 and were to be finished by 2006 when the deployment phase should start. Several aspects about the negotiations are important to understand their progress and their failure in the end. First it is necessary to have a short look at the preconditions, things that had an impact on the negotiations that resulted from earlier decisions or circumstances. Second, the actual issues discussed during the negotiations and here especially those that prove to be quite difficult to agree upon need to be considered. A third aspect which will be discussed concerns the general time plan and delays that arose due to the fact that the negotiations were taking longer.

Preconditions

There are two important points concerning the preconditions for the negotiation phase. The first is about the fact that the development and validation phase was run under different conditions than the deployment phase would be. If everything had happened according to the initial plan of having a PPP of the DBO model this would not have occurred. However, due to the fact that the second phase was still funded and run by the public sector under a typical ESA assignment problems arose especially concerning competition and political quarrel. Additionally, the space industry in general knows little competition because most projects in this sector are publicly funded without real competition. The second point about the preconditions is connected to the two consortia that divided Europe in a northern and a southern camp. This is also again important in political respects as the GJU found itself under heavy political pressure to take a decision. It then postponed the point of taking a decision probably hoping the two consortia would merge. However, as that did not occur it

finally had the two consortia merged. This merger then had great influence on the following negotiations.

Issues at hand during the negotiations

Several things had to be discussed during the negotiations. Among others the specific risk allocation between the partners, the financing, the commercial revenue and market deployment were issues at hand. First of all it needs to be understood how the governance structure should have looked like as agreed upon during the negotiations. The public sector still was to remain the owner of the programme and have the general oversight together with responsibility to arrange legal issues. This was to be done by the GNSS Supervisory Authority that took over the work of the GJU by the end of 2006 when the latter would cease to exist. A Galileo Operating Company (GOC), effectively the consortium, would through the concession contract be the concessionaire of the project. This company was the only entity that should get the right of exploitation of the system, which is in line with the definition of concessions. The GOC would have subcontracts with the corresponding companies for the operation and maintenance, deployment, and launching. Below you can see a figure (Figure 5) that shows how tasks would be assigned and who would be involved. The second aspect that proved to be problematic was the fifth service provided by Galileo, the Public Regulated Service, which allows for a military use. Sometimes this is not really seen as a problem while others such as Ulrika Mörth or Norbert Schuldt do mention it as one of the problem which were hard to find consensus on.

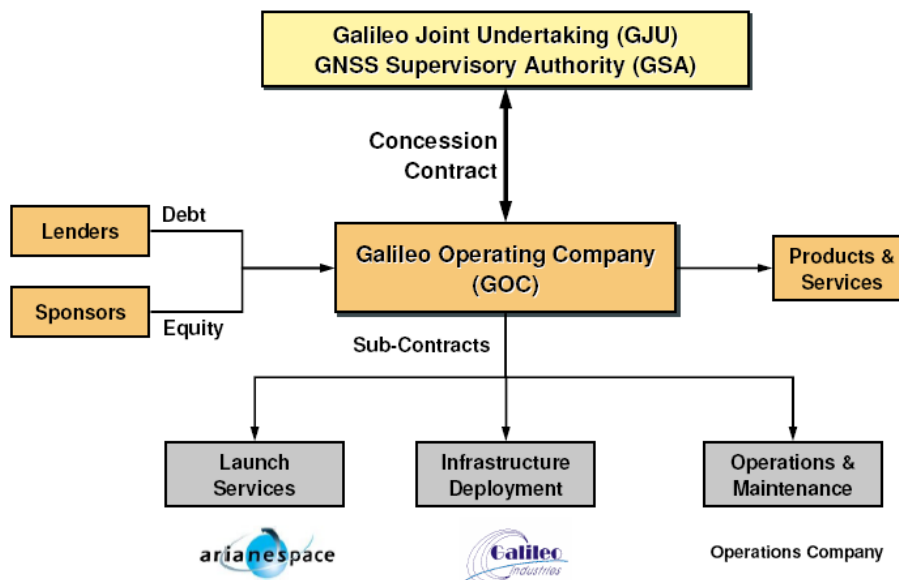


Figure 5 Galileo Structure of tasks and governance

Of course the most pressing issue was the risk allocation. Generally, it was planned that the private sector should take the demand risk, 2/3 of the financial risks (for the deployment phase), the construction risk and also the performance and availability risk. However, during the negotiations it became apparent that some conditions had changed since the plan for this kind of allocation was proposed by a study conducted by Price Waterhouse Coopers. The Commission, therefore, identified nine blocks of risk in at Communication of 2006. These were cost overrun, construction, system performance, design, deployment, coverage of project risks, compensation in the event of termination of the project, refinancing, and revenue and markets. (Commission, Communication

form the Commission to the European Parliament and the Council, 2006) In September 2006 there was agreement that the private sector would take parts of the design risks, the completion, performance and cost overrun risks. No agreement was yet reached on the market and third-party liabilities risks. (ETAG, 2006, p. 5).

All in all the concerns about the sharing of risks and how to arrive a fair division can be seen as whether the financial commitments to be taken could be balanced with the revenues expected from the system's operational phase. In short the PPP concession had to provide enough value-for-money. Additionally, due to the situation of just one bidding consortium left, the companies were not that eager to take great risks anyway. Another problem was that the merged consortium time and again had to deal with internal problem it could not really solve. The private sector at one point proposed to have availability payments that should more or less guarantee them their return on investment through payments by the public sector (Dorides, 2009). Then, the industries argued, they could agree to take more risks of the remaining risks because they had a guarantee. This would of course have changed the whole PPP model and concession structure. It is, however, not that clear how and in what way this change would have taken place in terms of PPP models because usually availability payments are not used in this kind of PPP context.

General time plan and delays

Initially by 2006 the deployment phase with a functioning PPP concession should have started. However, as the negotiations took longer than expected this could not be achieved. In between the negotiations stopped for quite a long period (Schudlt, 2009). Nevertheless, in the Commission Communication from June 2006 it is expected that the concession contract would be signed by the end of that year. It never came to that. In 2007 the plan for a PPP concession was abolished and the Community agreed to have the project financed publicly (Commission, Communication from the Commission to the European Parliament and the Council, 2007). In this way, not only the PPP failed but the project in general got delayed some several years. Now it is expected to become operational by 2014 six years later than planned.

PPP models

It became clear that no other PPP models were discussed or at stake during this period. The only deviation from the BO model that came up was in connection to the proposed availability payments which the private sector would have actually got if the PPP concession would not have failed. However, as already mentioned above these payments cannot really be interpreted in terms of the PPP scheme because they are not really common in this context. Below you can see that if one tries to include them they would have moved the PPP model further to the left towards more public sector risks and less private sector risks. Another point that should be mentioned here is that it appears that during the whole negotiations but also prior to them the involved parties did not so much think about different PPP models than about how arrive at an agreement to set up a PPP concession. This is also confirmed by a statement given by Carlos Des Dorides who said that they were during the negotiations not strictly encapsulated in one model and not so much concerned about the type or model they were applying or aiming at. (Dorides, 2009)

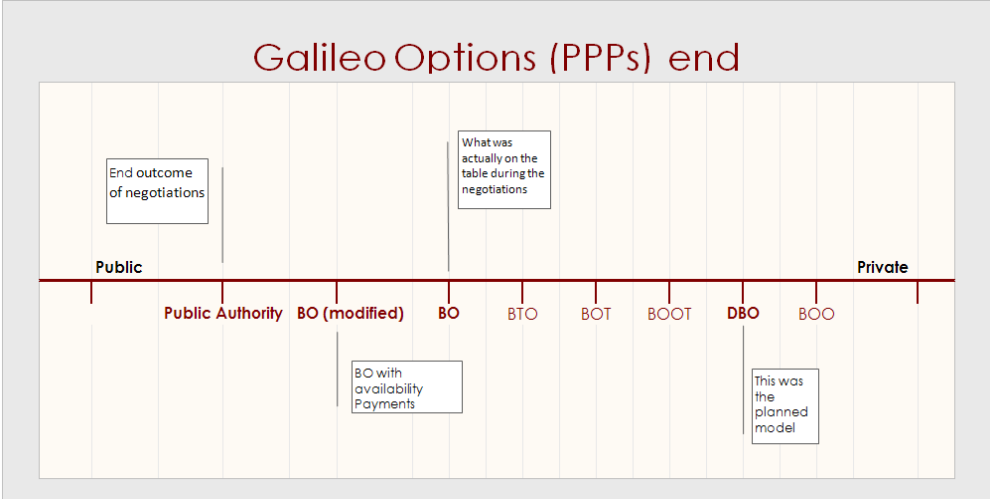


Figure 6 Galileo Options at the end of the negotiations

Part III: Analysis

The analysis aims at finding an answer to the overall research question of whether PPPs are even possible in complex governance arrangements as the EU. For this purpose an attempt is made to connect the complexity of the EU setup to PPP models in practice. The Galileo case serves as the example of a PPP undertaking in practice. What went wrong during the process of setting up a PPP concession for Galileo, which has been discussed in the previous part already, will be used to see in how far the problems that arose have to do with the complex structure of the EU. You can divide the problems and obstacles that arose in two aspects: the decision to go for a PPP and PPP specificities (what does a PPP entail?). These two aspects will each be analyzed in detail below. Afterwards the outcome will be presented in a separate section where the connection to the EU setup will be made.

Decision to go for a PPP

At the point where it is decided by the public sector to have a PPP instead of an ordinary public procurement several points are of importance. These have an influence on the following procedures for setting up a PPP but most importantly they have an influence on the success of setting up a PPP. Two points must be identified in this respect. On the one hand there is the decision to go for a particular kind of PPP which plays a role as each decision is taken under certain preconditions. On the other hand the nature of the public sector also is of profound importance when looking at the decision to have a PPP. Each of the two points has several factors that will be elaborated.

The decision to go for a particular PPP model

From the beginning onwards there was the discussion whether public procurement or procurement through a PPP was to be preferred. Paul Verhoef, the head of the unit for satellite navigation of the DG transport in the Commission, said at a Workshop about Galileo in 2006 that this discussion was a core issue (ETAG, 2006, p. 10). Norbert Schuldt even speaks of a geographical division between the different options over the member states. He stated that the southern countries were more in favor of a public procured project because they were of the opinion that this was a public matter, while the northern countries were more skeptical about public involvement. The latter saw it more as a private matter. However, according to Schuldt there was not enough political consensus at that moment to go for public procurement (Schuldt, 2009). Carlos des Dorides said something similar: The Commission supported the member states that favored the commercial perspective that was good to be realized in a concession model. In this way it was decided to go for a PPP (Dorides, 2009). The industries seem also to have been of the view that a PPP was the best option: Stephan Sassen of TeleOP, one of the involved companies, stated during the mentioned workshop in 2006 that such a project would not be feasible under public procurement (ETAG, 2006, p. 12).

The reason why the southern countries favored public procurement is connected to the potential military use of the project. The fifth service Galileo will provide is the Public Regulated Service (PRS). This aspect has considerable conflict potential. As Schuldt put it the military use of the infrastructure is only possible under public management. However, it is difficult to combine the military use with the plan to have the private sector operate the system. At the private side this was not so much considered a problem because the industries saw the PRS as the most profitable one (Schuldt, 2009). The most important problem that arose from the potential military use is that it was not dealt with in a definite way in the beginning. The system was explicitly introduced as a civilian-use system while it

was more or less left unclear how one wanted to tackle the military aspect. In this way it was uncertain what role the private actors were to play in the matter because it was hard to combine commercial interests of the private sector with military use and different functions of the system in terms of revenues and things like that (Mörth, 2009, p. 112). This is an aspect that will come back in the next section under the need for clearly defined goals when setting up a PPP.

The decision to go for a PPP and in particular a PPP concession was the result of an analysis (pre-study) by the Commission together with Price Waterhouse Coopers. It confirmed that a PPP would be a realistic model (Schudlt, 2009). Dorides, however, remarked that even though this study was a thorough analysis including a risk assessment and the potential revenues, the decision to carry it out according to the proposed plan might have been taken too quickly. He of course stated that it is always easy to say something like that afterwards. But, nevertheless, according to him the particularities of this project have not been assessed carefully enough or were underestimated (Dorides, 2009). With the particularities of this project he refers to the fact that Galileo was to be the first PPP at EU level, the first aerospace PPP and the first radio navigation system in Europe. Such things need to be taken into account beforehand just as much as risk assessments, potential revenues or financial aspects. This is something which can be found in the literature as well (e.g. (Leinemann, 2006)). Additionally once one type of procurement (for Galileo: a PPP concession of the DBO model) is decided it is difficult to change this again as Verhoef remarked (ETAG, 2006, p. 10).

The nature of the public sector

It is of course straight forward that the EU is a complex governance arrangement. As was said in the introduction, a lot more actors are involved when setting up a PPP at the EU level than at the national or communal level. This was pointed out as an obstacle by Paul Verhoef during the Workshop in 2006 (ETAG, 2006, p. 7). As result of the EU setup the member states tried to influence the process by putting pressure on the Commission and the GJU especially because Galileo was such a prestigious project. The PPP was to be of a special nature because the “public side” was actually consisting of two levels. It proved to be a problem that there were close ties between the member states and their industries (Mörth, 2009, p. 113). Thus, it was of major importance to have political consensus on the matter (Dorides, 2009). In general, the political dimension was important during the negotiations as the member states tried to put pressure on the Commission. This could especially be seen during the tendering procedure, when there were still two consortia left that divided Europe among a north-south dimension. As pointed out by Schudlt, this fact of the division led to a lot of political quarrel, in which the northern states would never have agreed to nominate the southern consortium as a winner and vice versa (Schudlt, 2009). The political pressure on the Commission by the member states had likely become too great so that the Commission in turn put pressure on the GJU to have the consortia merged. In the end two consequences followed from the merger: first the atmosphere of competition was abolished and as a result, second, the companies were less eager to put much effort in the project and less willing to take risks because they would get the award of the concession anyways.

Another factor that came into play concerns problems with public decision making. The public officials entrusted with the Galileo matter (GJU as well as Commission) had no prior experience with PPP at the EU level (Schudlt, 2009). Thus, for instance the decision of the GJU to propose the nomination of a winner consortium due to the political pressures might not have been the best. Similarly, the decision to have the consortia merged in the end was also not that wise, as it later

proved that problems were not solved. The companies that were more or less forced to work together had a hard time agreeing on a common line and their willingness to take risks was decreased because they were certain of being awarded the assignment anyways (Schudlt, 2009).

An additional problem with public decision making in the EU was that the Commission did not have the competences and technical expertise for such a project (Schudlt, 2009). Thus, there was the need to find an appropriate form of governance. It was decided to have an institutionalized PPP where the ESA was responsible for technical matters and the Commission for the steering of the system's setup, all under the GJU. This proved to be strategically unfortunate, according to Schuldt. For instance, the GJU should have controlled the ESA during the development phase while representatives of the ESA were sitting in the administrative board of the GJU. Furthermore, the heavy influence of the Commission and the ESA on the GJU was not that helpful because, due to their pressure, the GJU could not live up to its mandates (e.g. during the tendering process to nominate a winner) (Schudlt, 2009). A final factor, that was also mentioned by Schuldt, is the fact that the Galileo project had to be placed within one DG of the Commission even though the project in fact involved several DGs (not only transport but also budget, innovation and others). The decision making procedures and setup of the Commission do not fit the requirements for the setting up of a PPP demand. These requirements are for instance quick communication between the people responsible for financial aspects and organizational aspects. Things get delayed easier and are also more likely to become unclear in such an environment where the DG Transport is responsible for the overall project but for example has to talk to the Budget DG when deciding on financial matters. Concerning the budget for instance the European Parliament also has a say in agreeing on an overall budget plan for the EU. Many other actors are also involved in budgetary matters which makes it difficult to have political consensus and quick decisions.

PPP specificities (what does it entail?)

Once the decision to have a PPP has been taken it also has to be carried out. This entails a lot of different things to be taken care of and decisions to be made. For instance, as has become apparent from both previous parts, if an institutionalized PPP of the concession form was chosen a vehicle company has to be set up, negotiations have to be started with the private sector and tasks need to be divided. These are just a few of the factors that play a role when setting up a PPP. Four main factors were identified that are most important in this respect: the importance of, the need for a clear definition of tasks and objectives, the ultimate goal of a PPP, and the specific PPP model chosen. They will again each be addressed in turn below.

The importance of competition

Two things are of importance when considering competition. First, it became clear in the above that it is difficult when you plan to have a tendering phase through competitive dialogue, where consortia compete for the assignment, to first have a phase before that, in which there is less competition. Especially the fact that the ESA works with the principle of geographical return is hard to combine with a sudden movement towards true competition in the third phase (Dorides, 2009). Companies that were already involved in the development of the system in the second phase had an advantage over those not involved because of their experience gained. With this the political dimension also became important as member states which invested through geographical return in the second phase saw that, in theory, its national companies might not be involved in the project any longer. As

Dorides rightly remarked this problem should have been thought through in the beginning of the process if you wanted to move towards true competition (Dorides, 2009). Here both the fact that the different phases were run under different rules as well as the nature of the EU setup, where member states try to influence the process to safeguard the involvement of their industries, play a role.

The second aspect concerns the aerospace sector in particular. This sector is actually not really a market. It is dominated by public funded projects. As a result the companies in the sector are rather safety oriented and are not keen on taking too many risks. (Schudlt, 2009) In addition, these companies do not know real competition also due to the fact that the sector is quite monopolistic looking at national levels. Thus, to have real competition and not something based on geographical return is difficult. If this factor had been taken into account more carefully in the beginning, one could have thought of different ways to realize the PPP without a competitive dialogue but a structural dialogue for instance. In this way knowing the particularities of the sector in which a PPP should be build is vital for the decisions of how to design a tendering phase and of how to award a company or consortium the contract.

The need for a clear definition of tasks and objectives

The need for clearly defined tasks and objectives was not only called for in several Communications of the Commission (e.g. 1999) but was also mentioned by scholars and several actors involved in the process. For instance, the National Council for PPPs identifies one of the keys to successful PPPs a “well thought-out plan”. The plan should include “clearly describing the responsibilities of both the public and private partners” (National Council). Mörth points out that in connection to the already elaborated potential military use the otherwise quite clear goal on Galileo became a bit uncertain (Mörth, 2009, p. 112). Furthermore, she mentions the fact that among public officials there was considerable “uncertainty regarding the planned contract with the private actors” (Mörth, 2009, p. 113). These circumstances led to problems. For instance the point that the objectives of the tendering phase were not clearly defined led, according to Dorides, to the fact that the industries also handed in a rather vague proposal which then in turn could not be evaluated well because of the missing objectives (Dorides, 2009). Grohe mentioned the aspect of the length of the contract (20 years) as a point where there is special need to define objectives and tasks carefully (ETAG, 2006, p. 5). Guisepppe Viriglio from the ESA said during the workshop on Galileo in 2006 that the role and responsibilities of the ESA needed to be clarified for the future (ETAG, 2006, p. 6), especially because the design was developed under ESA. Furthermore, he pointed to the fact that there is the need for a “clear division of responsibilities and risk sharing between the public and the private partners” (ETAG, 2006, p. 6). This leads to the most important aspect about the definition of tasks and objectives: risk allocation.

Risk allocation

Risk allocation is a key element in this respect because it is a core aspect of PPPs. The risks should be allocated at the partner best equipped to handle them. However, in the case of Galileo a clear risk allocation was missing which led to fierce problems during the negotiations. The “Midterm evaluation of the Galileo project for the period 2002-2004” points out that the “risk allocation is still unclear at this late stage of contract negotiations” (Transport, 2006, p. 9). There are several reasons why a clear allocation could not be agreed upon. This is also to explain why the concession negotiations were mainly about risk sharing as Grohe stated in the Galileo Workshop (ETAG, 2006, p. 4).

First of all, some risks which had been identified beforehand were not clearly enough defined and additionally changed to some degree. These were mainly the demand risk and the design risk. The ever returning problem with the design risk was about the fact that the design was done under ESA and should for the third phase be taken over by the private partners. Stephan Sassen from TeleOp described this as being like “taking over a black box” (ETAG, 2006, p. 12). Several others also mention the design risk as posing a lot of discourse (e.g. Schuldt and Viriglio). It is closely related to what Dorides said, namely that the technology risk, which is part of design risks, in this case included a fairly important technology or engineering challenge (it was the first satellite navigation system to be developed in Europe). This was a special problem because, as he stated, PPP concessions usually do not address such challenges as they usually involved mature, already developed technology. (Dorides, 2009) In this way the problem of allocating the design risk which also had an influence on the performance and availability risk was intensified.

Concerning the market risk there was the discussion of whether the future revenues would be high enough to compensate the private sector for its investment. The difficulty with the market risk was that due to the fact that there is no market yet for satellite navigation services (ETAG, 2006, p. 5) it is difficult to make reliable forecasts (Transport, 2006). Hence, any forecasts are “subject to a high degree of uncertainty” (ETAG, 2006, p. 25). Thus, the need for clear mechanisms of collecting revenues was an important issue to the industries (ETAG, 2006, p. 12). Dorides states that in addition to the lack of a market the project also involved an “environment with rapid technology change” that increased the difficulty of making forecasts for revenues. A second point he mentioned was the long term perspective that made actors cautious as to too heavy commitments in this respect. He concluded that because for a PPP concessions usually (e.g. with highway) revenue streams a certain it might have been “too ambitious to think that the market risk could be transferred to the private sector” (Dorides, 2009).

Secondly, there are risks that were previously not taken into account and were thus discovered only during the negotiations. Most important of these are the third-party-liability risks caused when due to a system malfunction harm is done to its users. The private sector said it was not able to take this risk to a large extend (Dorides, 2009). It was generally expected that the private sector will have to take this risks at least partly (ETAG, 2006). However, the scope and dimension of these risks could not really be assessed (Dorides, 2009). This shows how risks that were not thought about in the beginning can hinder the progress of the negotiations and the whole project. It is, thus, really important to make a good risk assessment beforehand and to clearly define which party should take which risks.

The last point about the difficulties of risk allocation is more concerned with general aspects of risk sharing. For instance Grohe stated that due to the fact that “nobody has any experience with the commercialization of signals in space” the problems were hard to solve (ETAG, 2006, p. 9). Schuldt pointed to another aspect. He said, as mentioned above, that because there was just one consortium left that was certain of it being awarded the contract the willingness of the private partners to take risks was decreased. (Schudlt, 2009) These problems are connected to the general circumstances of the negotiations.

The ultimate goal of a PPP

It has been mentioned in the first part that the EU and also scholars define one of the goals or even the ultimate goal of a PPP as providing value-for-money. If this cannot be achieved a PPP is not the best option to choose or an existing PPP does not fulfill its requirements. Reiner Grohe of the GJU identified at the Workshop on Galileo in 2006 the need that the contract provided value-for-money as one of the crucial points of the concession negotiations. In the Galileo case especially the risk allocation was not considered to provide this (Dorides, 2009). The industries in particular were of this view. They doubted that revenues would be high enough to get their return on investment. It shows that in the end a PPP was not considered to produce enough value-for-money to outweigh ordinary public procurement. As a result the project was continued with a public procurement.

The specific PPP model

For Galileo it was decided to have a DBO model as a PPP concession with a special vehicle company. However, it became clear from the description of the whole project in the last part that this model was not the one that was carried out. It has been noted by Schuldt and is also evident when looking at the process contrary to what had been planned, namely to involve the industries from an early stage on, the development phase was not conducted under a PPP but under the ESA (Schudlt, 2009). Thus, de facto it was not a DBO but a BO for which negotiations were taking place. The second phase was run with different rules than the third phase was to be. This had an influence on almost all of the three remaining factors especially concerning the division of tasks and responsibilities that needed to be clarified.

From a theoretical point of view it is difficult to change the PPP model while holding on to the planned structure. A DBO model entails more risks for the private sector than a BO model, it has less construction risks. However, during the negotiations it became clear that the EU wanted the industries to take all of the construction risks. This was a problem because in principle the design was developed under the ESA. Recalling how the different PPP models were put on a one-dimensional space in figure 5 you can see that a simple BO is placed to the right of not only DBO but also BTO and BOT. Dorides stated that the officials were not so much encapsulated in one or the other PPP model during the negotiations (Dorides, 2009). However, if they had paid more attention to these kinds of matters in theoretical terms they might have also noticed that during the negotiations they were already far from the original model.

Risk		Planned (DBO)	On the table (BO)
Construction	Design	Private	Public
	Construct	Private	Private/Public
	Build	Private	Private
Financial	Finance operation/maintenance	Private	Private
	Finance delivery	2/3 private, 1/3 public	2/3 private, 1/3 public
	Own	Public	Public
Performance and availability	Operate	Private	Private
	Maintain	Private	Private
	Manage	Private	Private
Demand	Collect revenue	Private	Private
	Retain revenue	Private	Private (in general the amount of revenue)

Table 3 Risk Allocation

If looking at it from this point of view the fact that the institutional aspect of the PPP did not come along well (the industries were not incorporated into the GJU as originally planned) is not that surprising. Secondly the fact that the most crucial aspect of the concession, the right of exploitation that entails for the private sector to take the market risk, could not be transferred to the private sector is also easy to explain. In addition when taking risk allocation into account as has been done above (table 3) one can see that several risks were inevitable to cause problems due to the change. The left column shows how risks should be shared in a DBO model while the right column shows the allocation aimed at during the negotiations. Because the public sector was responsible for the design it was hard to refer the risks written in red to the private sector because they depend on design (all to a different degree).The BO model, thus, seems to not allow for too much private sector involvement. A concession form does not seem to be the right legal form for it. In fact the BO model comes too close to the contract and leasing models (parts of the infrastructure exist already in this case in form of design but not hardware yet) that both institutionalized as well as concession are not the right options to seek. In parts this has been solved now automatically. First, the industries suggested the introduction of the availability payments by which the whole project would no longer have been a concession anyway. Then it was decided to go on with a public procurement; a decision that was inevitable from this theoretical point of view.

Outcome of the analysis

A lot of problems could be identified in the last two sections that all influenced the failure of the PPP for Galileo. They have been short-noted in a table below (table 4). The problems are listed according to the context in which they arose. What will be done in this section now is first to look at the different aspects in terms of their significance and influence on the matter at hand. It is important to

do so because some aspects had a rather profound impact and weigh, therefore, also more for answering the research question. The second step that will be taken is to re-order the different aspects and connect them to either the complexity of the EU setup or PPPs in general. Once this reordering has been conducted it will be easy to assess whether PPPs are possible in complex governance arrangements as the EU and thus answer the research question.

Aspect	Element	Sub-element		
Decision to go for a PPP	Particular PPP model	Discussion PPP vs. public procurement		
		Potential military use (left unclear)		
		Pre-study and PPP model		
PPP specificities	Nature of public sector	(PP)PP		
		Close relationship MS-industries	Tendering procedure	
		Public decision making problems	Inexperience of public officials with PPPs (esp. Tendering procedure)	
			Need for suitable structures	
		Need for competition	Plan competitive dialogue	Cannot change rules
			Particularities of sector important	(aerospace sector)
PPP specificities	Need for clear definitions	In general true for all tasks and objectives	Makes process easier	
		Risk allocation	Risks hard to allocate/that changed (demand, construction)	
			New risks (3 rd party liability)	
			Risk allocation in general	
		Ultimate goal of PPPs	Value-for-money	Risk allocation did not provide
		The specific PPP model	Move from DBO to BO	Influencing other factors
		Seems to have to go along with changes in the 3 dimensions		

Table 4 Outcome Overview (According to the Analysis)

Significance of the different problems

It is important to notice that some of the problems were more profound than others. Basically these problems also caused some of the other problems. The utmost severe problem was that the aimed at model (DBO) was not carried out and that as a result a BO model was on the table while it was still tried to agree to conditions for a DBO model. This had an influence on most of the other problems. Nevertheless, the problem with the demand or market risks could be placed next. It was also identified as one of the main factors that led to the failure of the concession negotiations by both persons interviewed (Schuldt and Dorides). A general aspect to notice is that these two problems are directly related to the three dimensions. It shows how important they are and also how important it is to pay attention to the choices that can be taken in terms of different PPP models on each

dimension. Thus, the structural level is not to be underestimated when setting up a PPP and changes on this level, changes of the rules of the game, have a considerable influence on the success of the setting up the PPP. Two other problems that need to be mentioned here, even though they are not as profound as the first two, are the need for clear definitions of tasks and responsibilities when setting up a PPP and the problems that arose from existing public decision making. These four problems will be getting special attention below when assessing the problems.

Reordering the problems

First the decision to have a PPP will be looked at to see whether the problems that arose are related to PPPs in general or the complexity of the EU. Here, the discussion whether a PPP or public procurement should be preferred is on the one hand a matter that always arises prior to deciding for a PPP. On the other hand, in the case of the EU this decision involves much more actors than on a national or regional level. Therefore, this aspect can be identified as a problem related to both PPPs in general and the EU's complexity. The two remaining elements of the particularities of the PPP model can clearly be placed among the problems related to PPPs: the failure to clarify the potential military use because it can be seen as one of the specificities of the project that needed to be defined in order to assure clarity, and the pre-study that suggested the PPP model. The latter was, as it turned out later, not precise enough because for instance some risks had not been identified. A precise and thorough analysis of the project beforehand is important for any PPP.

Concerning the nature of the public sector most problems are related to the complexity of the EU. Clearly the fact that it is a public sector that involves two levels, the close relationships between the member states and the industries and the problems in public decision making, all point the EU's complexity. Nevertheless, even though problems in public decision making are of course more related to the complexity of the EU, the inexperience of public officials for instance is something that can apply to any PPP; also at the national or regional level. With the need for suitable structures it is similar. It can be seen as both a problem with PPPs in general and the complexity of the EU. This is due to the fact that on the one hand suitable structures for setting up a PPP are generally needed but on the other hand the question arises as to how this can be achieved at the EU level where specific structures for instance within the Commission are fixed and hard to alter.

Coming to the specific demands of a PPP the need for competition, including the knowledge of the specific sector as well as the fact that the plan to have competition should be carried out as it is planned to be, is again clearly connected to PPPs in general. It is similar with the need for clear definitions. All problems that arose for this aspect point to what PPPs and setting them up demands in general. The ultimate goal of a PPP to provide value-for-money is also directly a PPP problem. The last aspect is yet another example for a problem of PPPs in general.

Aspect	Element	PPP general	EU complexity
Decision to go for a PPP	Particular PPP model	Discussion PPP vs. public procurement	Discussion PPP vs. public procurement
		Potential military use (left unclear)	
		Pre-study and PPP model	
	Nature of the public sector		(PP)PP
			Close relationship MS-industries Tendering procedure
		Public decision making problems: Inexperience of public officials with PPPs (esp. Tendering procedure) Need for suitable structures	Public decision making problems: Inexperience of public officials with PPPs (esp. Tendering procedure) Need for suitable structures
PPP specificities	Need for competition	Plan competitive dialogue: Cannot change rules	
		Particularities of sector important: (aerospace sector)	
		Need for clear definitions In general true for all tasks and objectives Makes process easier	
		Risk allocation: Risks hard to allocate/that changed (demand , construction) New risks (3 rd party liability) Risk allocation in general	
	Ultimate goal of PPPs	Value-for-money: Risk allocation did not provide	
	The specific PPP model	Move from DBO to BO: Influencing other factors Seems to have to go along with changes in the 3 dimensions	

Table 5 Problems Classified

Final outcome

Above you can see an overview table (table 5) in which the problems have been ordered according to their classification. In red are those problems that have been identified as more important than others (the two most important problems are also bold to further differentiate them). Immediately it

can be observed that the problems related to PPPs in general outweigh those related to the complexity of the EU setup. Furthermore, also the problems that have been identified as more important for the success of a PPP, not changing the planned model, demand risks, the need for clear definitions and problems with public decision making, are mostly related to general PPP problems. The exception is the problems with public decision making which can be related to both. Those problems which are solely a result of the complex governance arrangement of the EU, the fact that the public sector contains two levels and the close relations between the member states and their industries, pose some severe obstacles to PPPs at the EU level. However, these are not that severe as to come to the conclusion that PPPs are not possible in complex governance arrangements as the EU. This is especially true as these problems are not connected to the structural level but the operational level, on which decisions are made for pragmatic reasons without actually determining the success of a PPP.

Thus, the answer to the research question whether PPPs are even possible in such complex governance arrangements can be answered positively. Yes, they are possible! Problems that arose during the attempt to have a PPP for Galileo at the EU level could be prevented by paying more attention to what PPPs actually demand in terms of the specific models and the dimensions. It needs to be borne in mind what the choice to have a particular PPP entails especially at the side of the public officials being entrusted with the matter. For the EU in particular it is of course hindering when the public sector consists of two levels during the setting up of a PPP; even more so when a clear definition of tasks and responsibilities is missing. But this is a general feature of the EU that cannot easily be changed. The member states will always try to influence matters for their interests. To keep these influences and reasons for political quarrel to a minimum it is even more important to pay attention to how PPPs work. For instance the problems that arose due to the fact that the second phase was run without competition and the third was to be run with true competition triggered the political tensions.

Another way to prevent too much political tensions would be to say that to have an EU PPP only the EU should be able to take part in the matter. However, when taking a closer look at in which way the member states were taking part in the GJU it shows that they actually did not have that much influence. It was through the Commission that they mainly put pressure on the people involved. It is, thus, doubtful whether such a measure would help. Only by giving the Commission clear legal competences for setting up EU PPPs the attempt by member states to influence the procedure could be prevented. But this again would have to come as a mandate from the member states that would have to include a specific rule prohibiting member states to put pressure on EU officials and it is rather unlikely that this would happen.

Conclusion

Since the failure of the PPP concession negotiations for Galileo the EU has already planned new PPP initiatives. As part of the EU Economic Recovery Plan it wants to set three new PPP initiatives into action: "European Energy-Efficient Buildings", "Factories of the Future" and "European Green Cars Initiative". These rather catchy initiatives are planned to be started in 2010. (Commission, European Commission Research) They will most probably, if they are really to become PPPs, encounter similar problems as Galileo. Thus, the findings of this thesis might enhance the PPP practices for these projects and in the EU in general. It could be shown that PPPs are possible in such complex governance arrangements as the EU.

The reason why the research question could be answered positively is because of two aspects. First, most problems that arose during the setting up of a PPP concession for Galileo and which ultimately led to its failure were connected to PPPs in general. Concerning the nature of the public sector also the main problem, public decision making, is not only a problem of the EU's complexity. Second, problems that were related to the complexity of the EU might be overcome, as they are also only related to the operational level of setting up a PPP, if special measures were introduced, even though it is rather doubtful that this would happen. In general, some problems could be identified as being more important in determining the success of setting up a PPP than others. These were the specific model chosen, the demand risks, the need for clear definitions, and problems related to public decision making. They are also predominantly connected to the structural level and thereby the three dimensions of the legal form, the governance structure and the risk allocation.

When setting up a PPP it is crucial to pay special attention to the four problems identified as most important. Especially public decision makers need to understand the demands of the different PPP models and choose models carefully. This means that an extensive pre-study is important as it can identify possible risks and other obstacles. Of course even the most thorough pre-study might not be able to predict all aspects as the pre-study of Galileo also did not discover all aspects that proved problematic during the concession negotiations. Another vital point is that during the process the chosen model should not be changed as this leads to severe problems. It is all the more true if the change in PPP model does not go along with a change in the rules of the game on the three dimensions.

Despite all these findings it is hereby recommended to have further research into the matter of Galileo and PPPs at the EU level. This study could not that much take the view of the industries into account which would be vital for a thorough analysis of the concession negotiations. The opinions of the private sector are as important as those of the public sector for assessing whether PPPs are possible in complex governance arrangements. Furthermore, it would be relevant to compare the Galileo case with other PPP attempts. Such could be big national or international PPPs and other PPPs at the EU level like the ones mentioned above. Nevertheless, this study has provided for a first step in assessing PPPs in complex governance arrangements and it enables for further study in this field.

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