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PPP Transaction Structuring in Ukraine

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Abstract

Ukraine has seen a boom of attention to the topic of public-private partnerships in recent years, as it seems to have capacity to kill two birds with the one stone by engaging private sector technology, expertise and funding to rehabilitate the exhausted Ukrainian infrastructure and relief the government from the oversaturation of state-owned enterprises.

However even small mistakes in the PPP preparation together with lack of public sector experience of conducting such projects can lead to a failure.

This purpose of this study is to identify how the PPP project identification can be improved with use of data-based evidence and what are other possible solutions to increase the success rate of PPP project. The study focuses on the PPP project initiation stage and financial structuring and uses a stakeholder theory framework to

My contribution lies in developing a two-step framework that consisted of a calculation model that uses real data from financial and management reporting together with a mind map of financial structuring options. This allowed me to test a diverse portfolio of 15 state-owned enterprises and assets and identify financial structuring option to form a shortlist of potential PPPs to provide recommendations for the public sector.

Together with that, I was able to identify the value for the stakeholder interaction from the additional learning and improved mutual understanding, underlining its key role in success of PPP project.

Keywords: Public-private partnership, PPP, project identification, initiation stage, financial structuring, framework, stakeholder interaction, risk allocation, Ukraine.

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List of acronyms and abbreviations

Acronym/Abbreviation	Full name
ADB	Asian Development Bank
EIB	European Investment Bank
EBRD	European Bank for Reconstruction and Development
EU	European Union
ENPV	Economic net present value
IADB	Inter-American Development Bank
IBRD	International Bank for Reconstruction and Development
IFI	International Financial Institutions
IFC	International Financial Corporation
NPM	New Public Management
NPV	Net present value
OECD	The Organization for Economic Co-operation and Development
PPP	Public-private partnership
PPIAF	Public-Private Infrastructure Advisory Facility
SoE	State-owned enterprise
UNESCAP	United Nations' Economic and Social Commission for Asia and Pacific
VFM	Value-for-Money analysis
WB	World Bank Group

1. INTRODUCTION

The rise of importance of hybrid organizations (Buccino & Mele, 2019) theory in scientific literature (Alexius & Furusten, 2017) and popularization of public-private partnerships (PPPs) as one of its forms took place in 1980s due to the challenges in public governance and the wave of New Public Management (NPM), which introduced a new approach of managing public organization, making them more business-like.

A Public-private partnership (PPP) is a long-term contract between a private party and a government agency for providing a public asset or service, in which the private party bears significant risk and management responsibility (World Bank Group, 2022). PPP world practice has seen success since 1980s and is used in a lot of countries and industries today (KS, Chowdhury, Sharma, & Platz, 2016).

PPP has been utilized widely for the development of infrastructure projects around the world due to its effectiveness in delivering value-for-money (VFM) (Chan, Lam, Chan, Cheung, & Ke, 2010), which is defined as “the optimum combination of whole life costs and quality” (HM Treasury, 2004). PPP is regarded as a long-term agreement between a private sector (typically a consortium) and a government body to provide public assets or services, in which the private sector is responsible for dealing with significant risks and management duty and the payment is related to performance (IBRD/WB; ADB; IADB;, 2014). In a typical PPP contract, the private sector has to design, finance, construct, and manage the infrastructure component, afford services (IBRD/WB; ADB; IADB;, 2014), and transfer assets to the host government when the concession period expires (Yuan, Chan, Xiong, Skibniewski, & Li, 2015).

Since 2017, Ukraine has been systematically working on sustainable development ensuring and the public-private partnership mechanism implementation in accordance with international best practices, resulting in successful signing of concession agreements with reputable investors from Qatar and Georgia for Ports of Olvia and Kherson (Embassy of Ukraine in Qatar, 2020). The Government of Ukraine considers the PPP mechanism to be one of the main priorities for attracting investments in infrastructure development, both economic and social. Confirmation of this can be found both in the State program for stimulating the economy (Cabinet of Ministers of Ukraine, 2020) and in the new National Economic Strategy 2030 (Cabinet of Ministers of Ukraine, 2020).

Yet undiscovered PPPs in Ukraine, along with an immediate need in infrastructure reconstruction (Communications Department of the Secretariat of the CMU, 2020), increase in investment and private

sector engagement creates a high demand for optimization of assessment and implementation process of PPP projects. Thus, relevance implementation of PPP projects in Ukraine and challenges in project preparation, which is typical for developing countries, result in a need to develop a framework for PPP assessment in order to realize a successful PPP program.

Most literature reviews focused on general trends and scattered topics related to PPP, and fewer literature reviews from a PPP infrastructure project life cycle perspective are available. Life cycle philosophy is particularly crucial for PPP projects due to the integrated duties on design, finance, construction, and maintenance (Bao, Chan, Darko, & Chen, 2018).

Therefore, in this work I analyze the application PPP mechanism in Ukraine, focusing on the financial structuring at PPP initiation stage. I intend to develop a two-step framework, that consists of a calculation model and a mind map of selecting financial structuring option. This will allow me to identify suitable financial structuring options for potential PPP projects at initiation stage. This way, by testing this framework on the list of potential PPP projects in Ukraine, we can analyze potential projects in Ukraine that are suitable for PPP mechanisms and create a shortlist with recommendations on what financial structuring options are suitable for potential PPP projects.

The PPP initiation stage has rarely been in the spotlight for scientific research due to many uncertainties and short duration, while more attention is given to the latter stages of feasibility study, project implementation, and finally, assessment of the outcomes of PPP. However, I find initiation stage fascinating because it sets the direction for further project development and can often make a critical positive or negative decision that will either lead to successful implementation or a disappointing failure of the PPP project or even whole PPP program.

Existing literature on PPP in Ukraine is concentrated on the issues of PPP prospects, its advantages and disadvantages, or barriers for development. This means that it is descriptive and more theoretical, whereas there is a research gap for practically oriented research. Another important aspect is constant development of PPP legislation and practice in Ukraine. PPP adoption has recently accelerated in Ukraine, making a good cause to conduct new research in this area and at the same time decreasing the relevance of research made more than 3 years ago.

In this regard, the research intends to understand what can be done at the initiation stage to increase the success level of potential PPP projects. The specific research questions are:

1. How to improve the PPP project identification with data-based evidence?
2. What changes can be made at the initiation stage to increase the success rate of PPP projects?

This master thesis is structured as follows. Chapter 1 is an introductory chapter that explains the background of the problem and shows the relevance of the study in Ukraine. Chapter 2 is a literature review that describes the peculiarities of the PPP and stakeholder interaction at the initiation stage, as well as presenting a broad perception of PPP financial structuring and explaining how options define risk and reward for public and private partners. Chapter 3 describes methods for data collection and data analysis, as well as describing the idea behind the selection of potential PPP cases and stating about the limitations for this study. Chapter 4 touches upon the context of state-ownership and PPP in Ukraine. Chapter 5 presents empirical findings on stakeholder characteristics and motivation at PPP initiation stage. Also, it presents results of by developing a two-step framework to test a portfolio of 15 potential PPP projects to identify the relevant financial structuring options for them. Finally, it builds a bridge to the Chapter 6, where I discuss the potential advantages and disadvantages of using such framework and provide answers to my research questions.

2. LITERATURE REVIEW.

Numerous studies on PPPs focus on outcomes of PPPs, risk allocation between parties, good and bad practices (Jamali, 2004), (Eaton, Akbiyikli, & Dickinson, 2006), (Cheung, Chan, & Kajewski, 2012), (Abdymanapova, Toxanovaa, Galiyevaa, Abildinaa, & Aitkaliyevaa, 2016). Thus, this section of academic literature is dominated by the analysis of matured projects.

In this work, I take a different approach and focus on initiation stage of PPP project structuring. In scientific literature, this topic has seen much less coverage due to its complexity and practical orientation, therefore we can argue that my thesis is in the emerging field of PPP theory.

By contrast, this topic is represented far more often in professional literature, i.e., studies and reports made by international organizations, PPP in-house government agencies, global and local consulting companies. These organizations have directly participated in developing and completing numerous PPP projects and possess valuable knowledge on PPP project structuring.

Because of this, this section was developed taking in the consideration, first of all, the findings from professional literature and, secondly, academic literature.

2.1. PPP: conceptual interpretation from dynamic approach.

Public–private partnership (PPP) is a form of public management that is based on hybridity, cooperation between public and private sector, as well as allocation of risks between parties (Farquharson, Clemencia Torres de Mästle, & Encinas, 2011). The process of PPP assessment is often described in academic literature and professional toolkits.

"Structuring a PPP project" means allocating responsibilities, rights, and risks to each party to the PPP contract. This allocation is defined in detail in the contract (World Bank Group, 2022). Structuring is a broad term that can include legal, financial, management and risk management aspects. In my thesis, I focus on financial structuring because of my major and sphere of interest is finance.

Correct approach for transaction structuring of PPP project is an essential and vital component of a successful PPP project and PPP framework.

The “PPP framework” consists of the policies, procedures, institutions, and rules that together define how PPPs will be identified, assessed, selected, prioritized, budgeted for, procured, monitored, and

accounted for; and who will be responsible for these tasks. PPP program (World Bank). PPPs can be implemented on a one-off basis without any specific supporting pre-assessment framework. Governments can design and implement PPP frameworks that promote sound project selection, fair and competitive procurement, effective delivery of public services, and the ultimate success and sustainability of PPP programs. Although it is widely accepted that creating PPP framework benefits to the successful implementation of the PPP program.

Establishing a PPP framework communicates government's commitment to PPPs, and it fosters efficiency in the governance of the PPP program—that is, it promotes accountability, transparency, and integrity. It ensures that selected projects are aligned with the government's development strategy, generate the greatest economic returns for society as a whole, and do not expose the government to excessive fiscal risks.

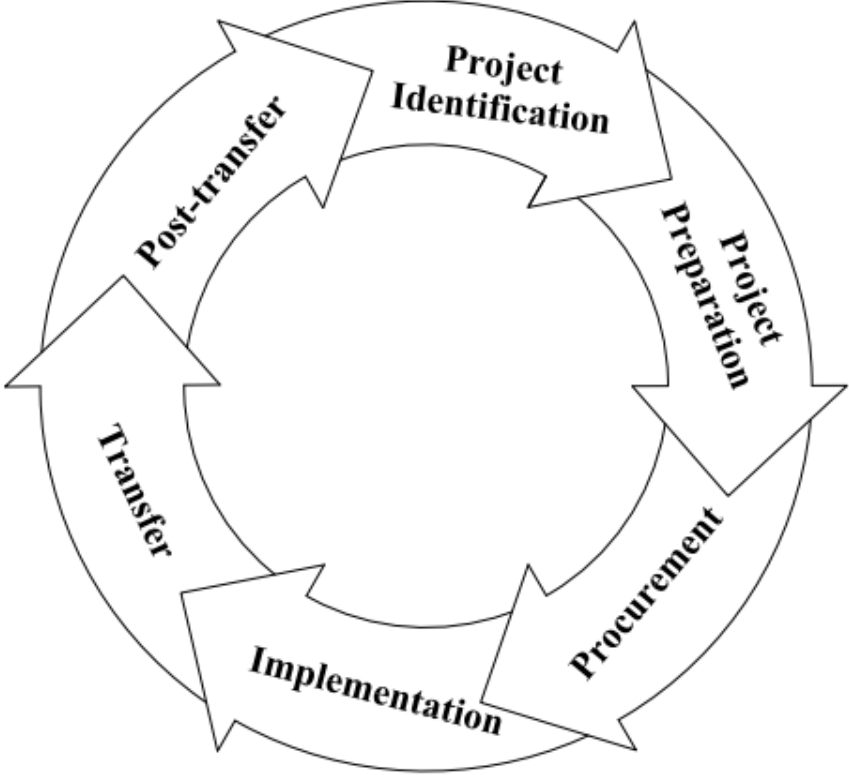
There is no single, model PPP framework. A government's PPP framework typically evolves over time, often in response to specific challenges facing its PPP program. In the early stages of a program the emphasis may be on enabling PPPs and creating and promoting PPP opportunities. Once several PPPs have been implemented on an ad hoc basis, concern about the level of fiscal risk in the PPP program may be the impetus for strengthening the PPP framework. In this case, the focus may be on strengthening control over how PPPs are developed, or improving public financial management for PPPs, as for example in South Africa (Burger & Hawkesworth, 2011). The life cycle of a PPP project covers the stages from the identification and selection of PPP projects, the preparation of proposals for the implementation of PPPs, the competition for the identification of a private partner to the signing of the contract and the subsequent management of the contract during the term of the PPP (Agency on support for Public-private partnership under the Ministry of Economy of Ukraine, 2022).

The PPP project life cycle covers the stages from the identification and selection of PPP projects, the preparation of PPP implementation proposals, the tender to determine a private partner to the signing of the agreement and the further contract management during the PPP agreement term.

Project Management Institute (Project Management Institute, 2013) defines a project life cycle as the series of sequential phases through which a project is developed from its origination to its closure. The names and numbers of the project life cycle phases depend on many aspects, including how the project is managed, what the project is for, what sectors are involved, and what traits the project has. For the purposes of this study, we use EBRD six phase methodology, shown in *Figure 1*, namely project

identification, project preparation, procurement, implementation, transfer, and post-transfer phase (European Investment Bank, 2012).

Figure 1: PPP project lifecycle



Source: (European Investment Bank, 2012).

Generally, later stages of PPP project implementation receive more coverage in academic and professional literature (Cui, Hope, & Liu, April 2018) largely due to their complexity and impact on decision making, although initial stages of project identification and pre-assessment stage are not less valuable both for researchers and professionals. Improved project identification benefits to higher project quality and lower transaction costs. Moreover, when it comes to implementing a whole PPP program and not a single project, improved project identification creates a multiplier effect on the whole list of projects.

The PPP project preparation process is usually preceded by the identification of priority investment projects, usually through project identification and selection (European Investment Bank, 2012). During this process, investment projects proposed by the public sector are screened for their potential as PPPs.

Normally, a PPP Agency identifies project ideas and initially assesses their compliance with PPP features, pre-evaluates the socio-economic impact on communities and the commercial component and attractiveness to potential investors, guided by evaluation criteria and guidelines for analyzing PPP project proposals developed jointly with International Finance Corporation (IFC) international consultants/experts in the framework of the Public-Private Infrastructure Advisory Facility (PPIAF) technical assistance project (Agency on support for Public-private partnership under the Ministry of Economy of Ukraine, 2022).

Typically, the process of developing and implementing a PPP is typically preceded by identifying a priority public investment project. A PPP is one way to deliver public investment—moreover, one that “locks in” the specifications of the project over a long-term period. Potential PPP projects therefore typically emerge from a broader public investment planning and project selection process. At some point in this process some or all proposed public investment projects may be screened, to determine whether they may provide more value for money if implemented as a PPP (Agency on support for Public-private partnership, 2022).

Developing and implementing the PPP then involves several stages: structuring and appraising the PPP—once a priority public investment project has been identified and tentatively approved for development as a PPP. The next step is to select the PPP structure, or key commercial terms—including the proposed contract type, risk allocation, and payment mechanisms. This proposed PPP structure can then be appraised. The proposed PPP structure and appraisal analysis is often pulled together in a business case to demonstrate why the PPP project is a good investment decision. Approval is typically needed at this stage, based on the analysis in the business case, before going on to prepare for and implement the PPP transaction.

PPP projects usually emerge from the public investment planning and project identification process. Responsibility for identifying potential PPPs from among priority public investment projects therefore often rests with the relevant sector agency or entity under the oversight of entities responsible for public financial management and planning. This can explain a need in a pre-assessment framework that help the sector agency to mitigate personal bias and share a responsibility over decisioning on whether to continue with the project assessment and implementation.

Although there are several opinions strengthening the importance of having a PPP framework, most often policy, legal and institutional aspects are mentioned. The policy framework will provide

statements describing the government's approach and commitment under a number of headings (Farquharson, Clemencia Torres de Mästle, & Encinas, 2011). Legal and institutional framework provides legislative support and enables PPP execution. It is obvious that without this framework, the implementation of public partnerships would be impossible, the aspect of assessment is often left out of the equation.

United Nations' Economic and Social Commission for Asia and Pacific provides a figure showing the steps that are generally considered in a PPP project implementation process. Clear definitions and procedures of various tasks and administrative approval from competent authorities at different stages of project implementation process are necessary in running a successful PPP program. Streamlined administrative procedures reduce uncertainties at different stages of project development and approval and help to reduce the transaction cost of a PPP project. The costs incurred in these processes are called transaction costs, which include staff costs, placement fees and other financing costs, and advisory fees for investment bankers, lawyers, and consultants. Transaction costs may range from 1 to 2 percent to well over 10 per cent of project cost. Experts suggest that transactions cost vary mainly with familiarity and stability of the policy and administrative environment and not so much with the size or technical characteristics of a project (United Nations Economical and Social Comission for Asia and Pacific, 2008).

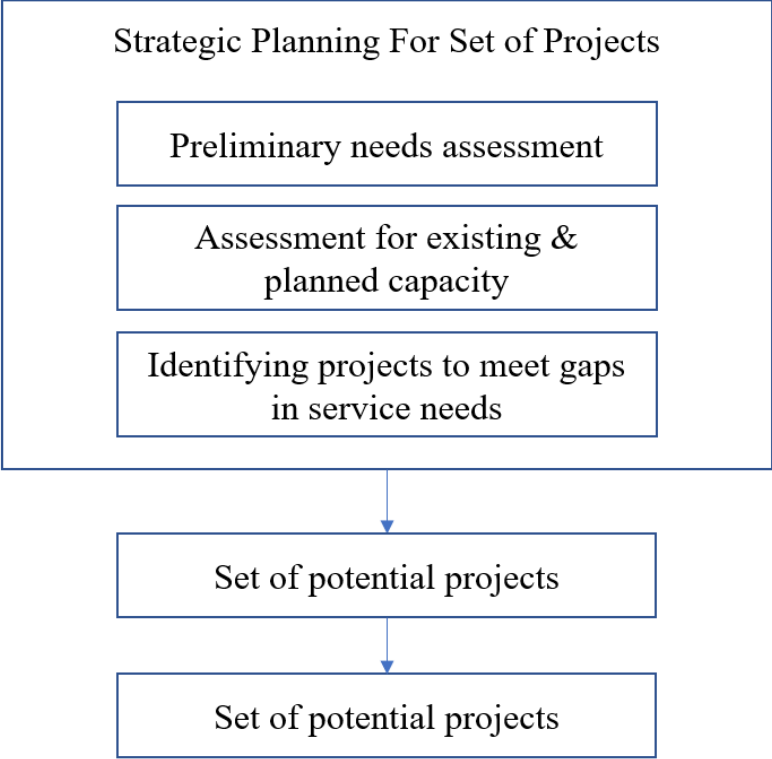
Although document suggests using internal source (existing plans, annual development plan) to identify project and portfolio of projects, it is mentioned that this step is high-level and mostly qualitative relying on the expertise of in-house preparation. (Klein, 1996) mentions the importance of correct planning to reduce transaction costs, and for example for Ukraine, it will be a difficult task to conduct correct project identification without much experience in PPP.

Inter-American Development Bank stresses on an important challenge for the developing countries concerning the high rate of renegotiations in the past decades, linked in part to poor project preparation. Contracts have been renegotiated for almost 70% of PPP infrastructure contracts signed in the region in recent decades (Inter-American Development Bank, 2012).

Project Identification Framework is presented in the Public Private Partnership Framework for Infrastructure Sector, prepared by United Nations Global Compact together with VMC consulting, that contains a block of actions before the identification of potential projects. This includes preliminary needs assessment. It is mentioned that planning for infrastructure services that are provided by assets

with long lives should include a needs assessment that covers a correspondingly long period. This requires a holistic view taking account of factors that might affect the level and location of demand. (United Nations Global Compact, 2017). Although there is no checklist of what actions should be taken at this stage, it is understood that this step is vital for a strategic planning for a set of projects.

Figure 2: Project Identification Framework



Source: developed by author using the data (United Nations Global Compact, 2017)

Later in the process, after the identification of individual projects, analysis & checks of Selected Project include Project Pre-feasibility analysis and PPP suitability check.

Pre-feasibility analysis is in fact a less detailed feasibility study that covers the same topics of (i) needs and options analysis, (ii) legal feasibility, (iii) technical feasibility, (iv) scoping social/environment safeguards analysis, (v) preliminary financial viability including expectations of required Government financial support, (vi) institutional capability analysis, (vii) identification of next steps required (World Bank; UKaid, 2021).

The PPP suitability analysis checks for the presence of certain conditions in the supporting environment (such as legal, institutional and market capacity) that should be in place for a PPP to be successful. The purpose is to weed out poorly suited projects early, before more resources are used on developing them as PPPs. The main tool for this is the Suitability Filter. If a project achieves a satisfactory result in the Suitability Filter, then it can proceed to a standard pre-feasibility analysis of the project itself. The Suitability Filter is a crucial gateway to the PPP pipeline. If the outcome of the Suitability Filter is that the project is unlikely to be well suited to development as a PPP, then the project should exit the PPP process. The project might be redesigned on the basis of the findings and re-appraised for its PPP suitability. Alternatively, the project may still be developed through the public-sector route, but it would not be appropriate to use any more of the limited resources available for PPP development. The Project Officer might then take another potential project from the strategic plan and test that one for its PPP suitability (Government of India, 2018).

These steps already include assigning PPP Process Management Team and hiring team of consultants, which makes it costly for the government. As a result of this analysis, the project can either (i) pass all the checks and agreed to continue with feasibility study stage, (ii) be redesigned if certain problems were identified or (iii) be rejected completely from the PPP program.

Canadian Council for Public-Private Partnerships provides a table that describes the level of private and public sector engagement in PPP contracts based on management structuring models (The Canadian Council for Public-Private Partnerships, 2018)

Although this presents a comprehensive outlook on responsibilities of the parties, this can't be reviewed as a framework that helps to find a suitable financial and management option for a potential PPP project because it will be hard to use for a specific project need.

To sum up the literature review section, there is evidence that pre-assessment stage is important for identification of PPP projects and that there is a need in comprehensive framework. Usually, project analysis is performed after project identification stage at a pre-feasibility and feasibility stage, which makes it a costly process for a government that has a pipeline of PPP projects. This approach is better suited for a single project basis and tends to stimulate low number of PPP projects or inquire a higher cost of execution for them. Having a developed framework at the pre-assessment stage is likely to benefit the PPP program execution in terms of (i) lower cost, (ii) faster implementation, (iii) higher project success rate and (iv) better government awareness.

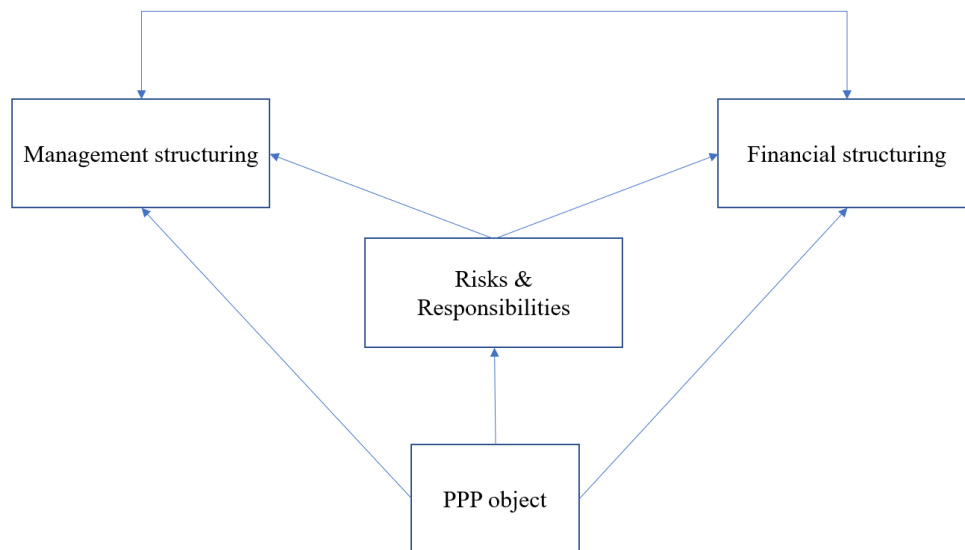
2.2. Types of financial structuring options for PPPs.

(Nováčková & Saxunová, 2015) distinguish the PPP projects in different types based on:

- Type of asset involved.
- The assigned functions to the private sector (design, build or reconstruction, finance, maintain, operate).
- How the private sector gains income (financial relations).

This defines the link between the PPP object, management and financial structuring, as shown in *Figure 3*.

Figure 3: The nature of PPP structuring.



Source: developed by author

Financial relations in PPPs are interconnected with the risk and responsibility sharing between public and private partners. Public partner, a government body, agency or enterprise, is a representative of a public sector, that aims to maximize usefulness for itself. Private partner, on the other hand, represented as a sole private company or a consortium of companies, seeks for the most optimal risk-reward ratio for itself. Transferring responsibility to the private sector for mobilizing finance for infrastructure investment is one of the major differences between PPPs and traditional procurement. (Farquharson,

Clemencia Torres de Mästle, & Encinas, 2011), (Yescombe, 2007) and (Delmon, 2015) books on PPPs cover a wide range of topics on PPP financing.

Key aspect of the PPP project is its financial structure. It should not be mixed up with PPP project structure, which is typically a legal framework for stakeholder relations, and management structure, which is a type of contract that allocated responsibilities between public and private partners.

Financial structuring can be described and have a different definition in broad and narrow sense. In a narrow sense, financial structuring is a process to define the need and required size of financing for a PPP project, and decide on the how it will be accumulated, or in other words, what mix of equity and debt financing will be optimal.

As described in Farquharson et al's chapter on PPP financing (PPIAF, 2001) equity investment is ‘first in, last out’— that is, any project losses are borne first by the equity investors, and lenders suffer only if the equity investment is lost. This means that equity investors accept a higher risk than debt providers and therefore require a higher return on their investment.

The aim of the project shareholders and their advisors in developing the finance structure is typically to minimize the cost of finance for the project. Because equity is more expensive than debt project shareholders use a high proportion of debt to finance the project. In each country, this proportion may vary from project to project, depending on the risks assumed by the PPP operator (World Bank, 2022).

Financial structuring in a narrow sense is largely dependent on the PPP project financing requirements and access to the affordable financing. This makes more feasible and interesting for research of matured completed PPP projects, which is not focus of our study.

However, in a broad sense, PPP financial structuring means the development of financial relations between public and private partners. This includes not only the aspect of raising debt and equity finance, but also a very important aspect of financial payments during the PPP contract, or simply who pays who.

This aspect of PPP financial structuring in a broad sense has a tight link with the risk and responsibility allocation in the PPP and is a product of stakeholder relationship. It is also fascinating for research of potential projects as it allows to get a better understanding how project specifics impact the identification of financial structuring options for the PPP. In this master thesis, I am focusing on this understanding of financial structuring.

Financial structuring options are the financial frameworks that make the PPP function. They are an established practices of financial relations between public and private partner and reflect the risks allocated at transaction structuring.

The financial structuring options can be grouped by the direction of payments:

- Fees: paid from Private partner to Public partner
- Payments: paid from Public partner to Private partner
- Other types of financial relations between Public and Private partners

The last group includes such options as joint venture and lease. Researchers and experts debate on whether it is correct to count them as PPPs. For example, all joint ventures are technically PPPs because they imply creation of SPV with a public and private share in the equity structure, but not all PPPs are joint ventures. Lease, although is also a type of cooperation between public and private sector, is simpler and has a much narrower scope of possibilities than PPP, for example there are strict limitation for development.

Table 1 outlines the main group and types of financial structuring options for PPP and describes their advantages and disadvantages.

Table 1: Financial structuring options for PPP.

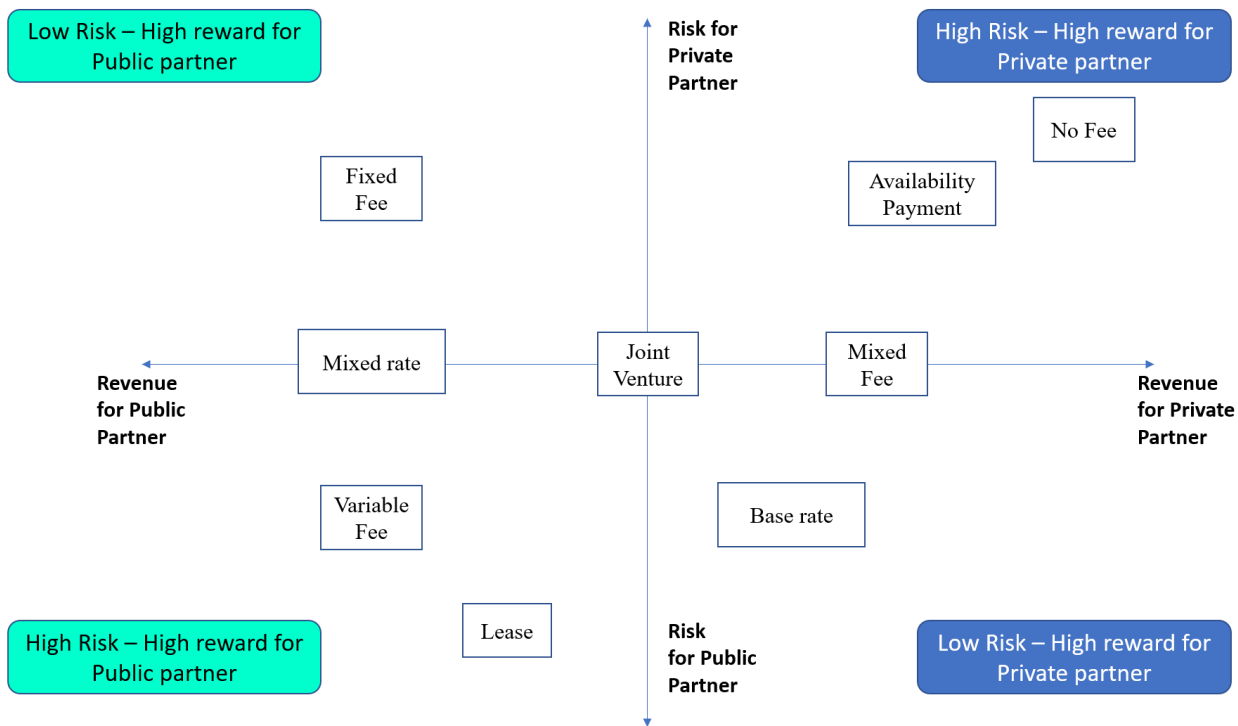
Group	Type	Advantages	Disadvantages
Fee structuring (from Private partner to Public partner)	Fixed Fee	Simple to structure, forecast and administer	Hard to get right at PPP preparation, therefore can create imbalance either for Private or Public partner
	Variable Fee	Less risk for the Private partner	Hard for Public partner to forecast and administer
	Mixed Fee	Optimal for risk sharing between parties	Harder for both parties to forecast and administer
	No Fee	Maximum close format to the private company, more freedom in decision-making	Works only for certain projects where limited Public partner involvement is possible, high risk for Private partner
Payment structuring (from Public partner)	Base rate	Simple to structure, forecast and administer	Does not insure Public partner from risk of inadequate

to Private partner)			performance of the Private partner
	Availability Payment	Allows Public partner to make payments only once the project or the facility is made available for use	Often comes with a higher overall cost due to higher risk for the Private partner
	Mixed rate (Base rate + Availability Payment)	Gives a Private Partner a guarantee of income and allows Public partner to insure some of risks	Difficult for both parties to forecast and administer
Other cross-border types of Public-private contracts	Joint Venture	Maximization of responsibility and risk sharing, mixes of debt/equity financing	Difficult communication and low speed of decision, high corporatization
	Lease	Easy to structure and administer, quick procedure	Limited scope of work, limitations with land use

Source: developed by author

The broad spectrum of financial structuring shows how different options benefit or restrict different stakeholders in terms of maximizing revenue, managing risk and defining the scope of work. **Figure 4: Matrix of risk and reward for Public and Private partners** Figure 4 provides a look on financial structuring options from a risk and reward point of view.

Figure 4: Matrix of risk and reward for Public and Private partners



Source: developed by author

This matrix shows the distribution of financial structuring options on the two-axis matrix. Both parties are willing to maximize their revenue and lower the risk. However, we can see that both parties logically have more options for high risk – high reward quadrants. Joint venture can move into any of the quadrants as it fully depends on the exact agreement structure, that can be diverse, therefore is left in the center, assuming equal allocation of equity and risk.

2.3. Stakeholder identification and interaction at PPP initiation stage.

Initiation stage of PPP, also known as project identification stage, introduces numerous challenges in front of the project stakeholders. These challenges are related not only to the project preparation procedures and PPP object itself, but also to communication with other stakeholders.

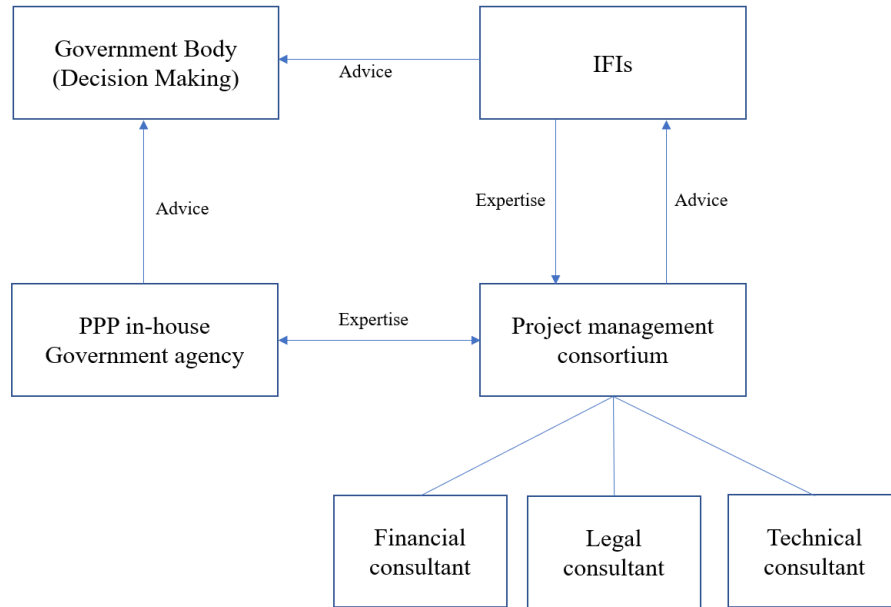
The stakeholder theory forms the theoretical framework of this thesis.

PPPs are considered a multifaceted challenge (Ferk & Ferk, 2017) due to more stakeholders than other types of infrastructure projects (Tang & Shen, 2013). The set of stakeholders is dynamic (the stakeholders can change). These dynamic stakeholders also create dynamic relations during the PPP development and implementation (investment preparation, construction, and operation). Their engagement in the project may usually shift over time, not only because of the long-term nature of a PPP project but also because of changeable external conditions. These complex relationships between stakeholders pose a challenge to the successful management of a PPP project (Wegrzyn, 2018).

Scholars confirm that stakeholder involvement in infrastructure development plays a vital role in the success of an infrastructure project (Wojewnik-Filipkowska, Dziadkiewicz, Dryl, Dryl, & Beben, 2019); stakeholder involvement has already replaced the term of public involvement (Schepper, Doods, & Haezendonck, 2014). Stakeholder-oriented PPP strategy has already been identified as a prerequisite for success (Ferk & Ferk, 2017).

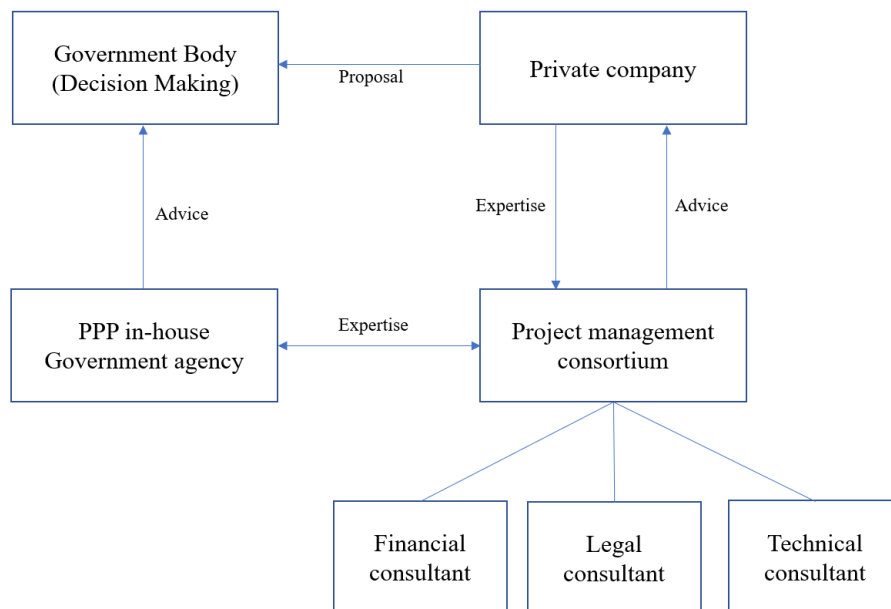
Involvement of the stakeholders in PPP project structuring at initiation stage is presented in *Figure 5* and *Figure 6*. The list of stakeholders can vary depending on whether public or private side is initiating the project.

Figure 5: Common stakeholder structure at initiation stage at PPP project initiation stage via public side initiative (IFI-led).



Source: developed by author

Figure 6: Common stakeholder structure at initiation stage at PPP project initiation stage via private side initiative (unsolicited proposal).



Source: developed by author

As we can see from the figures, the stakeholder structure differs depending on who was the initiator of the PPP: public side (IFIs) or private side (private company). It should be mentioned that public side initiative can be not only by IFIs, but de-facto from every public sector entity and de-jure from the asset owner. For example, if Ministry of Infrastructure is intended to assess PPP viability for the certain enterprise or asset that is under its management, and it is able to provide finances for the assessment, it can be the initiator from the public side. The reason IFI are shown as the main initiator for the public side initiative projects is that in developing countries, Ukraine including, the government rarely is able to provide finance for the PPP assessment and therefore lacks initiative. This is where IFIs play an important role.

The importance of the role of the Project management consortium, or Transaction Advisor, is highlighted in order to obtain sound advice, geared to the users' particular needs and requirements, essential when developing and implementing PPP project contracts with long durations. Advisors can help avoid costly political and financial mistakes related to PPP projects (Kerf, et al., 2001).

This is an interesting aspect of PPP initiation stage, however not much is known about how actors develop communication and mutual understanding, moreover how they analyze PPPs project and define financial structure at this stage.

3. METHODOLOGY.

This section describes methodology used for the development of this work. Analysis of secondary data is the key method used for the analysis. Certain limitations regarding the scope of work and use of methodology are also outlined in this section.

3.1. Cases

15 potential PPP cases were selected for the purposes of this analysis. Considering the number cases, generally in experiments bigger scope allows to have better quality of results but leads to increased time and difficulty. It was considered that 15 potential PPP cases give a thorough representation of PPP needs in Ukraine and follow the required criteria:

- 1) It has been referenced as a potential PPP candidate by the government representative, government body or a industry expert: this means that there are plans or at least a rationale to initiate PPP in regards to a certain asset or enterprise.
- 2) The target company or asset has enough publicly available for the purposes of the analysis. As we research financial and management structuring options, there are two key data requirements – financial and management reporting. It has to cover basic financial data and provide a description of asset's current state and plans concerning its future development.
- 3) The potential PPP case has a unique perspective: to maximize the usefulness or a smaller the scope, potential PPP projects should have a unique criterion because the analysis has more value if it covers more non-similar cases and those with a different background. For example, there is no additional value in analyzing two closely related cases with a similar set of conditions important for a PPP project because it creates a duplicate in the analysis. Although it does not mean that all cases should represent different sectors of the economy. Still, it has a lot of sense to analyze how flexible can PPP mechanism be if it for instance faces two similar-looking cases that have a disparity concerning one specific criteria.
- 4) The overall selection is a valid representation of Ukraine's PPP needs: this portfolio has to represent relevant industries and projects that have PPP potential. In other words, if only schools have PPP potential in Ukraine, all cases should be schools, if there are diverse projects, it has to include relevant scope of projects.

Selected projects have all satisfied the criteria that make it possible to perform the analysis to answer the research questions №3.

Table 2 provides more details on the key characteristics of the selected potential PPP cases that form a portfolio of potential PPP projects for the analysis.

Table 2: Portfolio of potential PPP cases selected for the analysis.

Number	Cases	Industry	Sub-industry	Type of Asset	Unique criteria
1	Ukrposhta	Logistics	Post services	State-owned enterprise	Critical enterprise
2	Ukrvodshlyah	Inland waterways	Transport services	State-owned enterprise	Significant for internal water transportation
3	Presa	Publishing	Publishing House	State-owned enterprise	Non-core enterprise
4	Boryspil Airport	Airports	Multifunctional airport	State-owned enterprise	Leader of airport industry
5	Chornomorsk seaport	Ports	Grain & container transshipment	State-owned enterprise	One of leaders in port industry, regional and national importance
6	Reni seaport	Ports	River transshipment	State-owned enterprise	River port
7	Dunaiske Paroplavstvo	Inland waterways	Transport services	State-owned enterprise	Significant for international water transportation
8	Tranzvyazok	Electronics Industry	Radio & Electronics	State-owned enterprise	Special purpose enterprise
9	Lviv-Krakovets toll road	Roads	Highways	State-owned land	First potential toll road in Ukraine
10	Kyiv-Zhytomyr-Rivne road	Roads	Highways	SoE-owned (Ukravtodor)	One of potential pilot PPP road projects
11	Lviv Railway Station	Railways	Railway stations	SoE-owned (UZ)	One of potential pilot PPP railways projects
12	Chop Railway Station	Railways	Railway stations	SoE-owned (UZ)	One of potential pilot PPP railways

					projects
13	Kryvyi Rih National University	Education	University	State-owned	Average sample university
14	Kryvyi Rih School №71	Education	School	Municipally owned	Average sample school
15	Lviv City Hospital #8	Healthcare	Hospital	Municipally owned	Key supporting hospital for Lviv city

Source: developed by author

3.2. Data collection

The research goal demands collecting and analysis data about specific potential PPP projects. Potential PPP projects are presented in form of state-owned businesses and assets owned by a state directly or through a state-owned enterprise (SoE). Most representative and complete data about specific business or asset is presented in its financial or management reports. Thus, it was selected as the main source of information for this analysis.

This research is based solely on the secondary data available in form of financial and management reporting, Ukrainian legislation, documented statements made by the Ukrainian government officials, documents developed by International Financial Organizations due to the reasons described in more details in *Section 3.4*.

Apart from this, there are three main reasons why use of secondary data instead of primary is optimal for this research:

- **Availability of data:** a major advantage of using secondary data in this analysis is the breadth of data available. The Ukrainian government has enough resource and expertise to collect data and conduct reports for a large, national scale companies. Individual researchers would have a difficult time collecting such information basically due to availability of information and also that these data sets are also longitudinal, meaning that the same data has been collected from the same business or asset over several different time periods. This allows the researcher to look at trends and changes of phenomena over time which would be impossible if it was carried out individually.
- **Time required for data collection and analysis:** collecting primary data for such a number of projects, if it was in form of interviews, site visits, would take a lot more time and would require strong level of expertise to form a set of information that is close to the level of quality of secondary data. Since the data is not collected from scratch, there is also a huge savings in time. Secondary data is already collected and usually cleaned and stored in electronic format, therefore the researcher can spend most of his or time analyzing the data instead of getting the data ready for analysis.
- **Expertise and professionalism:** a third major advantage of using secondary data is that the data collection process is often guided by expertise and professionalism that may not be available to

individual researchers or small research projects. For example, data collection is often performed by staff members who specialize in certain tasks and have many years of experience in that particular area and with that particular survey. In case of carrying out individual research with primary data, it would be hard to solely achieve that level of expertise available. For instance, if primary data collection about the seaport would be performed by a student with no experience in seaport industry.

It would be essential to collect financial and management reporting data due to quantitative and qualitative aspect of the analysis that is needed for the framework to work. For instance, answering questions about profitability of the business or its current state would be impossible if this data was absent.

Each potential PPP project, presented in **Error! Reference source not found.** above, has available financial and management reports published annually in form Concept Note (for the past time period) and Business plan (for the future time period). Both files include financial reporting data in form of balance sheet, profit and loss statement, cash flow statement. Both files include management reporting data in form of executive summary and business overview. Both files are developed by the relevant government executives from the side of Ministry of Infrastructure, and direct company or asset managers from the business side. These are legitimated documents issued by the Ukrainian government. For the purposes of this analysis, we assume that the information presented in these files is correct and audited by the Ukrainian government, therefore can be used without any adjustment or challenges by the researcher.

The data was collected in several languages, predominantly Ukrainian, with some data available in English and Russian. Financial and management reports are published in Ukrainian, as well as Ukrainian legislation and documented statements made by the Ukrainian government officials. Documents developed by International Financial Organizations are published in English and are also available with Russian translation.

3.3. Data sources and analysis.

Content analysis is selected to conduct analysis of the data. Content analysis is performed both for quantitative (focused on counting and measuring) and qualitative (focused on interpreting and understanding) aspects. First of all, I focus on qualitative analysis using the management reports and government documents and declaration to find out correlations and patterns in PPP project informational framework, understanding the intentions of individual or group stakeholders. Secondly, I explore the quantitative data in the financial and management reports to perform calculations to answer questions in PPP framework to identify transaction structuring options for potential projects.

This work requires analysis of big sets of financial and management data. In order, to simplify the process of data collection and analysis, the following methodology was worked out:

1. Creating a full data collection and analysis for a one project in Microsoft Excel.
2. Dividing numerical data in inputs and calculation formulas. Creating a template based on this project.
3. Apply the template by incorporating specific project inputs to the template file.

This approach allows:

- To unify to the process of data selection and data analysis via creating a sole template for all projects
- To prevent mistakes and errors in calculation formulas
- To save time by simplifying and automating calculation process

The input is accumulated on the input tab of the Microsoft Excel file and is used through calculation formula to answer the question formulated in the PPP assessment framework. As a result, the project goes through screening criteria and in the end gets recommendations on financial and management structuring option suitable for this potential PPP project.

3.4. Limitations.

This work has specific limitations regarding the scope of work and research methods.

Individuals and business were affected due to the Russian invasion to Ukraine. Previously, as a part of analysis, I have planned to conduct one-on-one interviews with key stakeholders in Ukraine's public sector that can give their comment on the potential PPP projects. Unfortunately, right now it is close to impossible to organize such an event because of a tight schedule of public servants that have to deal with consequences of critical damage to the infrastructure and develop immediate solutions to ensure provision of basic needs for the population. Moreover, due to security reasons, it is prohibited for strangers to enter public administration building of higher echelon of the government.

Visiting potential PPP cases can give a better understanding of the current state of the asset or enterprise. For example, it allows a researcher to confirm or deny information presented in management reports, compare secondary data with the actual one, challenge certain information or conduct a cross-check. But, due to safety reasons, site visits are not possible and therefore this research presents a desktop study that uses secondary data. Thus, we should take an assumption that all data from financial and management reports is true.

Also, the unpredictability of the situation makes it difficult to make real-time research because it is uncertain if PPP has now more or less rationale right now due to significant changes in safety priorities, economic state and financial sector options. Moreover, financial and management reports of selected cases are actual as of end of 2021 and do not provide real-time information on the current state of the assets. This implies a limitation that this research is actual as of February 23, 2022.

With this in mind, this work is limited to the usage of secondary data and is not real-time research.

4. RESEARCH CONTEXT.

This part gives an outlook on the context of the public sector ownership and PPP rationale in Ukraine. This part help to get a deep understanding of the topic and get a clear picture of the research context.

4.1. Context of public sector ownership in Ukraine.

First of all, to better and fully understand the context of PPP in Ukraine, we have to begin with the topic of ownership. Ownership is a key characteristic of asset or enterprise that determines the way it is managed and used, therefore is critical for its economic performance.

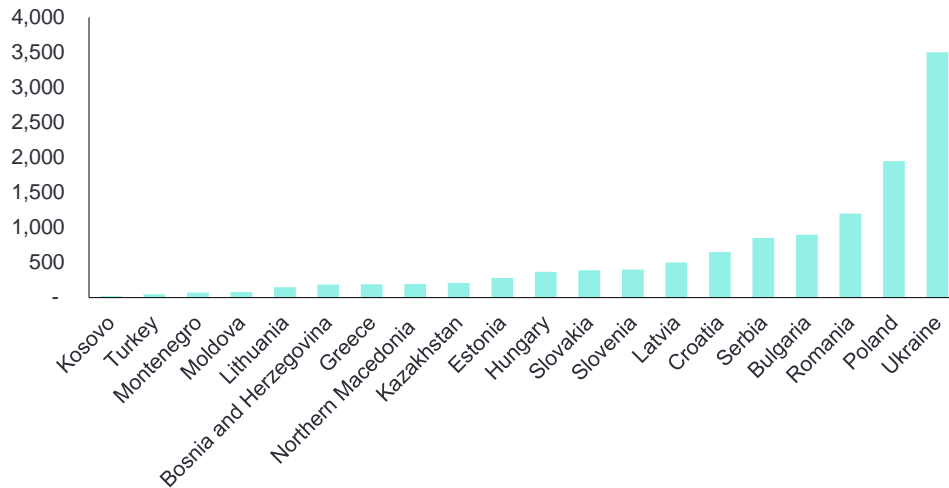
An enterprise can be public-owned, privately-owned or have a mixed type of ownership. Public-owned enterprises include enterprises with share of state and municipal ownership higher than a certain threshold. For the purposes of the analysis of this part, we take EBRD methodology that considers an enterprise as public-owned if it has more than 25% of public sector ownership.

The topic of public-owned enterprises and privatization in Ukraine itself deserves a full thesis, however we just focus on key points relevant for our topic and the connection between public ownership and PPPs.

Ukraine, that to this day, is experiencing a transition from a planned economy, when it has gained its independence from USSR, to a free market economy, has become an independent state not only with significant challenges to its financial, intellectual and human capital, but burdened with thousands of state-owned enterprises that required capital investment and management restructuring.

Although Ukraine had several big and small privatization programs, it had a controversial success and Ukraine still a sole leader in the number of public-owned enterprise in Eastern Europe, as shown in *Figure 7*.

Figure 7: Number of state-owned enterprises in Eastern European countries.



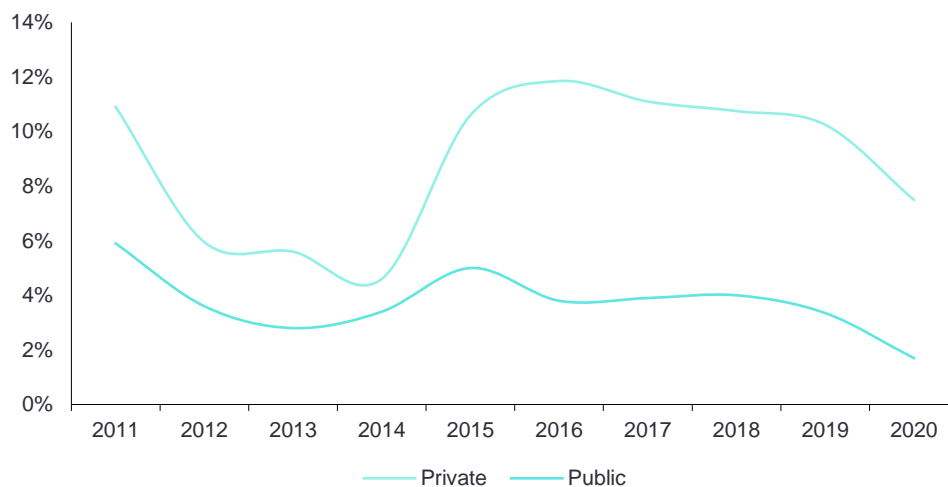
Source: developed by author based on data from (Orbis, 2020)

Many governments struggle to manage public-owned enterprises effectively. Widespread concerns exist that many state-owned businesses are inefficient, involve significant risks to government budgets, and are a conduit for corruption (April 2019 Fiscal Monitor; Musacchio and Pineda Ayerbe 2019; OECD 2018; Richmond and others 2019; Wilkinson 2018).

This is especially relevant for developing economies, including Ukraine, that experiences challenges in corruption,

Figure 8 shows that in the last decade in Ukraine private-owned enterprises have outperformed public-owned enterprises in ROE every single year with an ten year average of 8.7% compared to just 3.9%.

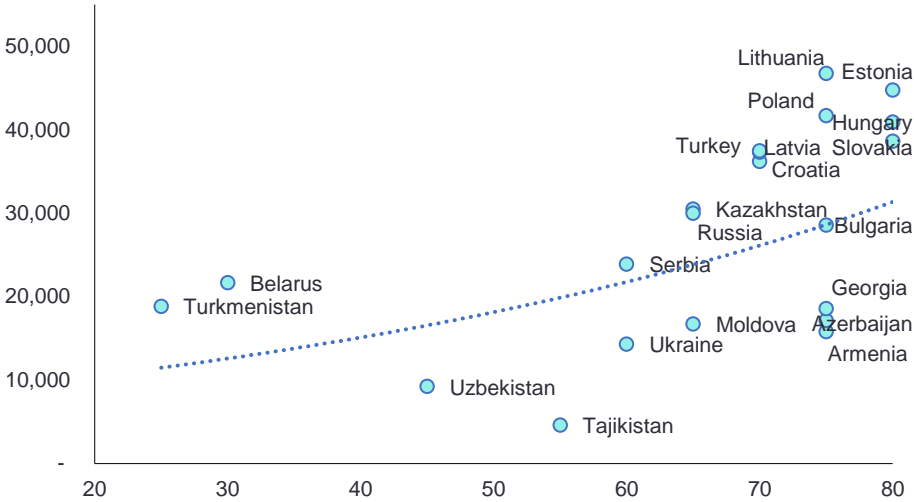
Figure 8. Return on equity (ROE) of private and public owned enterprise in Ukraine



Source: developed by author based on data from (CES, YouControl, 2021)

The case of public ownership is especially interesting for economies that have made or are in the process of transitioning to a free-market economy. By comparing datasets on GDP per capita (PPP) and share of private sector share of GDP, **Figure 9** shows a clear exponential trend of achieving higher economic development with higher private sector involvement.

Figure 9: Number of state-owned enterprises in transition economies.



Source: developed by author based on data from (European Bank for Reconstruction and Development, February 2020)

Altogether, this gives us empirical evidence of existing inefficiencies in Ukrainian economy caused by oversaturation of public-owned enterprises and creates an argument for increasing the share of private sector in Ukrainian economy to overcome those challenges. PPP, as a prime example of private sector engagement, can propose a relevant solution for this.

4.2. Context of PPP in Ukraine.

PPP has become a buzzword in the Ukraine state policy in the last few years. It is one of most important and widely discussed topics in infrastructure and innovative policy. Currently there are 81 active PPP projects in Ukraine under construction or operations phases. Total active investment amounts to USD 6,884 M. Still, Ukraine majorly lags behind developed countries in terms of level of PPP adoption. PPPs

are mostly used for infrastructure projects, while Ukraine's infrastructure is worn out and needs reconstruction and redevelopment.

There are two major reasons that define the importance of PPP in Ukrainian context.

First of all, it is government's focus on infrastructure rehabilitation and renovation. A specific program, The Great Construction, was initiated by President Volodymyr Zelensky in autumn 2019. It is a national project that aims to upgrade Ukraine's infrastructure and boost Ukrainian economy by completing a record number of projects that include construction of roads, schools, hospitals, bridges etc.

Rehabilitation is not only a short-term priority but is expected to be the main focus of Ukrainian government policy in this decade. Ukraine's government released a plan to modernize and repair the country's transportation infrastructure. "Drive Ukraine 2030," envisions a budget of \$60 billion to be invested in a range of national projects over the next decade.

For a relatively small Ukrainian economy that peaked at \$200 billion in GDP in 2021, it is a very costly and economically important program. According to the results of the study were published during the All-Ukrainian Forum "Ukraine 30. Infrastructure", of the Great Construction project will bring following positive long-term effects: increasing public capital in the transport sector, the courier and tourism sectors, reducing travel time and minimizing fuel and repair costs, expanding business opportunities, creating prospects of emergence of new enterprises.

According to KSE analysts, an increase in demand for construction materials and labor will boost GDP by 2.2%. In addition, it will lead to a cumulative increase in GDP over the next five years by 4.4%.

The great plans to rehabilitate infrastructure are already apparent as the Ukrainian government declared about record budget spending on infrastructure in 2021. Comprehensive public data on state expenditures and investments is published by (Verkhovna Rada of Ukraine, 2021).

In 2021, total public expenditures on transport infrastructure amounted to UAH 113.8 B. 83% of all funds were investments for the development fund. Expenditures on transport infrastructure constitute 7.9% of total budget of Ukraine in 2021.

Table 3: Public data on expenditures and investments on Transport Infrastructure in Ukraine, UAH million.

	Development Fund	Cost of Management	Cost of Financing	Total	Share
Road Infrastructure	86,122	3,602	14,760	104,485	91.8%
Railway Infrastructure	4,531	-	-	4,531	4.0%
Airport Infrastructure	3,307	429	-	3,736	3.3%
Sea and River Transport	140	85	-	225	0.2%
Transport Safety	20	245	-	265	0.2%
Tourism Development	85	79	-	164	0.1%
Other	160	228	-	389	0.3%
Total	94,366	4,669	14,760	113,795	100.0%
Share	82.9%	4.1%	13.0%		

Source: State Budget

According to the Draft Budget of Ukraine 2022 (Ministry of Finance of Ukraine, 2021), Ukraine's spending on transport infrastructure was projected to increase to UAH 141.8 B in 2022 (24.6% growth compared to 2021, see

Table 3), including increase in funding for railway infrastructure development (UAH 5.2 B), reconstruction of airports (UAH 3.5 B) and river transport (UAH 0.8 B). This data does not include the spending of state-owned companies like Ukrzaliznytsia, seaport administrations, etc.

However, it is important to understand that such huge plans can't be implement solely by the public sector. The Great Construction program created a burden for the state budget and increases the risk of corruption because increase in number of projects leads to increase in difficulty of control of transparency implementation.

At the same time, lack of governmental funds makes it challenging to renovate infrastructure quickly, therefore it is wise to consider private sector engagement. PPPs can help to solve this issue as it presents an agreement between private and public sector bodies. Thus, PPP may be useful to fulfill government's promises and involve private sector to rehabilitate Ukrainian infrastructure.

Secondly, Ukraine's has long suffered from Soviet Union heritage in form of numerous state-owned enterprises that major lack competent management, innovation and investment. Thus, privatization

reform has been declared as one of the key initiatives that Ukraine desperately needs to boost its economic growth and become eligible to join the European Union. As of 2021, Ukraine has seen moderate success in small and medium privatization however was unsuccessful in big privatization that represents country's biggest assets that have a decisive effect on Ukrainian economy and currently lag its growth potential. According to the legislation, the company or an asset can be considered as an example of big privatization if its book value is more than UAH 250 M. Big privatization includes manufacturing facilities, seaports, hospitals.

Big privatization has not yet been successful because it is unappealing to all the possible stakeholders. The private sector is looking to acquire a problematic outdated asset and therefore does not have any intention to pay a lot of money for it. While at the same time, the public sector does not have a good argument to give up a big enterprise for a fraction of what it may cost in a favorable environment. This is where PPP becomes a solution. It is not only an instrument to involve private sector finance and mark cooperation between the private and public sector, but it solves the problem of privatization in Ukraine. Usual PPP contract is a long-term agreement that envisages certain investment guarantees from a private partner and gives a public partner authority for supervision of the contract implementation. This means that public partner gets a tool to rehabilitate the outdated asset and at the same time mitigates the risk of dealing with unqualified private company that has place in privatization. In other words, due to its position the public sector can use PPP instrument to kill two birds with one stone. After PPP contract has come to an end, the rehabilitated and well-managed asset becomes much more appealing to the private sector because it is now lower risk cash-generating unit. At the same time, it means that it will cost a lot more and the government will be able to receive a lot more for it in case of privatization. As a result, both parties are satisfied.

In this context, PPP serves as a possible tool to solve many problems at once. It creates a framework between public and private sector that results in achieving one's goals with sacrificing the other stakeholder interests.

5. EMPIRICAL FINDINGS.

In this chapter I present my empirical findings, based on the analysis of secondary data such as published literature (reports, standards) prepared by the IFIs and international organizations (EBRD, WB, IFC, EU, OECD), ministries and national research agencies that are related to the research topic.

Firstly, I present a behavioral analysis of stakeholder engagement and interrelationship in PPP projects in Ukraine, and secondly, describe the need and the process on the development of two-step framework.

5.1. Dynamic perspective and actors' interactions at the PPP project initiation stage in Ukraine.

Obviously, there are reasons behind the fact that PPP practice has not seen much success in Ukraine. Ukraine, as a developing country, share many challenges seen in other parts of the world. Among the most evident and common dealbreakers are institutional factors: political instability, poor legal and regulatory frameworks; and PPP specific factors: scale, complexity, lack of expertise in long-term planning (Cheung et al., 2012, Appuhami & Perera 2016, Chan et al., 2011, Chen & Doloi, 2008). There are numerous cases with the application of PPP projects that led to negative results due to mistakes in project preparation stages (Zhang, 2005; Verhoest et al., 2015; Kavishea & Chileshe 2018).

Another challenge for implementation that is not talked about often is the stakeholder structure of the PPP project.

Although PPP is more often a long-term commitment between different stakeholders, it is much more sensitive to the mistakes made in the early stages of its life, mainly the project preparation and ultimately project initiation, which is our point of focus in this thesis.

First of all, we should look at why the stakeholder structure in PPP projects in developing countries is often more complicated. For this, we will have a look at the role of each stakeholder in case of developed and developing country.

It is important to mention that for this case study, as an example of a developed country, we choose a country with a well-established PPP framework and proven track record of successful big-scale PPP projects, such as United Kingdom. As an example of a developing country, we choose Ukraine, as it is a focus of our research.

Error! Reference source not found. *Table 4* shows the difference in characteristics of key stakeholders in PPP project initiation stage between developed and developing country. We consider a stakeholder structure both for public- and private- sector initiated projects, presented in *Figure 5* and *Figure 6*. Key stakeholders present three groups: public sector (decision-making body, supporting body), facilitators (IFIs, consulting companies) and private sector.

Table 4: Difference in stakeholder characteristics in PPP project initiation stage in a developed and a developing country.

Group of Stakeholders	Stakeholder	Developed Country	Developing Country
Public Sector	Decision-making body	Is familiar with PPP, can initiate a project from its side, hardly influenced by external factors	Is not very familiar with PPP, decisions and priorities can be influenced by political factors, short-term motivators, public opinion etc.
	Supporting body (PPP Agency)	Specialized supporting body, often has a significant expertise and proven track of record, can provide an independent advice on a PPP project	Not always present as a separate stakeholder, can provide an independent advice on a PPP project but has less voting power
Facilitators	IFIs (in case of public sector initiation)	Very rarely presented as a stakeholder because private companies have access to affordable financing in developed financial markets	Serves an important role of an initiator by funding research on PPP project for the government and providing affordable financing for a private sector company
	Consulting companies	Hired as an independent side to provide advice on a PPP project. Often consist of experience specialized teams.	Hired as an independent side to provide advice on a PPP project. Has less experience in such projects.
Private Sector	Private Company (in case of Unsolicited Proposal)	Most likely is familiar with PPP projects and working with a public sector	Less likely to be familiar with PPP projects and working with a public sector

Source: developed by author

As we can see from the *Table 4*, the main point because stakeholder structure for PPP projects in developing countries is more complicated often follows from the lack of experience of the public sector

in preparation of such projects and external factors that influence public sector. This, in turn, create a need of hiring facilitators, such as IFIs and consulting companies.

Another key aspect is a specific stakeholder interest. When it comes to a PPP project, stakeholders from different groups often have different perspectives, sometimes even opposite goals. For private sector and facilitators, the interest comes from the organizational nature of their institution:

Private sector: Maximize its profit by achieving an agreement on the most appropriate terms (i.e., fixed payments from the public side, tax benefits, etc.).

IFIs: Lead to a successful completion of a project by the IFI standards (transparency, accessibility, public benefit, private sector involvement).

Consulting companies: Lead to a successful completion of a project to improve its reputation and increase future revenue streams.

Whereas for the Public sector, there are two dominant groups of motivation factors:

1. Internal motivation factors.
 - Realize government/sector strategy
 - Receive political wins
 - Improve image and build network with international partners
2. Asset/Enterprise-centered motivation factors.
 - Generate positive economic effect
 - Generate positive effect for the State budget
 - Turn an unprofitable / problematic asset or enterprise into a profitable / successful one

The interests of public sector not only are broader and more complex, but these groups of interests can contradict each other and therefore create resistance for successful implementation.

However, because the decision-making public sector body is a current asset owner, it will have a final word whether to continue or abolish a PPP project. This means that, although often PPP projects present a complicated stakeholder structure, public sector still has a decisive ultimate power, therefore we may come to a crossroad when public sector gets what it wants or decides to cancel the project due to certain risks or challenges. A downside to a latter decision can be that the public sector will be left with a problematic and unprofitable asset.

Ukraine, as a developing country, is likely to have a more complicated structure of stakeholders due to lack of PPP experience of the public sector and external political factors. These difficulties can be mitigated with the help of facilitators, such as IFIs and consulting companies.

Facilitators serve an important role as they:

1. Initiate PPP projects (in case of public initiative).
2. Can provide immediate funding for to research PPP project viability.
3. Can provide access to affordable financing for a private company in undeveloped financial markets.
4. Serve as an additional safety guarantee both for public and private partner.
5. Can serve as a mediator / negotiator between public and private partner.
6. Serve as an independent and credible stakeholder.
7. Lower the corruption risk due to more involved and transparent selection process.

At the same time, this always come with a cost of time and money because:

1. Broader stakeholder structure requires more communication.
2. Broader stakeholder structure complicates the project resulting in time delays.
3. Hiring independent consultants / experts can be costly. The higher their level is, the more expensive it will be.
4. IFIs will require compensation for the research of PPP project viability in case of successful completion.

As a result, we can see that for the Ukrainian case, the imperfections of the public sector can lead to overruns in time and cost for project preparation. This is relevant not only for Ukraine but for all developing countries.

Although it is hard to recommend getting rid of the facilitators because it will have a negative impact on the PPP project preparation, there is room for improvement when it comes to public sector inefficiencies.

This can be achieved in two ways:

- 1. Practical method:** learning through mistakes. The end result is more effective but can be costly due to bad timing and high negative economic effect.

- 2. Theoretical method:** providing learning to the public sector representatives engaged in project preparation. Although it is highly recommended, the results can greatly vary depending on the person and other factors.

The practical method learning is largely inevitable if the PPP project will be initiated, however the theoretical method has a priority because it is precedent and has a potential to minimize the costly mistakes.

This creates a need for a tool that will support public sector representatives both at their learning process and practically at project initiation stage.

5.2. Developing a tool for PPP project initiation framework.

Previously we have come to realization that having a tool for project initiation will facilitate the process of PPP preparation for the public.

For the purposes of this analysis, we have created a two-step framework for pre-assessment of PPP projects at initiation stage. It should have following characteristics:

- Simple to use and understand (even for people with no experience in PPP)
- Can process real data into evidence-based decision-making
- Contain all financial structuring options, presented in *Section*
- *2.2. Types of financial structuring options for PPPs.*

As a result, a two-step framework combines a mind map of financial structuring options and financial model that uses real data through a filter system to choose a relevant financial structuring option. This can bring the following advantages:

- Gives a possibility for public sector representative to quickly identify key characteristics and screen projects
- Allows to get a better understanding of financial structuring internally
- Improve portfolio management of state-owned assets
- Makes possible for public sector to initiate small-scale PPP projects on its own without the help of facilitators
- Increase in volume of initiated PPP projects by creating a so-called PPP conveyor
- Save time & money on small-scale projects by completing projects on its own

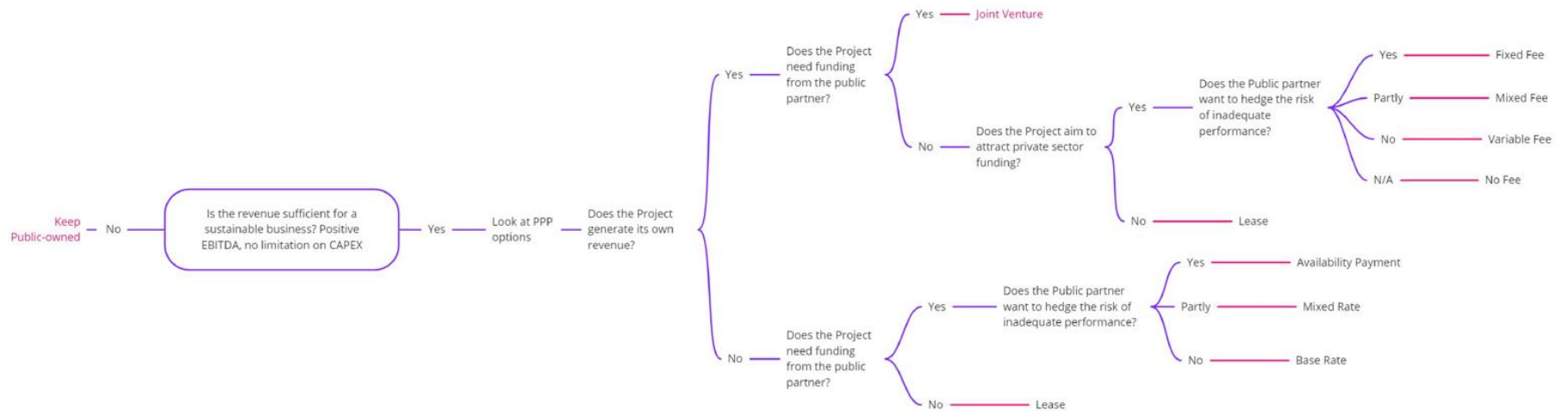
It is important to mention that this is:

NOT be sufficient to replace full project assessment methodologies such as feasibility studies

- NOT give an opportunity to conduct preparation for large-scale PPP projects without facilitators due to its complexity

Figure 10 shows the first step of a two-step framework for pre-assessment of PPP projects at initiation stage, a mind map of financial structuring options for a PPP project.

Figure 10: Mind map of financial structuring options for a PPP project.



Source: developed by author

This mind map is used to apply results from financial model to identify suitable financial structuring options for potential PPP projects. The results of the analysis are presented in the *Section 5.3. Application of two-step framework on selected sample of potential PPP projects.*

5.3. Application of two-step framework on selected sample of potential PPP projects.

The results of application two-step framework on selected sample of potential PPP projects are presented in *Table 5*.

The model analysis used real data from financial and management reporting for standalone enterprises and publicly available data non-standalone enterprises (social & municipal assets).

The mind map was used to identify relevant financial structuring option for each project.

Table 5: Results of applying two-step framework for identifying financial structuring options of potential PPP projects selected for the analysis.

Number	Cases	Industry	Sub-industry	Standalone enterprise	Financial structuring option
1	Ukrposhta	Logistics	Post services	Yes	Joint Venture
2	Ukrvodshlyah	Inland waterways	Transport services	Yes	Fixed fee
3	Presa	Publishing	Publishing House	Yes	Lease
4	Boryspil Airport	Airports	Multifunctional airport	Yes	Mixed fee (fixed & variable)
5	Chornomorsk seaport	Ports	Grain & container transshipment	Yes	Variable fee
6	Reni seaport	Ports	River transshipment	Yes	Mixed fee (fixed & variable)
7	Dunaiske Paroplavstvo	Inland waterways	Transport services	Yes	Mixed fee (fixed & variable)
8	Tranzvyazok	Electronics Industry	Radio & Electronics	Yes	Variable fee
9	Lviv-Krakovets toll road	Roads	Highways	Yes (SPV)	No fee
10	Kyiv-Zhytomyr-Rivne road	Roads	Highways	No	Availability Payment
11	Lviv Railway Station	Railways	Railway stations	No	Base rate + Availability Payment
12	Chop Railway Station	Railways	Railway stations	No	Base rate + Availability Payment
13	Kryvyi Rih National	Education	University	No	Availability Payment

	University				
14	Kryvyi Rih School №71	Education	School	No	Base rate
15	Lviv City Hospital #8	Healthcare	Hospital	No	Availability Payment

Source: developed by author

Here, I give more detailed explanation of results of a two-step framework for identifying financial structuring options for PPP projects case by case:

1. Ukrposhta.

Ukrposhta is the national postal operator of Ukraine and is a standalone business. It is one of the biggest state-owned enterprises and has been in talks of possible privatization and PPP. In the last few years, the enterprise has gone through business transformation processes to become more competitive. The financial performance of the enterprises fluctuates from negative to positive depending in the last few years. Since the public sector has made recent significant investments in the business and it is a critical enterprise, the only suitable financial structuring option is a Joint Venture with a reputable international company that specializes in postal services.

2. Ukrvodshlyah.

The state enterprise of waterways Ukrvodshlyah ensures the safe and accident-free operation of Dnipro navigable hydraulic structures. Ukrvodshlyah is financed from the budget because it is unable to become profitable as a standalone business. Attracting private sector funding to invest in fixed assets and giving a private company a possibility to set tariffs can improve business efficiency to guarantee a fixed fee for a public partner once there is no significant demand risk for the business.

3. Presa.

The state enterprise for the distribution of periodicals Presa is a state unitary commercial enterprise, based on state property, which belongs to the sphere of management of the Ministry of Infrastructure of Ukraine. Presa is a non-core unprofitable standalone enterprise. The enterprise can be leased to a private company that can optimize its business processes and give financial relief for a public partner.

4. Boryspil Airport.

Boryspil Airport is the biggest air gate of Ukraine. The enterprise operates both passenger and cargo terminals near Kyiv. It is a standalone business able to generate revenue and it will require private sector funding for development and building air connections with other airports. The public partner will likely ask for some level of hedging performance, since Boryspil Airport was more often a profitable enterprise, and the public partner does not want to lose cash flow from it. At the same time, financial structuring option should not demotivate development, therefore mixed fee (fixed + per cent of variable) is a suitable option.

5. Chornomorsk seaport.

Chornomorsk seaport is one of three biggest Ukrainian ports, located in the Odessa region. It is a standalone business, and it has significant need for funding to develop container terminal operations and remain competitive. As the port is currently unprofitable, public sector does not have a need to ask for a fixed fee. This will also put additional financial burden on a private company in first years of PPP contract, therefore variable fee is the best option.

6. Reni seaport.

Reni seaport is located on Danube River at the crossroad of Ukraine, Moldova and Romania. It is an important enterprise to connect Ukraine with Central European via Danube River and optimize export/import operations. In terms of financial structuring, it has similar needs and characteristics as Chornomorsk seaport, therefore variable fee will be a priority. The public partner will be able to get a per cent of profit and get a relief from avoiding financial losses.

7. Dunaiske Paroplavstvo.

Dunaiske Paroplavstvo business is domestic and international transportation of passengers and cargo by sea and river transport; shipbuilding and ship repair. This is a standalone enterprise. Although Dunaiske Paroplavstvo is profitable, its funding needs include acquisition and maintenance of ships. Therefore, preferred financial structuring option for the public partner is a mixed fee (fixed & per cent of variable).

8. Transzvyazok.

Transzvyazok is a state-owned factory located in Kharkiv that develops, manufactures and sells signaling and communication equipment, other devices and spare parts for railway transport and subways of Ukraine and other countries. The company is a standalone business that struggles to cover its

capital funding needs. Since the public partner will benefit from relief from financial losses and the private partner will have to make significant capital investments upfront, variable fee is an optimal financial structuring option.

9. Lviv-Krakovets Toll Road.

Lviv-Krakovets toll road is a potential project that involves the construction of an 84.4 km toll highway in Ukraine. The US\$528 million project also includes the following: construction of highway roads, construction of bridges, Construction of tolling booths, installation of traffic signals, installation of traffic signs, construction of related facilities (Ministry of Transport and Communications of Ukraine; Ukravtodor, 2017). This project was planned to be conducted as independent from Ukravtodor road fund and administered through a SPV owned by a private partner, therefore it can be considered as a standalone business. Given the fact that private partner is fully responsible for funding and construction of a new highway, the public partner does not share demand and affordability risk. Therefore, the risk hedging metric is not applicable for this project, the recommended financial structuring option is no fee.

10. Kyiv-Zhytomyr-Rivne Road.

Kyiv-Zhytomyr-Rivne highway is an existing road included in the pilot Road PPP Program in Ukraine (Ukravtodor; Ministry of Infrastructure; SPILNO, 2020) aimed to engage the private sector in Ukraine's existing road network through PPP contracts to facilitate quality road network upgrades and long-term maintenance through private investment. The road is an asset of Ukravtodor and can't be considered as a standalone business. The road construction & maintenance is financially intensive business and carries high risk for the public partner in case of inefficiencies and inadequate performance from the private partner. Therefore, the project should be financially structured with availability payment model.

11. Lviv Railway Station.

Lviv Railway Station is an asset of Ukrzaliznytsia (UZ), the railway monopolist of Ukraine. It is considered as a potential PPP project by the Cabinet of Ministers of Ukraine (Communications Department of the Secretariat of the Cabinet of Ministers of Ukraine, 2021). It is not regarded as a standalone business because it is financed from a pool and is a loss-making division. Lviv Railway Station has a significant commercial potential but realizing it requires time and capital investment from a private partner. Since the railway station is not profitable as standalone business and public partner

will require risk hedging of some extent, the mixed rate (base rate & performance-based availability payment).

12. Chop Railway Station.

Chop Railway Station is an asset of Ukrzaliznytsia (UZ), the railway monopolist of Ukraine. It is considered as a potential PPP project by the Cabinet of Ministers of Ukraine (Communications Department of the Secretariat of the Cabinet of Ministers of Ukraine, 2021). It is not regarded as a standalone business because it is financed from a pool and is a loss-making division. Chop Railway Station is located in a small city on the border with Hungary and has a tourist potential. Since the railway station is not profitable as standalone business and public partner will require risk hedging of some extent, the mixed rate (base rate & performance-based availability payment).

13. Kryvyi Rih National University.

Kryvyi Rih National University is a classic university with more than 20,000 students and is subordinated to the Ministry of Education of Ukraine. It was chosen for the portfolio as a sample average university. There is no information on the need of significant capital investment from a private partner, however university may require optimization of space usage and coverage of deferred maintenance. Assuming this will be the main focus for a potential PPP project, the public partner would consider hedging risk of inadequate performance, therefore availability payment model is recommended.

14. Kryvyi Rih School №71.

Kryvyi Rih School №71 is school subordinated to the municipal education administration of the Ministry of Education of Ukraine. It was chosen for the portfolio as a sample average school. Given the lack of financial independence of public educational institutions and low risk of inadequate financial performance for the public partner, the only suitable financial structuring option is a base rate.

15. Lviv City Hospital #8.

Lviv city Hospital #8 is a municipally owned asset and a key supporting health institution for Lviv area. It was previously announced as a potential PPP target (Agency on support for Public-private partnership, 2021). The city hospital requires capital investment for imaging and laboratory facilities, as well as improvement in space optimization. It can't function as a standalone business under a current healthcare

financing system in Ukraine and carries high risk of inadequate performance for the public partner, therefore preferable financial structuring option is an availability payment.

6. ANALYSIS AND DISCUSSION.

In this chapter I discuss my contribution to the PPP initiation stage by developing and analyzing results from testing two-step framework on a selected portfolio, where I identified financial structuring options for potential PPP projects. Also, I provide answers to my two research questions about how it can help to improve PPP selection process for the public sector in the context of stakeholders theory. Finally, I discuss the potential, main challenges and risks associated with using such framework in real world scenario. By using a two-step framework, I point out the main characteristics that define the financial structuring for PPP projects and give a supporting explanation on a thinking process behind the two-step framework.

6.1. *How to improve the PPP project identification with data-based evidence?*

This subsection brings an answer to my first research question.

Data-based evidence is not just a modern trend but a necessity for quality decision-making. Our two-step framework presents just one of the many possible ways how to data can help to improve project identification and decision-making for the public sector for PPP projects.

The key issue is how such framework can be used in the real-world scenario and what would implications of it. Unfortunately, due to limitations of the study it is impossible to test it with public sector representative, decision-makers and PPP experts so that they can give their independent opinion. However, we can discuss the results and observations from our experiment and argument its advantages and disadvantages.

These are findings discovered during the experiment, the pros and cons of developing such framework for the public sector are listed in *Section 5.2. Developing a tool for PPP project initiation framework.*

First, we can say that such tool would have been beneficial for public sector representative because:

1. It has proved to work.

We have tested our framework on a diverse portfolio that consists of assets and enterprises from various industries with different sources of revenue. As a result, we have received 9 different financial

structuring options as recommendations for these 15 potential PPP projects, proving it a flexible tool that works in different scenarios.

2. It has proved to be effective.

The selected portfolio of potential PPP projects included several cases when these projects were announced as potential PPP projects and even some of them underwent project readiness assessments by the team of qualified experts. For example, studies performed for Chornomorsk Seaport, Lviv-Krakovets Toll Road, Kyiv-Zhytomyr-Rivne Road have recommended the same financial structuring options for each of them after a detailed analysis of PPP project readiness assessment.

3. It is easy to scale and administer.

The two-step framework is easy to scale because it only needs input data from the financial and management reporting from the project to be tested for the financial structuring. Once it was created for the first project PPP, it has required little to no adjustment for the following project testing. It is simple to administer because it used Microsoft Excel for modeling and Miro website for the mind map, which are easily accessible for everyone with internet and computer device.

Still, we have discovered certain disadvantages of this framework:

1. Lack of data for some projects.

One the main basic principles of the framework was the simplified data collection, which relied largely on publicly available financial and management reports from state-owned enterprises and data from governmental websites.

In order to test how the framework would work with cases when there is not enough data, we have added several projects, for which there is no disclosed publicly available reporting data, therefore we had to use data from other reports and articles.

It should be noted that for the public sector gathering this data should not be a significant problem like it was for me and other independent researchers. However even this will require additional effort and time, which is more complicated than data collection process for projects with publicly available project data.

2. It has a limited scope of application.

Its simple nature and advantages are opposed with typical disadvantages of a high-level assessments, where there are not many details or there is a risk of a mistake due to small scope of research. This makes the framework not preferable to use as a single tool or to use for latter stages of the project assessment. However, it is important to mention that this have initially aimed to develop this framework as a supporting tool for the PPP project initiation stage only.

3. It cannot be fully automated.

Although it is easy to administer, the framework still requires regular updates for macroeconomic and industry data, as well as manual input of reporting data. This will require support of several people, possibly from the governmental PPP Agency.

Altogether, we can see that using data for decision-making can bring significant results for the PPP project identification but as all innovations, has caveats and need to be tested in real-world scenario by the professional and decision-makers. This will create a possibility for further development and addressing public sector needs.

6.2. What changes can be made at the initiation stage to increase the success rate of PPP projects?

This section gives an answer to my second research question.

The concept of using a two-step framework can provide value not only in laying out the results for financial structuring options, but also allowing us to realize how the dynamic perspective and actors' interactions change with the existence of such framework.

We can argue that it improves the overall understanding of financial structuring process for the public sector process as it combines practical and theoretical aspects of learning as it was pointed out in *Section 5.1. Dynamic perspective and actors' interactions at the PPP project initiation stage in Ukraine.*

One other useful feature of such framework is that it brings an emphasis on the key aspects of PPP, which is allocation of risks and responsibilities between public and private partners. With more understanding from the public sector, the stakeholder structure becomes more robust, and more trust is built. Once public sector can identify that certain financial structuring option is preferable regarding the peculiarities of the project, i.e. loss-making enterprise, ability to work as a standalone business, there is more chance that interest of different stakeholder groups will be met.

The argumentation for simplification of PPP has recently emerged in public space regarding the challenges for PPP implementation for Ukraine during the war when Draft Law №7508 was created on July 1st, 2022 (Verkhovna Rada, 2022).

The Draft Law proposes to the new approach the PPP selection process by introducing three groups of PPP projects: standard, renovation and small (under EUR 5.382 M). In contrast to the standard projects, the procedure for renovation projects and small proposals is simplified, which will significantly shorten the time frame for preparing tenders and the subsequent implementation of the construction phase.

The introduction of new conceptual approaches is expected to significantly expand the accessibility and scope of PPP applications. Most of all it relates to the fastest possible recovery of the economy - PPP projects will be able to be implemented en masse, faster, cheaper, in new areas and with the involvement of smaller resources.

The developers of this law focused on the timeline for preparation, it is proposed that such projects are prepared without carrying out a feasibility study and efficiency analysis, capital expenditure calculations

will be developed by a state partner using a database of similar objects. Thanks to this, it is expected to shorten the preparation period from 18-24 to 8-12 months.

This emphasizes room for further research, development and implementations of tool and procedures that will be able to decrease the time and cost for preparation of PPP projects without significant compromise on the quality.

To sum up, the PPP initiation stage can see positive changes in the level of mutual understanding between stakeholders and simplification of the process as the result of direct action or secondary influence from the implementation of modern tools and procedures.

7. CONCLUSIONS

7.1. Summary of the study.

This study was conducted to identify how the PPP project identification can be improved with use of data-based evidence and what are other possible solutions to increase the success rate of PPP project.

To begin with, I have learned what are the peculiarities of the stages of PPP lifecycle and identified that the early stage of project initiation, also known as project identification, is a fascinating topic for the research not only due to the fact that it has less coverage in academic and professional literature but also because it is often mistakenly underappreciated for its abstraction and uncertainty. In fact, it can be a critical departure point for a successful or failed project depending on how PPP project is identified and how key actor's approach to establishing their relationship. I have identified a research gap of emerging need in creating a framework for assessment of PPP projects at the initiation stage.

Then I have discovered the topic of financial structuring in PPP, in its narrow and broad sense, its interconnection with management structuring, risk and responsibilities allocation between private and public partner. I have collected a wide range of financial structuring options with each of them present specific advantages and disadvantages, resulting in different risk and reward scenarios for the public and private partners.

When presenting research context, I have identified that Ukraine has a lot of common factors with other developing countries that create limitation for the use of PPP. At the same time, Ukraine had its unique challenges and even "exceeded" above others in some respects, i.e. the number of state-owned enterprise.

After that, I have developed this idea for the behavioral analysis of actors' interaction at the PPP project initiation stage in Ukraine in the empirical findings section. by comparing how stakeholders' actions and motivation is different in developed and developing countries and how it creates challenges for the PPP implementation in Ukraine so that later I was able to answer my research question.

To prove that it is possibility and usefulness of supporting tools for the public sector I have developed a two-step framework that consisted of a calculation model that uses real data from financial and management reporting together with a mind map of financial structuring options. I had success with identification of financial structuring options for the diversified portfolio or enterprises and assets and can use this shortlist of potential PPPs to provide recommendations for the public sector.

The two-step framework has proved to work effectively and despite the limitations of the study, has created an argument for the development of data-based evidence tool for the public sector to be used at the project initiation stage.

Together with that, it helped us to understand its impact by providing additional value in learning and changing the mindset in favor of cooperation and responsible allocation of risks between parties. This has underlined the importance of stakeholder interaction as the key success factor for the PPP initiation stage.

Finally, we have observed recent innovations in PPP preparation procedures by the Government of Ukraine that go in parallel with our findings and can indicate that we were on a right track and this area has still a lot of potential for further research and development.

7.2. Limitations and suggestions for further research.

This thesis has certain limitations. First of all, the empirical and analysis part has limited scope exposure to Ukraine, it is understandable that each country has its own specifics and therefore the result for other countries. Also, due to the external factors, I was not able to fully implement my plans for research without communication with decision-makers from the public sector that would give valuable insights and feedback on the two-step framework.

I think that for further research it would be useful to test the two-step framework or alternative data tools in real time scenario to identify their pros and cons in practice. Also, I find intriguing new changes to PPP procedure that are already made and proposed to be changed by the Ukrainian Government. I believe it has a lot of room for research, for example research on international experience, whether similar measures have been introduced elsewhere and what are their outcomes. Other than that, PPP is a broad topic and with such dynamic development, it will certainly present interesting aspects for research in the context of Ukraine and beyond.

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