

**LESSONS LEARNED IN THE PORTUGUESE 3P THAT
UKRAINE SHOULD TAKE INTO ACCOUNT**

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Glossary

DGFT – Overall Direction of Finance and Treasury

EA – Environmental assessment

EIB – European Investment Bank

EP – Estradas de Portugal

EU – Europe Union

FR – Financial Rebalancing

PIDDAC - Programa de Investimentos e Despesas de Desenvolvimento da Administração Central

PPP(s) – Public-Private Partnership(s)

TC – Court of Auditors (Tribunal de Contas)

Resumo

Durante últimos anos, o Estado Português investiu valores significativos em infraestrutura do país, especialmente em autoestradas. Para que os encargos do investimento não onerassem tanto o Orçamento do Estado, foi adotado o modelo de Parcerias Público-Privadas (PPPs), cuja utilização mostrava um crescimento exponencial ao longo dos anos. Como o país não possuía experiência na área das PPPs nem um enquadramento legal para este tipo de parcerias, problemas estruturais começaram a aparecer praticamente em todas as obras, o que combinado com a crise económica despoletou uma situação não tão positiva em relação aos compromissos assumidos nos contratos. As derrapagens financeiras e alteração nas durações das obras são apenas algumas dos problemas que Portugal enfrentou.

Ucrânia, um país europeu que não faz parte da EU (União Europeia), apresenta-se numa situação onde a infraestrutura rodoviária encontra-se em estado crítico. Nos próximos anos, é previsto um forte investimento na infraestrutura Ucrâniana, quer por parte do Estado Ucrâniano quer por parte dos investidores externos.

Na construção de infraestruturas portuguesas com o recurso a PPPs, as derrapagens financeiras atingiram biliões de euros. Sendo Ucrânia um país que territorialmente é 7 vezes maior que Portugal, torna-se difícil de imaginar o dinheiro e recursos que podem vir a ser desperdiçados se Estado Ucrâniano cometer os mesmos erros que Estado Português cometeu.

Neste contexto, o objetivo deste trabalho reside na análise dos erros cometidos durante a construção de infraestrutura rodoviária em Portugal, com o fim de apresentar recomendações para o Estado Ucrâniano.

Palavras-chave: Parcerias Público-Privadas, Derrapagens Financeiras, Renegociações

JEL classification system: 65; G32; H54

Abstract

During last years, Portuguese State invested significant amounts of money in the infrastructure of the country, especially in motorways. Therefore, investment costs could be a significant burden for the Budget. To avoid this issue, Public-Private Partnerships (PPPs) model was adopted, the use of which showed an exponential growth over the years. As the country did not have experience or/and legal framework for this type of partnership, some structural problems began to appear in almost all construction, which combined with the economic crisis triggered a situation that negatively affected the commitments assumed in contracts by Portuguese government. Financial slippages and changes in the duration of the works are just some of the problems faced by Portuguese Estate.

Ukraine, being a European country but not part of the EU (Europe Union), is in the situation where road infrastructure is in critical condition. Since in the next few years strong investments in Ukrainian infrastructure are expected, both by the Ukrainian government and external investors, it is important to use guidelines and lessons from countries that have already been through similar situation.

In the construction of Portuguese infrastructures using PPP model, financial slippages reached billions of euros. Considering the fact that Ukraine territory is 7 times larger than Portuguese, the scale of resources that could be wasted in case if the Ukrainian government makes the same mistakes that Portuguese committed.

In this context, the objective of this work is to analyze the mistakes made during road infrastructure construction in Portugal, in order to present recommendations to the Ukrainian government.

Keywords: Public-Private Partnerships, Financial Skidding, Renegotiations

JEL classification system: E65; G32; H54

1. Introduction

Nowadays, building modern, reliable and sustainable infrastructure is critical for meeting the rising aspirations of billions of people around the world. To rise economic growth rates, offer economic opportunities and increase human capital it is necessary to invest in infrastructure. In Emerging Markets, investment is crucial to achieve poverty contraction, since basic infrastructure including water, roads and electrical power remains scarce in many developing countries. According to the World Bank, by 2045, the number of people living in cities will increase by 2 billion, putting additional pressure on transport, energy, water, and other municipal infrastructure.

Public-Private Partnerships (PPPs) can be a tool to deliver much needed infrastructure services. What is PPPs? There is no one widely accepted definition. PPP is a broad term and can be defined as a funding model for a public infrastructure project. The public partner is represented by the government at all levels: local, state and/or national. The private partner can be a public corporation, privately-owned business or consortium of businesses. Reference Guide of PPP Knowledge Lab defines a PPP as *"a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance"*.

Around the world, a growing number of governments are interested in partnering with the private sector in order to provide public infrastructure assets and services. In Europe and Anglo-Saxon countries such as Canada, Australia and USA Public-Private Partnerships were very successful during the last thirty years.

Both Portugal and Ukraine have experience in PPP contracts. Portugal, due to the economic crises suffered constraints in the public finances, which created difficulties in financing and sustaining public investment in essential infrastructures. In this context, PPP were used as an alternative measure to finance essential projects.

Ukrainian experience in PPPs is not such extensive. Due to the lack of financing, corruption and political instability before 2014, the number of total PPP projects in Ukraine since 1990 is 19, being most commonly used in divestitures, energy, transport, water and sanitation sectors (PPP Knowledge lab).

To summarize, the objectives of this dissertation are:

- Flaw's discovery of Public-Private Partnerships in Portugal between 1986 and 2015;
- Analysis of the Ukrainian road needs for the upcoming years;
- Construction of progressive model to be used by Ukraine to improve it's Public-Private Partnerships experience.

2. Literature Review

What are Public Services and why are they important? The definition of public services varies across countries, and over time. Accordingly to CollinsDictionary, “*public service is something such as health care, transport, or the removal of waste which is organized by the government or an official body in order to benefit all the people in a particular society or community*”. Hely Lopes Meirelles defines Public Service as anything that is provided by the Administration or its delegates, under State norms and controls, to satisfy essential or secondary needs of society or simple conveniences of the State. Satisfying essential needs includes providing citizens with health services, access to education, social assistance, and the construction of basic infrastructure, such as roads, bridges, railways.

Investment and Public Service delivery are crucial to economic development, well-being, quality of life and the correction of social and regional inequalities, (Nisar, 2007; Satish and Shah, 2009; Sarmiento, 2013). With the intention of providing public services, governments engage in various projects, specific to the type of infrastructure. Public projects are not always financially profitable, but what is important is not the profit or financial value, but the attained externalities¹, which are reflected in the benefits of a social order, such as improvement of the health conditions of the populations, reduction of the literacy rate, reduction of accidents and improved accessibility between localities.

2.1 PPP Concept

Public-Private Partnerships are contracts signed between the private and public (central administration / public company) entities. Private entities, who sign the partnership contracts with the State are generally consortia², composed of several private companies. Although, the contract can also be assigned with a single company. According to Weimer and Vining (2011), P3 typically involves a private entity that finance, construct, and manage

¹ Positive or negative effects outside the project (ex: environmental, social, economic, etc.)

² A combination of financial institutions, capitalists, etc., for carrying into effect some financial operation requiring large resources of capital.

a project in return for a stream of payments directly from government, or indirectly from users, over the projected life or some other specified period time.

In the last decade, the PPP phenomenon has developed in many areas within the competence of the public sector (Commission for European Communities, 2004). The main objective for launching a PPP is the possibility of building important infrastructures for the population, without burdening the State Budget. Instead of signing traditional contract, supported by the State through the Program of Investment and Development Expenses of Central Administration (PIDDAC) or European funds, there is an agreement with private entity, that executes the construction, assumes the effort of construction as well as financing and exploitation of the infrastructure. In this case, the government is obliged to pay an annual rent, which is agreed at the time the contract is signed and goes until its end. The term of a PPP varies according to the size and cost of the work, but generally the duration spans between 30 to 40 years.

2.2 History of PPPs

The concept of PPP was used for the first time in France, in the 17th century. The very first concession contract was signed to finance the construction of the Canal de Briare, in 1638, and a few years later in 1666 for the construction of the Canal du Midi.

A broad participation of private capital in public investment began to be widely used in the period from the 17th and 18th centuries and until the end of the nineteenth century, for the construction of infrastructures such as waterways, roads and railways. In the second half of the 19th century, France already hold such contracts for railway, water distribution and electricity projects constructions (Grimsey and Lewis, 2005). Although France was a pioneer country in the use of PPPs, the one that most developed partnership between public and private entities was the United Kingdom.

In 1990s, the British government realized his need for 19th century public buildings conservation, but there was no money. Since then, the government has attempted to develop a model of PPPs. It was decided to create a specific unit of PPPs outside the public sector, but with its indirect participation in the process, using private commercial skills and capabilities to improve public investment choices. The initiative to bring intelligence together

from private and public sectors was so successful in delivering results, that all public works and government projects, including innovation projects now go through this structure, that analyzes and approves/rejects the proposals.

2.3 Portugal and Ukraine

In Portugal, PPPs began to be widely used after joining the European Union in 1986. After decades of dictatorship, followed by eight years of political instability, democratic elections allowed political and social stability to become essential for economic development (Araújo, 2002). As EU member, Portugal received substantial European funds to invest in the infrastructure development program and increase the competitiveness of Portuguese industry.

Ukrainian situation from 2014 onwards is similar to the Portuguese. With the "Dignity Revolution" in 2014, Ukraine finally succeeded in diminishing Russian influence and gained political stability, choosing the future together with the European Union.

In 2014, the Agreement of the Association between Ukraine and the EU was signed. An important part of this accord is the agreement on the free trade area between Ukraine and EU, which means the integration of the Ukrainian economy into the economy of European Union. Section V, 'economic and sectoral cooperation' contains provisions on the conditions, modalities and harmonization of Ukrainian legislation with EU legislation, as well as Ukraine's commitment to reform institutions and principles of cooperation between Ukraine, the EU and its Member States. 28 chapters of this section of the Agreement providing for appropriate measures in the various sectors, one of which is infrastructure. To reinforce Ukrainian future with EU, since 1st of August Ukrainian citizens can travel to Europe without visas, what was not possible before.

Like Portugal, Ukraine also foresees to receive funds for the development of the infrastructure from European institutions. International Bank for Reconstruction and Development (IBRD) plans to grant Ukraine \$ 800 million for infrastructure development, construction and reconstruction of highways projects (UKRAVTODOR³). Currently, the

³ Governmental Organization - State Agency of Ukrainian roads

construction of several routes is discussed, being the largest Lviv-Kyiv-Odesa motorway (approximately 1100 km). In addition, Ukrainian minister of infrastructure Volodymyr Omelyan stated that the start of the construction of Real Toll motorways is planned for 2019.

Ukrainian PPPs are regulated by number of laws (PPP Law (2010) , the Concession Law (1999), various sector-specific concession laws applicable to roads (1999, amended 2009), water sanitation (2010) and seaports (2012), and the tender-procedure regulation on certain issues of implementing PPPs (No. 384, April 2011)). All laws together build the legal framework covering PPPs. In February 2016, the Ukrainian Parliament adopted Law of Ukraine No. 817-VIII "On Amending Certain Laws of Ukraine Regarding Removal of Regulatory Barriers to Developing Public-Private Partnerships and Encouraging Investments to Ukraine" to improve the legal framework for PPPs.

In the following picture, it is possible to see Ukraine is a transitory country of freight transport from Europe to the Asian countries. Due to this fact, many European companies are interested in investing in the improvement of Ukrainian infrastructures, which can boost logistical opportunities. In accordance to Forbs.ua, one of the first countries to invest in the Ukrainian infrastructure is the Czech Republic, whose investors are expected to invest 150 million Euros for the construction of roads and specific machinery in 2018.

Figure 1 – Ukrainian geographical position in Europe



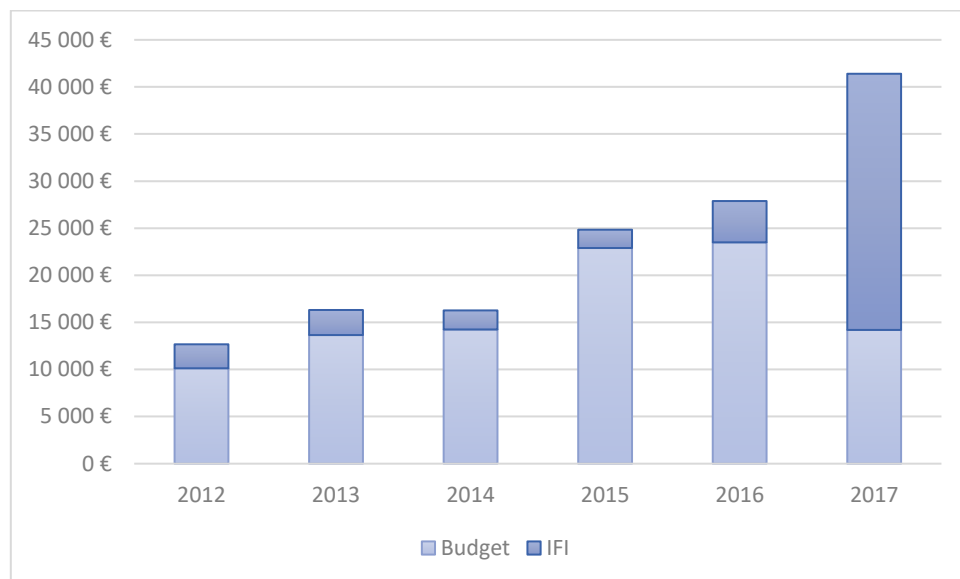
Source: Adapted from Microsoft Corporation Maps

Ukrainian network of public roads is divided into roads of national importance - 52 thousand kilometers and local roads - 117.6 thousand kilometers, being the total of 169.6

thousand kilometers. Of this amount, only 76.7% (130,08 thousand kilometers) are paved roads with concrete, cement or asphalt, being the rest without hard pavement (gravel or paving stones). Of the roads in common use, 90% have not been repaired during the last 30 years due to lack of funding. As a result, Ukraine needs a total repair of 17,000 km and a partial repair of 34,000 km of roads a year, merely to stop its degradation.

As can be seen in *Figure 1*, for 2017, government expects to spend more than 14.2 billion UAH (473 million Euros) for the road sector of the state budget and 27.2 billion UAH (910 million Euros) of international financial institutions, which represents 150% of what was spent for the same effect in 2016. Clearly, it is not enough, that is why the extent use of PPPs in Ukraine is a matter of time.

Figure 2 - Financing of Ukrainian road sector (2012-2017)



Source: Ukrainian budget official site

Ukraine already have some experience in PPP projects. At the national level, a PPP center was created in 2012. The State Agency for Investment and National Projects of Ukraine (SAINPU) supports project development and implementation. Since 1998, country has involved the private sector in infrastructure projects, most commonly in divestitures, and energy, transport, water and sanitation sectors, although this can be only counted as a beginning, since the total amount of contracts is 19.

2.4 PPP definition

Public-private partnership are contracts, where several entities are involved in the process: private, State, Non-Governmental Organizations (NGOs), local government, local community, etc,... Due to this situation, the definition of a public-private partnership can differentiate between authors. According to the Commission of the European Communities in 2004, public-private⁴ partnerships are a form of cooperation between public authorities and business, but are not defined at Community level. Blanc-Brude et al. (2006) argues that PPPs have emerged as private finance projects called the Private Finance Initiative (PFI).

Created in the United Kingdom in 1992, PFI is defined as a long-term contract, in which public services are distributed under PPP schemes (Gerrard, 2001). PPPs refer to agreements where private sector provide infrastructure assets and services that traditionally are provided by the public sector. By using 3P model, it is possible to make these projects profitable for both parties (Hemming, 2006).

Monteiro (2007) defines PPP as a long-term contract between the public sector and private entity, requiring service provision (by the private partner) of a long-lived asset and the payment of services (by the partner public, end-user, or both) based on availability or demand.

European Investment Bank (2005) states that the main distinction between PPP and other forms of private sector participation in the financing and provision of infrastructure services is the duration of the contract, since PPPs are normally signed over a long period time (between 30 to 40 years). Ham and Koppenjan (2001) and Monteiro (2005) argue that, in theory, PPPs appears as a solution to increase efficiency and quality of services and infrastructures, obtaining, at the same time lower production costs due to the involvement of the private sector in the provision of public services.

Logic behind a PPP project differs from the traditional model due to the fact that public sector does not finance the PPP contract directly. It does not buy the asset, but rather

acquires an infrastructure service under pre-specified terms and conditions. Theoretically, the key to whether the project is viable is based on the basic principle of risk sharing (Grimsey and Lewis, 2005). Briefly, a PPP is an agreement between the public and private, in which the latter is responsible for providing an infrastructure service.

Accordingly to Monteiro (2005), in PPP contract, private partner should be involved in the process from its inception, starting with the design, partial financing, construction and operation of the infrastructure. Another part of the financing of the project is carried out with the use of public money. In these agreements, the private party is also responsible for the expropriation of land, as well as changes in the program for various reasons (ecological, for example), which are made under its responsibility and expense. As in the case of Portugal, during the launch of first public-private partnership contracts, there was no legislation related to this subject. This, the above responsibilities were constantly violated, which generated high financial rebalancing and additional charges for the State.

Although the definition of a PPP is different from author to author, there are characteristics that must be present. These characteristics can be defined as the focus on the result, the combination of risk allocation and economic feasibility of the project, always taking into consideration the public interest. That is, "value for money"⁵ is higher and results from a combination of factors of two parts. It is important to emphasize that one should not focus solely on the lowest cost, also taking into account the quality of service provided. The perfect trade-off between quality and cost must be found.

2.5 Legal framework

For the Court of Auditors (2007, 2-S: 16) Public-Private Partnerships are *"a model of contracting, that allows government to promote the procurement of a public service through a contractual structure signed with a private partner, in which establish mutual obligations that reflect an allocation to both parties of the risks involved. It is intended that the management of each risk is to be carried by the entity best positioned to do so, and is therefore adequately remunerated. This remuneration may be merely generated by the*

⁵ Value for money is defined by authors quoted above as being the best price for a given quantity and quality standard, measured in terms of relative financial benefit. The predominant idea is the comparative analysis of different solutions taking into account the same result. The authors also point out that equitable allocation of risks between the public and private sectors is essential for the design of the model.

activity itself, by the State compensation or both”. This represents more legal view, in which the logic and positions of the parties involved are defined.

Projects contracted in the form of PPPs are, in general large-scale. These can vary by activity sectors, and used in the fields of health, communication, road and railways. Using P3 model, the State becomes the buyer of public service, based on assets provided by the private sector. Such presentation allows the replacement of investment expenses by current expenses.

In Portugal, first public-private partnerships were launched without specific legal framework, since none existed at the time of the first contracts. In this sense, Decree-Law n°. 86/2003, of April 26 was created. This was the first legal diploma of the general norms applicable to the intervention of the State in the scope of Public-Private Partnerships. The main focus of this diploma was in definition of the rules of State intervention in PPPs, with special attention to the design, tendering and granting. Previously mentioned diploma was only replaced / changed in 2006 by Decree-Law 141/2006. At the same time, with its creation, general rules on the distribution of risks between the respective participants were established, with the aim of ensuring the balance of distribution between the parties, accordingly to their managing capacity.

The use of the PPP model provides an opportunity for a country to develop multiple essential infrastructures without effectively burdening public debt, by allowing a dilution of the respective financial effort associated with high capital expenditures of infrastructural projects. Therefore, the PPP option may have budgetary advantages, both at the deficit criterion level and by the public debt criterion. As regards the deficit criterion, the advantage may be reflected in the temporary delocalization of expenditure whereas in the area of public debt, the benefit is based on the fact that the State provides fundamental infrastructures and services in the margin of its off-balance sheet (TC 2005-2S).

In 2004, Eurostat established new rules for the off-balance-sheet accounting of government charges with Public-Private Partnerships. To be considered off-balance, the assets involved must be considered private infrastructures, and to be considered so, private sector should assume at least one risk, that of availability or demand, ie the private partner

has to bear the risk of construction and one of the other 2 risks for the assets to be considered as private.

2.6 Dissimilarities between models

Hammami *et al* (2006) declares that is necessary to understand the reasons behind PPP use, the value proposition inherent to this financing model and how PPP can be used as leverage for the development of a country.

In 2013, Hope *et al* (2013) held an experimental research, comparing traditional contract with PPP model. It was then proven that the key feature of a PPP is the fact that the tasks of building and operating the asset are delegated to a single private entity, as opposed to the traditional contract, where the tasks are allocated to several companies. Thus, the incentive of the builder is to withdraw funds invested in order to accomplish the work at the lowest cost, in contrast to traditional contracts, where this incentive does not exist. Hope *et al* concluded that in a PPP, the private partners' attempt to reduce costs is important, but it should not result in the quality detriment, since, if cost reduction will have a negative effect on quality, and such a reduction is undesirable.

Table 1 presents the differences between traditional and PPPs.

Table 1 - Traditional vs PPP models

	Traditional	PPP
<i>Investment</i>	- Responsibility of the government - Contract with a company - Usually State takes the financial skidding risk	- Responsibility of the Private - Agreement is celebrated between the private and other companies - Risk of financial slippage is assumed by the private;
<i>Financing</i>	- State's budget - Community funds	-Private (bank debt/ shareholders capital)
<i>Cost for the State</i>	- Initial cost of investment - Annual maintenance cost	- Annual payments by the contract period after the completion of the construction

<i>Risks</i>	- Public sector	- Public Sector and the Private Sector
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(Source: Adapted from Sarmento, 2013)

The differences between traditional agreement and PPP are rather significant. By using traditional agreement, the State is responsible for everything that is capital-related. Public sector must finance, maintain and take the risks of the project. By involving private partner in the process, it becomes ones' responsibility to invest and finance the project (using State intervention to negotiate interest rates with banks). The overall responsibility of project management is also under the responsibility of private part. Risk are divided between public and private sectors, being private partner responsible for financial skidding risks (what did not happen in Portugal).

Certainly, the use of PPP model presents some controversy and possible problems stemming from it, but according to TC (2012) public-private partnership helps to boost national economy by encouraging construction companies, which increase employment and, consequently, increase infrastructure, which in turn facilitates internal mobility and contributes to the country's development.

2.7 Types of PPPs

Financing of infrastructure projects faces many challenges on account of its complexity, requiring high availability of long-term funds and competitive rates. Due to the long duration of the projects, the return on investment⁶ (ROI) will be slow, requiring for this reason viable arrangements between the parties involved with risk allocation and mitigation established (Satish and Shah, 2009).

The Green Paper of the Commission of the European Communities (2004) classifies the PPP by two types: *Contractual* type - when the relations between the public partner and the private entity are established through a contract, and *Institutional* type - which involves the creation of a new entity called SPV (Special Purpose Vehicle) through cooperation between the public and private sectors.

⁶ Measure of the amount of return on an investment relative to the investment's cost.

According to the Court of Auditors (2008-2), roads 3P in Portugal follows two models: DBOFT⁷ (Contractual type) and Project Finance⁸ (Institutional type).

DBOFT model is the form of financing the project, where the private initiative receives the States license for the design, finance, construction and operation of infrastructures during a certain period of time, after which it is transferred to the public administration. There are, however, other similar models as can be seen in the following table:

Table 2 –Possible types of Contractual model

Acronym	Description
BOM	Build, Own, Maintain
BOO	Build, Own, Operate
BDO	Build, Develop, Operate
DCMF	Design, Construct, Manage, Finance
DBO	Design, Built, Operate
DBFO	Design, Built, Finance, Operate
BBO	Buy, Build, Operate
LDO	Lease, Develop, Operate
BOT	Build, Operate, Transfer
BOOT	Built, Own, Operate, Transfer
BROT	Built, Rent, Operate, Transfer
BTO	Built, Transfer, Operate

(Source: OCDE, 2008)

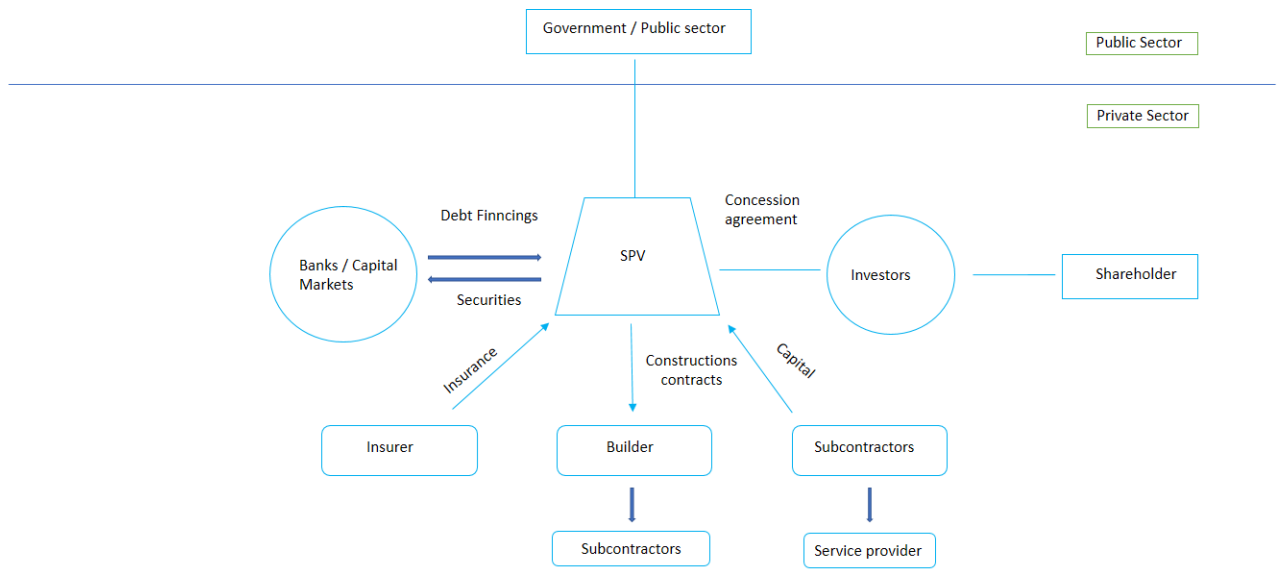
The relationships between the parties in these models are defined by a contract. Depending on the model used, one or more tasks are assigned to the private partner, such as design, financing, realization, renovation or operation of a work or service. The PPPs usual length by following this model is 30 years.

⁷ DBOFT – Design, Build, Operate, Finance, Transfer.

⁸ Project Finance - the financing of long-term infrastructure, that relies primarily on the cash flow for repayment. Cash-flow of the project constitutes the assets of the SPV.

In the *Institutional* model, a new entity is created through cooperation between the public and private sectors. This entity, known as the Special Purpose Vehicle. This works as a pivot for risk transfer, which increases the capacity of bank indebtedness while lowering the cost.

Figure 3 - Institutional model of PPP contract



Source: Adapted from Sarmiento (2013:16)

SPV is a company created for PPP, which duration is equal to the duration of the contract. The long duration of the partnerships allows to ensure the effective transfer of risks in the design and construction of the asset for the private partner and, at the same time increase the likelihood of project profitability, which in essence is the most important for the shareholders.

When using the institutional model, each PPP has an associated SPV. This is built from scratch and gathers specific features that depend on the project. In this model, the State can participate in capital indirectly. SPV assumes the role of an independent legal entity, which negotiates with the State, banks and suppliers of all contracts for the construction,

financing, operation of infrastructure and its service, being the most important the project financing structure (Santos, 2007; Moszoro and Kryzanowska, 2011; Sarmento, 2013).

2.8 Project Finance

Project Finance is a modality of financing, used for the realization of projects of long term and large financial scale. In this type of projects, the main source of revenue comes from the cash flow that is generated by its own operation, and is used to service the debt. This type of financing is well suited for public-private partnerships, where the capital alliance makes public-interest projects attractive to the private investor. In this format, public authorities transfer the risks of construction and operation to the private partner, which generates greater efficiency in its own operation.

Authors Bonomi and Malvessi (2002) clarify that this model of financing requires a set of sponsors (capital investors) as well as financial institutions that offer the loan. Project assets appear as collateral, and funding is protected by all project assets, which also includes revenue.

The modality where the total guarantees offered by the shareholders to the entity that lends the capital, regardless of whether the enterprise generates sufficient resources or not is called *full recourse*. In this case, irrespectively to the situation, the borrower is required to pay the debt. Usually, with a resource loan, no occurrence such as job loss or illness can remove the borrower from the debt obligation. In this situation, if there are no guarantees for the loan, the lender can follow the personal assets of the borrower.

With Project Finance two new modalities emerge: "limited recourse" and "non-recourse". These are characterized by the payment based only on the resources generated by the project, ie, only the cash flows generated by the project (Bonomi and Malvessi, 2002). Therefore, creditors cannot pawn the shareholders' equity in case of default or another undesirable situation. Finnerty (1999) and Bonomie and Malvessi (2002) argue that the most used modality in Project Finance operations is that of "limited recourse". This presents itself as an intermediate structure between Corporate Finance and the theoretical "non-recourse" modality.

Hence, the structure of guarantees for the granting of the loan admits three basic types of variations:

- a) Non-recourse: lenders is only entitled to repayment from the profits of the project and not from other assets of the borrower. The only guarantees given are the cash flows of the project. According to Monteiro and Castro (2000: 110) "*... the lender, in case of failure, has no alternative to recover the amount of financing granted other than through the revenue received from the project.*"
- b) Limited recourse: lenders have limited right to return debts. Debt and equity securities are only partially tied to the return and value of the project. In this case, the project sponsors provide the means that compel them to supplement the cash flow of the investment under certain circumstances.
- c) Full recourse: the project is an enterprise within the company, where all assets, patrimony and revenues of the company are subject to the guarantee. Full resource loan allows the lender claim even borrowers assets that weren't used as a loan collateral. Credit lending is usually done by commercial banks and the main risks lie with the sponsors. The debt of this type should be disclosed in its financial statements.

Since an SPV is created for each PPP, the assets held by the shareholders are protected from project failures, since it is financed mainly by debt, from 70% to 90% according to Sarmento (2013). Thus, banks finance *non-resource* debt projects, where the only guarantee for this financing is the project's future cash-flows. Shareholders are protected from banks because they do not provide any kind of guarantee, since the asset is always legal property of the public sector.

The following table presents the main differences between traditional financing model "Corporate Finance"⁹ and "Project Finance".

Table 3 – Differences between Corporate and Project finance

Dimension	Corporate Finance	Project Finance
Type of capital	Permanent – an indefinite time horizon for equity	Finite – time horizon matches life of project

⁹ The company that builds the project procures capital by demonstrating to lenders that it has sufficient assets on its balance sheets, to use as collateral in the case of default. The lender will be able to foreclose on the sponsor company's assets, sell them, and use the proceeds to recover its investment.

LESSONS LEARNED TO BE TAKEN INTO ACCOUNT

Dividend policy and reinvestment decisions	Corporate management makes decision autonomous from investors and creditors	Fixed dividend policy – immediate payout; no reinvestment allowed
Capital investment decisions	Opaque to creditors	Highly transparent to creditors
Financial structures	Easily duplicated, common forms	Highly-tailored structures which cannot generally be re-used
Transaction costs for financing	Low costs due to competition from providers, routinized mechanisms	Relatively higher costs and longer gestation period
Size of financing	Flexible	Might require critical mass to cover high transaction costs
Basis for credit evaluation	Overall financial health of corporate entity; focus on balance sheet and cashflow	Technical and economic feasibility; focus on project's assets, cash flow and contractual agreement
Cost of capital	Relatively lower	Relatively higher

Source: Self-elaboration

There are some significant differences between two types of financing. In Project Finance, time horizon is finite and restricted by the duration of the project (normally 30-40 years). Also, capital investment decision is very clear and transparent to the creditors, in contrast with opaque and ambiguous in Corporate Finance, since managers all responsibility for investment decisions. The transaction costs are higher for Project Finance, since the processes are not routinized and need to be financing structures differ from between projects.

Project Finance model is used all over the world and has financed projects related to oil, gas, electricity, transport infrastructure, mobility, basic sanitation, among others. In developed countries, Project Finance has been used extensively since the 1980s. This model of financing is suitable for projects with different conditions, for example:

New, where the company's equity would be insufficient to take advantage of a traditional investment opportunity.

Long-term projects, in which the traditional investor would not be interested in because of the lengthy payback.

Infrastructure projects, where public power does not have enough resources to carry it out, especially in developing countries, where the state has a low capacity for financing public works.

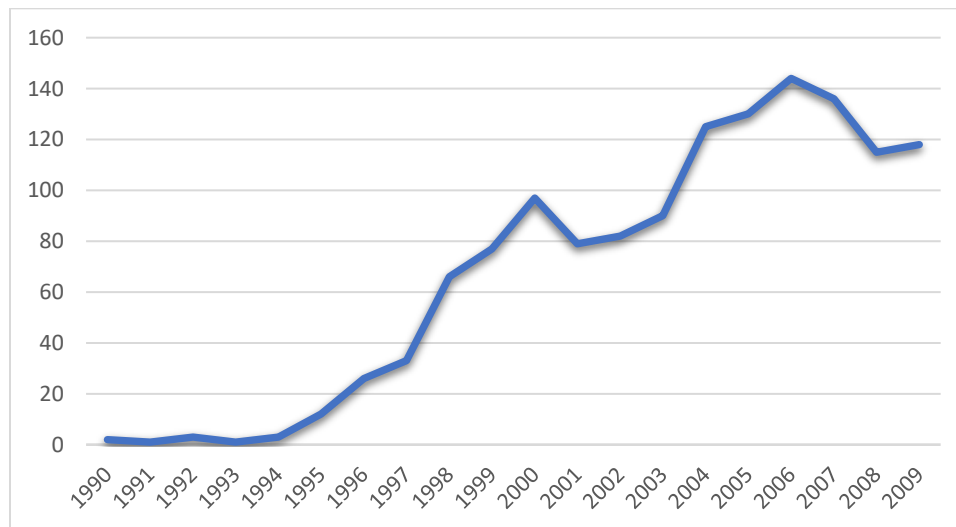
Public-private partnerships, where public authorities transfer the risks construction and operation to the private initiative for greater efficiency.

2.9 International Experience

The first PPPs had their origin in Europe, specifically in France, but fully developed in the United Kingdom with the denomination Project Finance Initiative (PFI) (Takashima *et al.*, 2010). Subsequently, the model expanded to the whole world. In the 1990s, PPPs became a standardized policy instrument in EU countries, starting to appear systematically and replacing the traditional model of public construction, although in the early years the lack of experience and coordination brought some problems.

Figure n°3 depicts the number of contracts signed in EU during 1990 to 2009.

Figure 4 - Number of PPP projects within EU

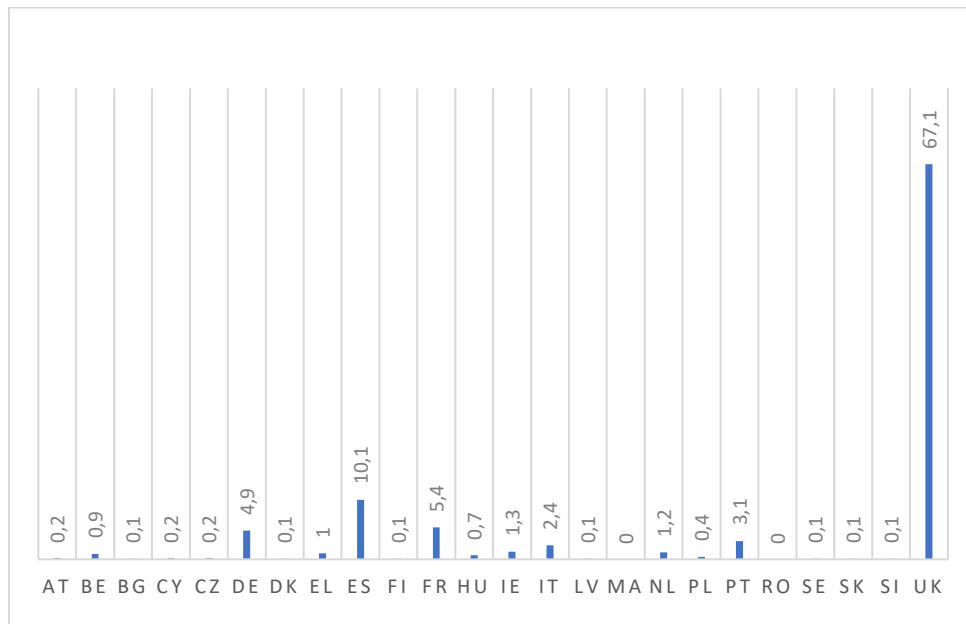


Source: European Investment Banks Economic and Financial (2014)

Since 1997, it is possible to notice an increase in PPP contracts. The reason for such a sharp contractual intensification can be explained by the progression in the management of these contracts.

Between 1990 and 2009 more than 1300 PPP contracts were signed within the EU, with a capital value of 250 billion euros (European Investment Bank). As shown in the previous chart, the record number of PPPs occurred in 2006, representing 144 contracts, followed by an insignificant decrease. Between 1990-1994, the number of PPPs in the EU was insignificant, starting to increase after 1994.

Figure 5 - Percentage of contracts signed by country within EU



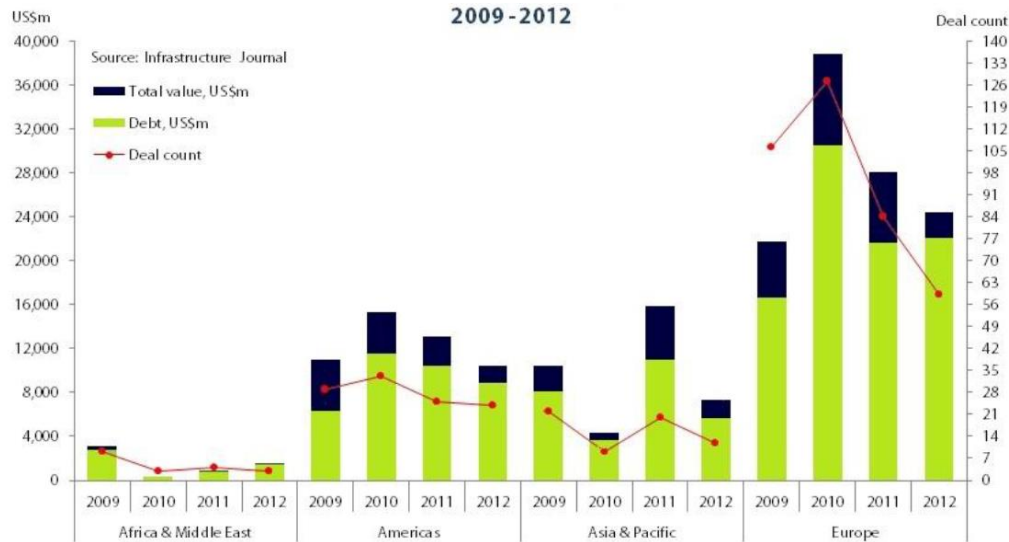
Source: European Investment Banks Economic and Financial (2014)

During the time frame shown in Figure 4, UK presents itself as a country that accounts for almost 2/3 of the total PPP contracts in the EU. Of the total number of projects, Spain is the second country with the highest PPP contracts, followed by France, Germany and Portugal. These 5 countries, plus Italy, account for about 92% of all European PPPs. At the same time, countries like Romania and Malta account for 0% of total contracts.

As a global phenomenon, PPP are found in dozens of countries. In addition to Europe, Public-Private Partnerships were very successful in Anglo-Saxon and other countries such as Canada, Australia, South Korea, Chile and many others (Cheung *et al.*, 2012). In the

following graph, it is possible to verify that in the Americas and Asia a volume of PPP contracts was sizable, although smaller than in the EU.

Figure 6 - Global PPP market volume



Source: PWC (2012:3)

In North America, Canada was one of the countries most influenced by the UK experience. In this country, PPPs began to be used in the 1990s, reaching their peak at the beginning of the 21st century. The model was used to build large infrastructure projects, such as Viva Rapid Transit and Ontario Highway 407, rail infrastructure, health education and courts. Although it is fair to say that the results proved to be contradictory from the point of view of "value for money", with some a large success and others strongly questionable (Kennedy, 2002).

Australia, for its part, also initiated its PPP process in the 1990s, reforming its public sector and developing infrastructures within the country (Cheung et al., 2012). Due to a high level of justice and effective public administration, PPP experience has been positive. In 2009, there were around 50 projects distributed by various sectors (health, education, road, water, etc ...), which totaled 24 billion Euros.

3. Methodology

To present results as close as possible to the reality, the information gathered must be accruable, precise and real. The process defined to achieve final objective of any study is the crucial part because, if that process is not well defined, the entire work and conclusions can be compromised.

For the elaboration of this essay, different sources of information were used. Blaikie (2000) and Bryman (2004) cited by Araújo and Silvestre (2014) classify data used in this dissertation type of data secondary source, that is a document or recording that relates or discusses information originally presented elsewhere, collected by other researchers or public authorities, given that they have already been analyzed by other investigators.

4. Data Analysis

Public-Private Partnerships allows public service to be obtained by the State, through a contract signed with a private partner. In this type of agreement, the parties establish mutual obligations, allocating to each one a variety of risks involved. Private partner is committed to providing the public administration with a certain measurable utility. On the other hand, the State is responsible for a periodic remuneration for the private partner.

Portugal is one of the European countries that most used 3P. In order to execute the national infrastructure program, PPP model was adopted. It was called "new public management". The reason behind the use of PPPs is the same as in other countries: using the private knowledge that is theoretically more beneficial and efficient for a better quality of service at lower costs.

4.1 Positive experience in the use of PPPs in Portugal

After Portugal joined the European Union, there was a huge need to develop its infrastructure. To fulfill national road plan, Portuguese State has used an alternative to

traditional instrument - Public-Private Partnerships. The idea behind this was using a new public management, which consists in a share of risks between the public and private sectors and the possibility of using private knowledge in the provision of public services. Silvestre (2010) defends the idea that the use of private knowledge is theoretically more beneficial for the good use of the money paid by citizens through their taxes.

In theory, the PPPs are more efficient. They allow to develop infrastructure, reducing at the same time its maintenance costs, that is, PPP present higher quality of services. This decrease in costs can be explained by decrease in operating costs practiced by private companies when compared to Public entities.

To be in accordance with the principles of good management practices, Public Administration has the obligation to analyze alternative hypotheses adequately when it comes to large investments and the respective form of financing. Therefore, it should always be analyzed which is the best way to carry out an investment, via PPP or traditional way. Torres and Pina (2001) refer to the several studies carried out by the London School of Economics on the impact of results of British PPPs, and indicate that there has been an improvement in efficiency, effectiveness and quality of public services. It was also concluded that 17% of total investments were saved compared to other possible forms of contracts.

In 2007, the total number of public-private road partnerships in Portugal totaled 2,509 km (Marques e Silva, 2008). The birth of new roads simplified internal mobility between localities. Within the country, companies and populations gained access to alternative highways, which reduced the time and distance between coastal zones and symbolized an end to the isolation that hampered the locational decisions of the companies and, as a result, the development of the region. Typically, the type of infrastructure built for less developed regions was Shadow Tolls¹⁰, because it was cheaper for business from these regions to transport products and commodities. Cities like Viseu and Guarda in recent years have grown and developed significantly due to this situation.

¹⁰ In portuguese SCUT – (Sem cobrança a utilizador). A shadow toll is a contractual payment made by a government per driver using a road to a private company that operates a road. Payments are based, at least in part, on the number of vehicles using a section of road. The shadow tolls or per vehicle fees are paid directly to the company without intervention or direct payment from the users.

In 2011, Navarro-Espigares and Martín-Segura (cited by Araújo and Silvestre (2014)) carried out a study to see if there is a relationship between investments in rural areas and levels of productivity in the United Kingdom. The results show that the impact of increased investment is positive on the growth of productivity rate. In Portugal, the findings present similar characteristics to those found by Navarro-Espigares and Martín-Segura, in particular the increase of productivity in the interior of the country.

4.2 Negative experience in the use of PPPs in Portugal

In Portugal, the use of PPPs has undoubtedly had a positive impact. However, it is possible to point out some problems with this process.

One of the most important aspects of adopting public-private partnership is the sharing of risks between State and concessionaire. The problem is that in Portugal this division was not well achieved (Court of Auditors, 2005). The contracts included clauses relating to the volume of traffic on the roads in order to safeguard private investment and its financial sustainability. In particular, clauses were related to average levels of infrastructure used (Marques e Silva, 2008). These clauses guarantee that, in Shadow Toll concessions, if traffic levels do not reach a minimum level, the government should take the responsibility and pay the traffic difference to the private entity. The setback of this approach is that in the underlying PPP model, the funding granted should be based on the economic performance of the project and not on real guarantees given to third parties. However, in this case, "the monetary flows of the project are paid by the State, thus favoring the principle of taxpayer instead of paying user" (Court of Auditors, 2003). Thus, the balance of risk sharing between the administration and private partner is lost, resulting in its beneficial and privileged position, since it is exposed to a lower level of risk. If the use of infrastructure is higher than expected, the private partner obtains a high return on investment, but if the opposite occurs, there is a guarantee from the government of the repayment. Thus, private entities never have losses and any incentive to manage infrastructures efficiently disappears as well as a belief, albeit theoretical, that private partnerships are more likely to make better use of taxpayers' money (Araújo and Silvestre, 2014).

Only in 2012, with the launch of Decree-Law No. 111, a new framework for PPPs contracts was established. This new publication has as its goal the introduction of a budgetary

behavioral analysis and the carrying out of sensitivity analyzes, with a view to verifying the sustainability of each partnership against demand and macroeconomic changes, as well as a cost-benefit analysis and the identification of a risk-sharing matrix, with a clear identification of the typology of risks each partner (TC, 2012).

The second major problem was the lack of evaluation of the quality of services provided by private partners. The Court of Auditors (2008) states that the remuneration of the surrounding public entities must be linked to the quality of service provided. It is only from 2009 that users' complaints started to be monitored, but also insufficiently. This consisted of a survey on the "Satisfaction of the Portuguese motorway users" between 2008-09, which was already too late to have any influence on the remuneration of private individuals (Court of Auditors, 2012). This contrasts with international experience, where quality of service is included at the beginning of the process and the compensation to the private partner depends on minimum standards of quality.

Another problem that can be pointed out is the lack of competition between private operators and weak bargaining power combined with negligence of public sector negotiators. As a result, tenders launched by the State have failed in two ways. The first is due to the ambiguity of the technical prerequisites in some of the biddings that translated into bad or different understanding by the private part of what is required or should not be done. This resulted in significant differences between bids, which made it difficult to compare proposals submitted and to decide on the best solutions. In turn, the difficulty of comparing bidding proposals opened the door to discretionary decisions and the opportunity for large construction companies and economic groups to influence public decision makers.

The neglect and lack of negotiating experience on the part of the central government also translated into difficulties on proposals renegotiations. What is expected of a renegotiation is a proposal with better conditions for the government. However, the final proposals presented in many cases were worse than the initial ones (Moreno, 2010; Court of Auditors, 2012).

4.3 Road PPPs in Portugal

In 2011, there were 22 public-private road partnerships in Portugal, as shown in Table 4. The investment made accounts for 12,329 million Euros, and the duration varies between

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27 and 36 years, being the most common 30 years. Of these 22, 15 are Real Tolls and 7 Shadow Tolls.

Table 4 – Existing road PPPs in Portugal (2011)

Toll Type	Localization	SPV	Beginning	Duration (Years)	Investment (Millions of Euros)
Real	Lusoponte	Lusoponte, SA	1995	30	1.331
	Norte	Aenor, SA	1999	36	1.217
	Oeste	AE Atlantico, SA	1999	30	628
	Brisa	Brisa	2000	35	2.781
	Litoral centro	Brisal, SA	2004	30	648
	Grande Lisboa	AE Grande Lisboa, SA	2007	30	196
	Douro Litoral	AEDL, SA	2007	27	845
	AE Transmontana	AE XXI, SA	2008	30	568
	Douro Interior	Aenor Douro, SA	2008	30	680
	Túnel do Marão	AE Marão, SA	2008	30	369
	Baixo Alentejo	SPER, SA	2009	30	408
	Baixo Tejo	AEBT, SA	2009	30	288
	Litoral Oeste	AELO, SA	2009	30	474
	Algarve Litoral	Rotas Algarve Lit. SA	2009	30	176
	Pinhal Interior	API, SA	2010	30	1.010
Shadow	Beira Interior	SCUTVIAS, SA	1999	30	870
	Algarve	EuroScut, SA	2000	30	370
	Interior Norte	NortScut, SA	2000	30	678
	Costa da Prata	ACP, SA	2000	30	431
	Norte Litoral	EuroScut Norte, SA	2001	30	410
	Beiras Litoral e Alta	ABLA, SA	2001	30	925
	Grande Porto	AGP, SA	2001	30	613

Source: Adapted from DGTF (2010:23)

From 22 concessions, 15 are Shadow Tolls (SCUT). This type of concession means no cost for user, following the principle of taxpayer. It is a model of highway implemented in Portugal, where the responsibility for the construction, operation and maintenance of a

motorway or highway is granted to a private company. In exchange, the company receives from the grantor, usually Portuguese Government, a variable rent depending on the number of vehicles that used the highway and the number of days in which it is operational. Thus, the revenues of the concessionaire are dependent on the number of vehicles on the road.

Concessions under Real Toll Regime are the concessions that have underlying P3 model that is based on the principle of the paying user. The payment is calculated on the basis of kilometers traveled on the motorway. The logic behind this model is the self-sustainability of the project.

Table 5 - Real vs Shadow Toll concessions

	Real Tolls	Shadow Tolls
Features	- Road users pay for use of asset	- No actual tolls are collected from public - Concessionaire is paid by authority on road use
Advantages	- Zero cost to the Government - Government has fiscal space to fund other projects	- Prepare way for real-tolled roads in due course by cultivating an industry used to taking traffic risk - Multiple sources of funding can be drawn on by government - Mechanism of traffic risk transfer should reduce complexity of project and reduce level of due diligence required
Disadvantages	- High capital construction costs mean that projects traffic volumes often considered an insufficient revenue stream to meet debt service and equity return for sponsors - Often some form of subsidy/ very long concession period	- No revenue generation device – total cost of project falls on public purse - If traffic volumes are significantly in excess of forecasts, government may find itself paying more “toll” than it budgeted for (Portuguese case).

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	- Reluctance by investors to become involved – costs will be higher to reflect higher risks - Potential consumer resistance to paying for road use and how to mitigate this	
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Source: Adapted from World Bank Group

As it is possible to see from the table, each model presents its advantages and disadvantages. If government opts for Real Toll model, the cost will be very low and money spared could be used to find another project. On the other hand, the project can provide insufficient cash-flow, what is very probable due to its the long duration, what will lead to government intervention. Another drawback that should be considered is consumer resistance risk. Since this type of projects normally require high investment, the risks are high, what leads to higher cost of capital and posterior higher cost of usage by final costumer. Thus, if cost for using the highway is high, costumers probably will opt to avoid using it.

By opting for Shadow Toll model, costumers do not pay directly, but indirectly with taxes. Usually, this model provides banding mechanism, which applies different shadow toll payments to different levels of traffic. It is common to have 3 bands:

- **Base Case:** designed to service senior debt but not to provide return on equity.
- **Higher bands:** provide a return on equity.
- **Top band:** usually has a toll rate of zero to cap amount payable to concessionaire.

The advantages of using Shadow Tall are reduced complexity of the project and funding, if compared to Real Toll. But this model is no revenue generation, in other words it totally public oriented and can only generate indirect income for economy by developing the region and facilitating the access to business.

4.4 Main charges for the government

Portuguese experiences with PPPs were both positive and negative. In many cases, contracts between the government and private partners have been renegotiated and amended.

This led to additional costs for the central government. Generally, government charges with public-private partnerships involved:

- Incentive award
- Expropriation costs
- Payment of "services" - in the PPP contract
- Allocation of subsidies / contributions on investment
- Expenses with the extension of roads
- Expenses with the Reposition of Financial Equilibrium of the contracts

In the following table is resented the distribution of Portuguese State charges with the Shadow Toll concessions (with reference to May 2005):

Table 6 - Distribution of charges with Shadow Toll cosesions

Charges	Amount (millions of Euros)
Contractual payments	15766,56
Subsidies / Contributions	0
Expropriations	365,3
Financial rebalancing	
In negotiation	791,56
Agreed	0
In arbitration	100,48
Desicion of the Court	2,82
Total	17026,72

Source: Adapted from TC 2005-2s

As can be seen from the table above, the largest portion of expenditure is contractual payments, which in the Shadow Toll concessions reach 15.767 million Euros. In the second place expropriation are located (round 365 million Euros). The contractual and expropriation fees represent a sum of more than EUR 16 billion for 2005. However, if we take into consideration the government costs arising from financial rebalancing processes, the amount in question may exceed EUR 894 million, or about three times the estimated costs of the expropriations. Adding here the Financial Rebalancing (FR) from the toll concessions (€ 647 million), it is possible to state that States expenditure with financial rebalances represents

very significant amounts. Important to emphasize that many of the negotiations on financial rebalancing were under negotiation, which posterior increased the figures presented above.

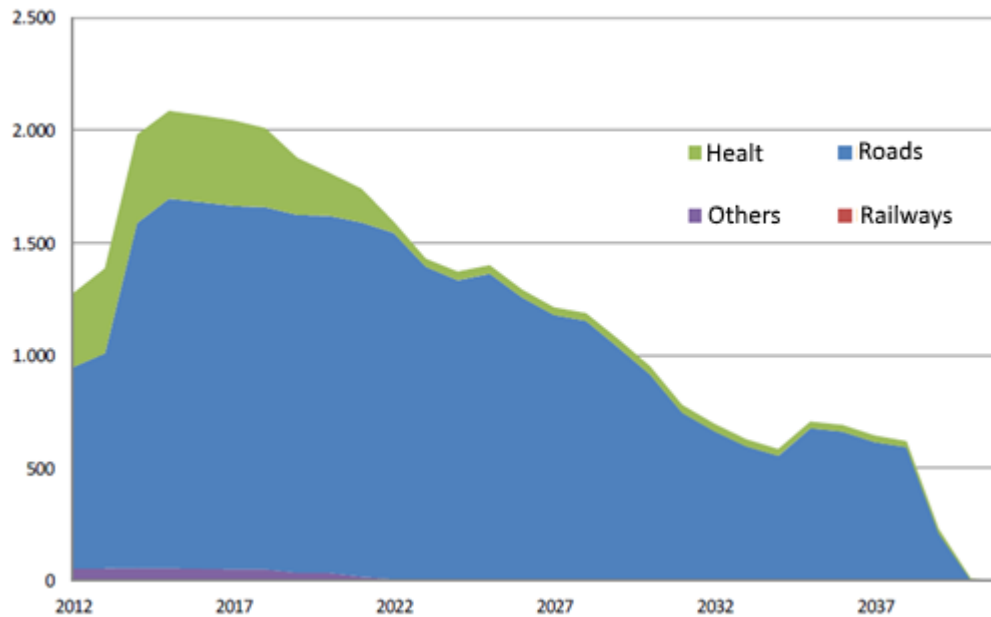
According to the Court of Auditors (2008), Portugal is the country with the highest percentage of Public Private Partnerships in relation to its Gross Domestic Product compared to other countries of the European Union. *"The commitments assumed will increase the pressure on the public accounts in the medium term, since the estimated gross charges are estimated at around 1% of GDP for the coming years"* (Overall Direction of Finance and Treasury (DGFT), 2012). Up to 2012, the net present value¹¹ of the future gross charges assumed by the government in the contracts established is estimated at 24,407 billion euros, representing about 14.6% of GDP forecast for the same year (ongoing renegotiations are not considered). If consider the value of expected revenues, the present value of net charges is 13.353 million euros, which represents approximately 8.0% of GDP for 2012.

Looking at the following chart, it is possible to see a strong growth of charges for government from year 2012 to 2014. It is also noticeable that, up to 2040, but especially between 2015 and 2018, the value of contratualized gross charges is very significant, exceeding 2 billion of EUR / year.

¹¹ Net present value considers the charges and revenues until the end of each concession. It should be noted that, after the contracts expire, the routes continue to generate revenue for the government and the charges are lower than the revenues (since the investments will be amortized, leaving only maintenance of the roads).

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Figure 7 - Estimation of gross charges with current PPPs (2012)



Source: DGFT (2012)

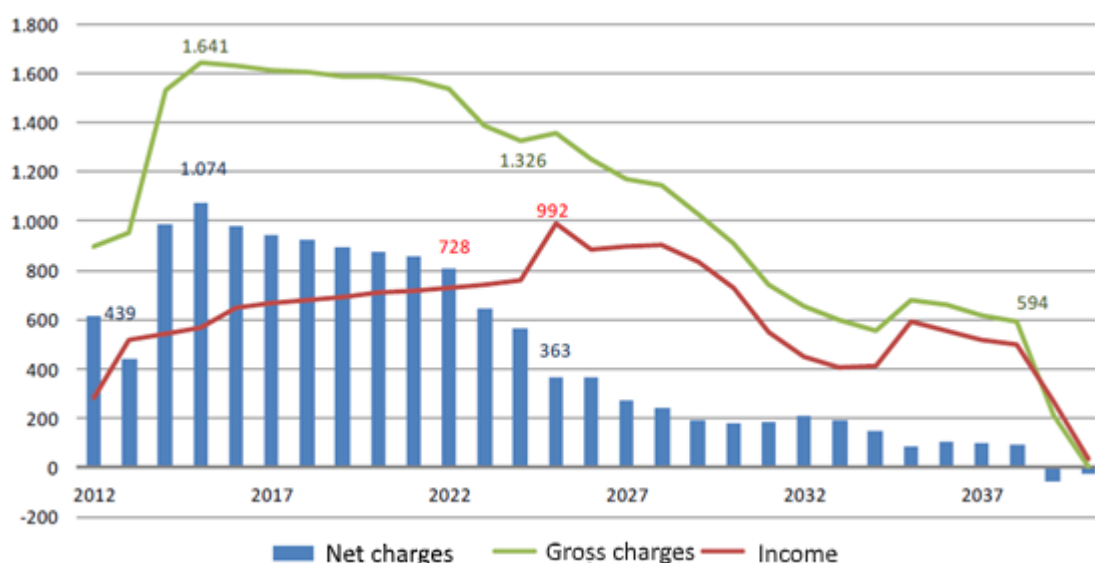
In the majority of cases, the rise of the charges for government happened due to insufficient study and preparation of PPPs by the State itself. In all concessions, a lack of demand and rigor was verified, which subsequently led to changes to the initial projects, together with requests for rebalancing by the concessionaires throughout the PPPs' life cycle.

Figure 7 represents the estimates of the future financial flows of road concessions in Portugal. By analyzing the graph, it is possible to verify a strong impact of the PPPs on the public accounts from 2013, that can be explained by the beginning of service payments to the sub concessionaires. The peak of the relative income occurs in year 2024, continuing for another 3 years at a high level, after which there is a sharp decrease, accompanied by the decrease in gross charges.

The trend in net charges is reversed from 2030. This can be justified by the reversal of concessions to the government, namely West, North, Lusoponte, Brisas, when net positive charges for the government are expected (EP, 2012). In the next decade, the average forecast of charges is 1,184 million Euros per year. In turn, the average forecast of revenues is only 417 million Euros, corresponding to a coverage rate of only 35% (EP, 2012).

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Figure 8 - Evolution of future financial flows



Source: DGFT (2012:27)

The table below shows the calculation of the present value considering the operating period of the concessions until 2045, that is, including a period of financial flows generated after the terms of the various contracts currently in force. In this case, there is a substantial reduction of the updated value of net charges, to 758 Million Euros. It is now an increase of 9,075 million euros of net income updated on the direct exploitation of road concessions, which result from the flows generated after the end of each contract, between the period from 2012 until 2045.

Table 7 - Present Value of Future Flows to the Road Sector

	Present Value of Charges for government	Present Value of revenue for government	Net present value of charges
Road concessions (in millions of euros)	22.905 EUR	22.146 EUR	748 EUR

DGFT (2012:27)

4.5 Factors that generate REF processes

The main problems faced by Portugal with road concessions were the financial rebalancing, which resulted in additional and unforeseen expenses for the governments, that undermined the control and supervision of weakened concessions.

The risks that the State assumes with the PPP contracts usually result from the contractual clauses of restoration of the financial balance provided in the contract. These clauses specify the events eligible for government compensation. In the type of contract based on the Project Finance, the amounts that the concessionaires claim include a set of costs that go well beyond the actual overhead directly related to the work in question. In the following table, it is possible to observe the FR complaint structure of a Shadow Toll concessionaire:

Table 8 - Financial Rebalancing Structure

Headline	Amount (In millions of euros)
Costs of CEA ¹²	56,70
Loss of revenue	2,10
Insurance	0,10
Consultants	0,50
Structural costs	0,10
TOTAL	59,50

Source: TC (2005: 25)

As can be seen in the above table, the concessionaires in addition to claiming extra costs and loss of revenue, also claim structural costs, consultants' costs, guarantees, insurance and other charges, which substantially burden the Government. This situation has been aggravated by the lack of technical expertise of contracting public entities. At the time, PPP contracts had not regulation about indirect charges related to concessions, such as structure costs, opportunity costs, among others.

¹² Cost-effectiveness analysis.

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The following table summarizes the main financial rebalancing events for each of the PPP in 2007:

Table 9 - Financial skidding generating events

CONCESION	Generating effects
<i>Norte</i>	Unilateral modifications; approval of routes that are outside the corridors of the respective proposal; delivery of land for work outside contractual deadlines
<i>OESTE</i>	Unilateral modifications; delays in land availability; weather conditions
<i>SCUT Beira Interior</i>	Construction approved outside the corridor of the respective proposal
<i>SCUT Costa da Prata</i>	Unilateral modifications; Delays in studies of environmental impact; delays in land delivery
<i>SCUT Algarve</i>	Delays in land delivery
<i>SCUT Interior Norte</i>	Delays in studies of environmental impact; Approval out of the planned corridor
<i>SCUT Beira Litoral e Alta</i>	Delays in studies and project approval by grantor; placement of motorcyclist protection devices not foreseen at the tender stage.
<i>SCUT Norte Litoral</i>	Delays in studies and approval of environmental impact; Approval out of the planned corridor
<i>SCUT Grande Porto</i>	Unilateral modifications; delays in studies and project approval
<i>Lusoponte</i>	Unilateral changes introduced to tariffs and trade policies
<i>Fertagus</i>	Concessions' traffic below minimum limit of the lower traffic band (in the contract, the risk of traffic was assumed by government)

Source: Adapted from TC (2007)

From the previous table, it is possible to see that the main reasons to financial rebalancing requests are:

-Expropriations

The expropriations were one of the factors that caused huge negative consequences to the program of road concessions. The associated compensation claims amounted to many

millions of Euros. This error primarily originated due to the common conviction that it is the government's responsibility promoting the expropriation processes. For reasons of contractual balance, the deadline for the provision of expropriated parcels had to be set contractually. This is where problems began to emerge. It was then realized that the government did not have the capacity to manage so many processes at the same time, taking into account the pressure of the term. However, eight concessions were granted in these terms. Subsequently, in concessions granted on an inverse basis (private is responsible for expropriation), private entities showed a superior capacity to hold this responsibility, demonstrating greater flexibility in planning which allowed to accommodate eventual delays in expropriations.

-Unilateral modifications

The introduction of unilateral modifications to the contracts by the government was another reason that caused the most complaints from the concessionaires. Typically, unilateral modifications consisted of instructions for constructing supplementary connection nodes (not foreseen in the initial design), in modifications to already approved designs or alterations in the legislation that affected the concession, causing extra costs and revenue losses. These changes occurred so often that became almost habitual.

-Environmental impact licenses

Another reason for Financial Rebalancing was late submission of licenses about the impact that construction causes on the environment. In many cases, such licenses and studies were presented after the concessions were granted, and in some cases the construction was permitted in territories other than agreed previously. Although this risk was, in many cases detected and alerted from the outset, the respective entities have opted to move ahead and the tenders were launched without environmental approvals. The results are expected, being its magnitude the only surprised.

-Compensations for traffic deficits

These compensations refer to the clauses included in contracts for virtual toll concessions, related to the volume of traffic on the road. These clauses were intended to

protect private investment. Accordingly, the government was obliged to compensate the private partner if traffic levels do not reach a minimum level.

Other common reasons that lead to financial rebalances:

- Requirements of local authorities and local populations that led to changes in the initial project

- Delays in the land availability

-Geographical location of the ties to be built

4.6 Strongest REF generation Factors

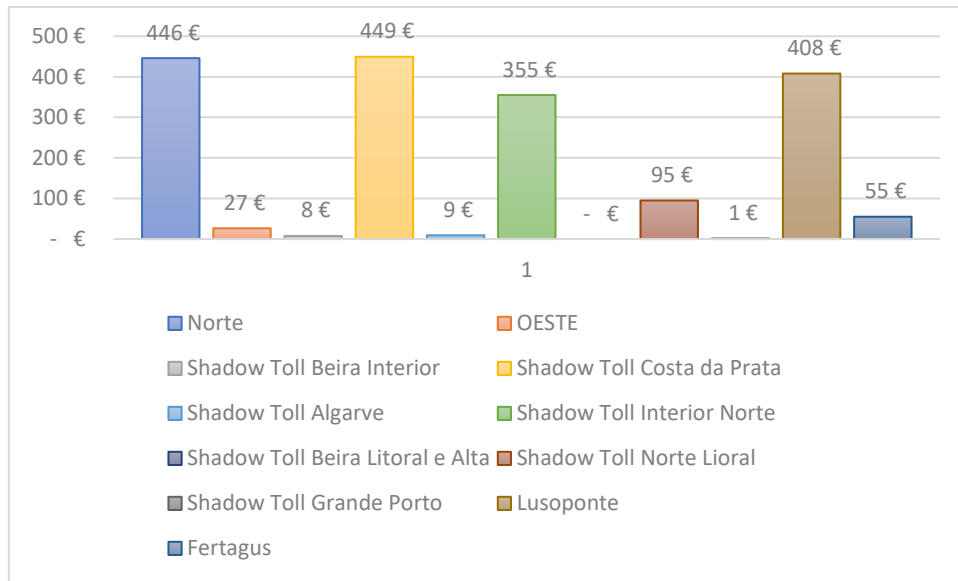
Events that presented most significant financial impact to the government are related to the processes of expropriations and unilateral modifications introduced by the grantor to the initial project (changes in tariffs or routes, additional works, etc.)

Expropriation processes are complex, especially when it comes to urban areas. In situations where expropriation requires eviction, it is almost certain that there will be a dragging of processes, with significant additional costs for the government. Expropriation processes were in many cases aggravated by the reduced term, usually 6 months plus 60 days, contractually imposed. In order to mitigate this risk, in the PPP projects launched recently, the expropriation duty was transferred to the private partner (Shadow Toll Norte Litoral concession for example).

What regards unilateral modifications, they must be studied in advance so that it can be possible to act on each of them in a timely manner. "Environmental risk", which has had significant financial repercussions, is normally integrated within the "unilateral modification" risk class. The situation regarding environmental risks is exacerbated when there is a possibility of "environmental non-compliance" with the project execution (when company or project does not fulfill requirements imposed by the Environmental Management System). In this case, the project can undergo significant changes, which in turn implies valuable financial rebalancing.

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Figure 9- Requests for Financial Rebalancing



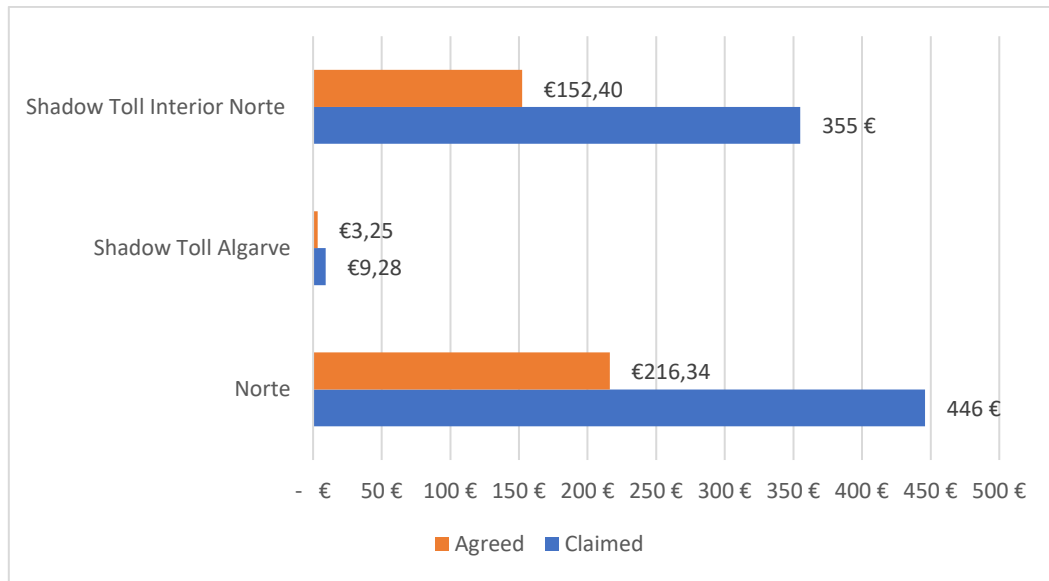
Source: Adapted from TC 2007

Graph above shows the amounts claimed by private partners in 2007. The concessions with the highest Financial Rebalancing values were North, SCUT Costa da Prata and Lusoponte. Only these 3 concessions are responsible for the 70.3% of the total of the Financial Rebalances Claimed. Almost all amounts have changed, as the government paid less than it was claimed. The value of the Beira Litoral and Alta concession is to be determined.

The following graph shows amounts claimed by the concessionaires and recognized by the State. As can be seen, of the € 355 million claimed by the Shadow Toll Interior Norte concessionaire, less than half of this was paid, € 152.40 million. The same happens with the other 2 concessions.

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Figure 10 - Claimed / Agreed amounts



Source: Adapted from TC 2007

In general, reasons of FR indicate that there is a lack of care in the preparation and study of PPPs, as well as an inadequate management of these contracts. In some cases, the baseline studies patented in the competition were still at an early stage, in others - at an advanced stage, which points to the weak sharing of information within the responsible body, which resulted in insufficient definition of technical requirements and led to major differences in the technical quality of the proposals. As a consequence, final proposals differed substantially from the ones presented in the inception.

Clear example of this phenomenon is the “a-priori” definition of the connection nodes to be assured on the motorways, and then, in the negotiation phase, the competitors are asked to consider them. This lack of knowledge constituted a fragility of the government, both at the tender stage and at the stage of the contract execution.

In the inception, PPP programs were very ambitious, both technically and by volume. This ambition contrasted with the precariousness of the resources involved in its coordination, conduct and management on the government side. As a result, as the number of concessions in contest increased, a near-stagnation of the human resources allocated to its control was verified. Consequently, the quality of the response provided by these services

began to deteriorate. An inability to adapt leading structures to the services and responsibilities that prevail over them in a convenient and effective way compose another drawback in Portuguese PPP. The most flagrant results of these shortcomings are reflected in the dilation of the deadlines in the contracting of new concessions, the absence of a minimum control in operation of the motorways, the notorious negotiating fragility in the processes of restoration of the financial balance of the concessions and the fallibility of the control of traffic levels. This last point is of great importance, since it constitutes the basis of government payments to the Shadow Toll concessions.

5. Future Model

Accordingly to DGFT, the total net value of the charges contributed by all PPPs was above 30% of the forecasts for 2011. The justification for such a deviation are the financial rebalancing, which, in most cases were provoked by following factors:

- Changes to contracts
- Delays in expropriations
- Environmental taxes
- Layout changes
- State financing of toll collection equipment

Rui Cunha Marques and Duarte Silva (2008), published in the Journal of Polytechnic Studies, present similar results. The authors emphasize that the problems of road concessions had three types of consequences:

- Financial rebalances
- Inaccurate / loose agreements
- Weak control and supervision of the concessions

The causes that led to these results are similar to the results presented by TC and DGFT, which are:

- Timely failure of environmental assessment
- Political Failures
- Expropriations
- Weak technical preparation
- Learning process not fully applied
- Insufficiencies in the organization of government services

Environmental assessment is a very time-consuming process and has to be done sequentially. In many cases, government does not take into consideration the time it takes for studies to be done properly. Often, the tracks to be built were approved without obtaining the EA. PPPs such as Consessão Norte (Real Toll), Norte Interior and the Northern Coast (Shadow Toll) experienced this problem.

Another important factor that caused FR was the unilateral modifications to the contracts, for political reasons. These modifications consisted of construction of additional connection nodes not foreseen in the agreement and the modifications imposed to routes that have already been approved environmentally.

The error of expropriation occurred due to the government inability to manage several processes simultaneously. In concessions, where private became responsible for the expropriations, the results were much more convinced. The organizational insufficiency of the government became clear by the fact of absence of human resources to carry out the control during different phases of the concession. As a result, the quality and speed of the response provided by the services were not of the best quality.

Poor contests' technical preparation also had a negative impact on the final result. Due to the weak information sharing within the responsible bodies, technical requirements were defined without great rigor, leading to wide divergence in the technical quality of the proposals. As a result, final proposals were often substantially different compared to the proposals in the beginning.

5.1 Summary of FR generators

Based on the information presented above, it is possible to conclude that the problems faced by Portugal in the area of PPPs can be summarized in the following table:

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Table 10 - Financial Skidding originators summary

- Unilateral modification
-Expropriations
-Timely failure of environmental assessment
-Delays in land availability
-Geographic location
-Protests from local authorities and populations
- Lack of risk transfer to private party
- Learning process not fully used
- Failure in organization of government services
- Poor technical preparation of tenders
- Lack of negotiation capacity of the public sector
- Insufficient studies about quality of services provided

Source: Adapted from TC (2005-2s; 2007-2s; 2008-2s; 2015-2s)

5.2 Recommendations

Taking into account Portugal's struggle with PPPs, the Court of Auditors in 2015 formulated recommendations to the Government. The following table presents the main recommendations communicated:

Table 11 - TC Recommendations

1)	- Collection, analysis and publication of relevant cases - lessons learned
2	- Publication of guidelines for planning, implementation and control phases
3	- Implementation of the public ventures observatory (for registration, monitoring and statistics of the projects)
4	- Previous studies: cost/benefit, cost / useful life; forecast of the utilization rate, cost of maintenance, region development which will be covered by project layout
5	-Revisão dos projetos por uma equipa independente antes do lançamento do concurso
6	-Obtaining the necessary licenses before the public tender

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7	-Forecast of overall costs and deadlines from candidates
8	- Creation of contractual clauses, penalizing both contracting parties to safeguard public interest efficient management of public money
9	- Appointment and legal definition of a Manager by Enterprise, with specific functions
10	- Project evaluation after its conclusion

Source: TC 2015-2s

At the same time, the recommendations presented authors that made significant work on Public-private partnerships (Rui Cunha Marques and Duarte Silva) are following:

Table 12 - Authors Recommendations

1	Contracts that make it difficult for the government to introduce unilateral changes on ongoing project
2	Increase cooperation between stakeholders
3	The governments should delegate management, but not responsibility (it must ensure supervision and control
4	Increase of knowledge of public workers
5	Physical planning should remain on the government side

Source: Revista de Estudos Politécnicos (2008)

By combining table of factors that negatively influenced Portuguese PPPs with the recommendations of the TC and authors, it is determined that theoretically, if all recommendations are considered in the future, PPPs can be executed without significant Financial Skidding and with low terms variation.

Following table depicts factors that originated Financial Slippages and combines it with recommendations from TC and authors of the field of PPP. Each of recommendations covers one or more Financial Slippages originator. Combined together, recommendations remove factors that created Financial Slippages in Public-Private Partnership in Portugal.

LESSONS LEARNED TO BE TAKEN INTO ACCOUNT

Table 13 - Combining Factors

Generators Recommendations	Unilateral modifica- tions	Expro- Priation s	Environmental assessment	Delays in land availability	Location of construction	Local protests	Risk transfer	Weak organization	Weak tender preparation	Weak negotiating capacity	Studies about quality
Lessons learned			✓					✓	✓	✓	✓
Orientation lines and legislation		✓	✓	✓			✓	✓	✓	✓	
Public-Private Partnerships Observatory											✓
Preliminary studies	✓				✓						
Review by an independent team					✓						
Obtain the licenses before competition		✓	✓	✓		✓					
Forecast of costs/deadlines by candidates										✓	
Contr. caluses	✓						✓				
Project manager					✓	✓					✓
Project evaluation after its completion											✓
Delegate management, not responsability							✓				
Increase Stakeholder cooperation						✓		✓	✓	✓	
Human capital increase	✓						✓		✓	✓	

Table 13 shows the causes that negatively influenced Public-Private Partnerships in Portugal. From the information outlined above, it is possible to infer the steps to the success of PPPs.

Thus, the first step before engaging in a contract with the private sector must be the analysis of "lessons learned"¹³, which increases the likelihood of success of the project, as mistakes made in the past can be avoided at present. Following an analysis of past experiences, follows the publication of specific legislation based on the lessons learned, as well as the publication of good practice guidelines by the government, which will be useful during the management of the projects. These initial steps can reduce or eliminate a large number of barriers to good cooperation, such as poor tender preparation. At the same time, TC recommends the creation of a specific observatory of public projects for the creation of a database, statistics and monitoring of developments throughout its useful life.

Another important duty of the responsible bodies is preliminary study of the investment to be made (cost-benefit analysis, overall cost relative to its life cycle, impact on the region, and operating/maintenance costs). Study so comprehensive and profound shows the benefits of the project, the direct and indirect development of the region, the quantification in of time-variable in case of any delays in the work. This step reduces the risk of unilateral modifications by the government, since it estimates the value of the work before the beginning of the project, reducing the surprise factor for the public partner in the future.

One of the factors that generated highest financial rebalancing amounts was the absence of different types of licenses after the contract signing, which caused significant delays and additional expenses for the government. Therefore, it is suggested to obtain all necessary licenses (such as permits on environmental impact and specific licenses from local authorities) as soon as possible, so that the private partner can begin project executing without any delays.

¹³ A lesson learned is knowledge or understanding gained by experience, that may be positive, as in a successful test or mission, or negative, as in a mishap or failure...A lesson must be significant in that it has a real or assumed impact on operations; valid in that is factually and technically correct; and applicable in that it identifies a specific design, process, or decision that reduces or eliminates the potential for failures and mishaps, or reinforces a positive result” (Definition used by National Aeronautics and Space Administration, European Space Agency and Japan Aerospace Exploration Agency).

In a negotiation phase with the private partner, the one must present the forecasts of the costs and deadlines for the project to be compared with the forecasts made by the public partner. Such comparison introduces rigor and credibility in the estimates. The TC also recommends that the evaluation of proposals should have greater focus on price, more specifically that the term variable should be translated into monetary units. Thus, if project execution is delayed, it is possible to estimate costs and make correct and appropriate decisions. With this information available, the decision can be made on the most economically advantageous basis.

It is important to emphasize that planning of the network, according to Court of Auditors should remain on the governments' part, being the public partner responsible for execution and management only. That is, it is important to delegate management, but not responsibility. This step eliminates the risk that the project submitted by the private partner will differ from the project envisaged by the government.

In order to transfer sufficient amount of risk to the private agent, it is recommended special attention to contracts' accuracy and reinforcement with the clauses, to safeguard public interest and an assure efficient management of public money. These clauses should be penalizing both contracting parties if necessary, which reduces the risk of mismanagement or unilateral changes.

In 2008, the "Bastonário da Ordem dos Engenheiros" stated that one of the main causes that increases percentages of additional work of correcting errors and omissions of the projects is *"technical incapacity of contracting entities to contract and follow the elaboration of projects, due to technical devaluation of public administration functionaries"*. Taking into account this information, it is recommended by the Court of Auditors to appoint one Manager for each partnership. The function of such a figure will be the monitoring of the work since its inception (preparation of studies on the land) until its entry into operation. It should also be responsible for drawing up the final report, which can be used for the development of lessons-learned, to enrich the data and evaluate quality of the service provided after the conclusion of the contract. After the projects conclusion, it is necessary to make its general evaluation to perceive critical points, situations to improve and to maintain.

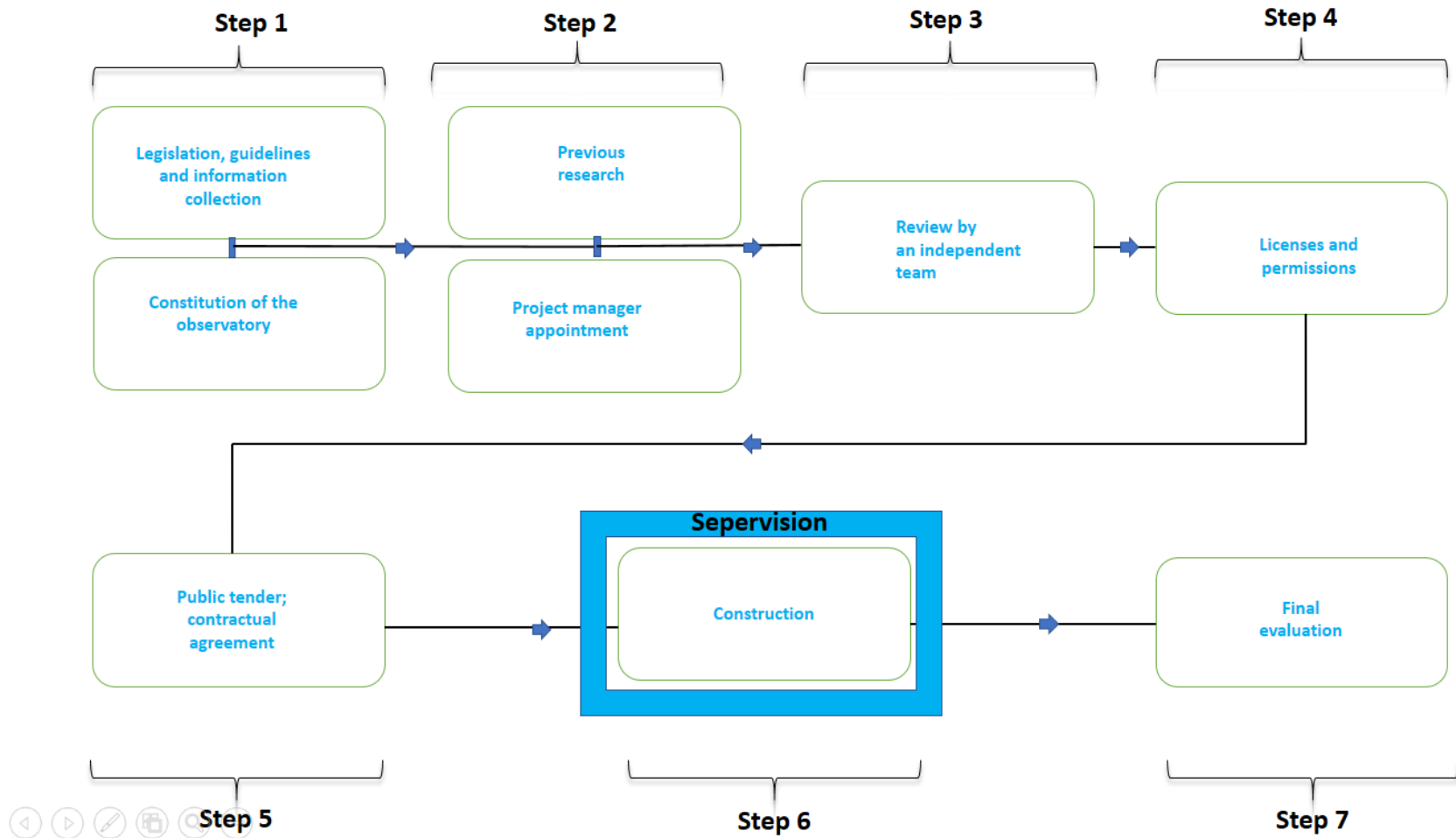
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During the execution of the project, it is important to increase the cooperation between stakeholders, in order to provide best information circulation and reduce duration of the decision making. At the same time, it will increase the knowledge of the public agents involved in the process, providing asset in the form of human capital for future projects.

Taking into account the above information, it is possible to design a plan of steps (future model) to take to constitute a Public-Private Partnership that provides a high-quality service and translates into cost reduction for the government (compared to the traditional model).

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Figure 11 - Future Model



Source: Self elaboration

Conclusion

This paper presents some reflections on the model of Public-Private Partnerships. It analyzed a sector of infrastructure, in particular road segment.

During last 30 years, PPPs have become a worldwide trend. It can be explained by numerous factors, such as often financial crises that lead to budget shrinking and finance restrictions, theoretical superior efficiency and overall economy development.

Portuguese experience in many cases violates the idea and theoretical assumptions that PPP model are more beneficial for a country than traditional model. which is due in part to failure. National experience shows that Portuguese government abused the exploitation of this model, that led to frequent failures and significant additional charges for the State. In the beginning of PPP “era” in Portugal, there was no sufficient experience of public administration in this area. As a result, first 3P contracts were launched without specific legislation and various violations for this type of contracts. As a result, border that separates PPP and traditional type of contracting became very ambiguous.

Currently, Ukraine is in a situation similar to one that marked PPP expansion in Portugal. Ukraine decreased Russian influence that continued since its independence, gained political stability and tightened relationship with EU, expecting join the community in foreseeable future. During next years, high internal and external investment is expected in Ukrainian infrastructure, especially in roads.

Ukraine already have certain experience in PPP contracts. These were used since 1990, but in insignificant amounts. Thus, in order to improve Ukrainian experience with PPPs, country should consider recommendation presented in this dissertation, as they are based in lessons learned of Portugal and other countries who have been through this experience.

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