PPP in Cultural Heritage Projects

Guidelines for the planning and preparation of cultural heritage projects according to the model of public-private partnership

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Introduction

Public sector officials face the challenge of preserving and protecting cultural heritage objects over a long period of time but with limited financial resources. While the use of traditional forms of funding depends heavily on the availability of public authority budgetary capacities, the implementation of the Public-Private Partnership (PPP) model, which includes the private sector, can be a good solution.

The development of guidelines for planning and preparing cultural heritage projects based on the Public-Private Partnership (PPP) is a practical guide for public authorities to structure PPP projects in the field of the revitalization and protection of cultural heritage.

The purpose of this guide is to provide practical information on all the important steps to be taken in planning and preparing a PPP project. This guide can also be used by other stakeholders involved in transactional processes such as conservators, financial institutions, advisers and all other parties involved.

The application of PPP is not solely based on financial or legal aspects, and therefore the purpose of this guide is to include a comprehensive process of planning and preparing cultural heritage projects. This guide is structured to monitor the process of preparing a PPP project through three basic aspects: I) financial, II) legal and III) technical, as defined by the public-private partnership legislation in Slovakia. At the same time, the simplicity of this guidance was taken into account during processing.

The first chapter defines the basic features of the public-private partnership. The second chapter compiles a comparative analysis of how to distinguish the public-private partnership model from other forms of public-private cooperation. The third chapter defines the basic forms of PPP contracts that public authorities can conclude with the private sector. The fourth chapter outlines the PPP success criteria for cultural heritage, and the financial, technical and legal aspects needed to prepare a PPP project are described in the fifth, sixth and seventh chapters.

This guide was developed within the INTERREG Central Europe Restaura project: Revitalization of historic buildings through a public-private partnership that brings together 4 countries: Croatia, Poland, Slovakia and Slovenia.

I. Basic Features

I. Characteristics of a public-private partnership

A public-private partnership is a long-term contractual relationship between the public and private sectors concluded for the purpose of providing public services or services of general interest. Such a relationship may include the design, construction and/or renovation, financing, management and maintenance of infrastructure and/or the provision of services by the private sector, which has traditionally been procured and provided by the public sector. PPP models implement social infrastructure projects (schools, kindergartens, hospitals, health centers) as well as economic infrastructure projects (motorways, airports, railways, etc.). A key feature of such cooperation is the achievement of social and economic objectives so that each partner retains its own legal subjectivity and responsibility, while collaboration is based on contractually defined roles and assumed risks (AIK, 2012). The private sector gains new market opportunities, while the public sector has the opportunity to provide better public services.

The basic concept of PPP in cultural heritage projects is based on the so-called Decision to rent or buy (Orsag 1992, Skelcher 2005), well known in corporate finance sector. Instead of designing, building, financing and preserving cultural heritage, the public sector will enter into a long-term contractual relationship with a private sector entity in which this private partner performs all or part of the commitment instead of the public partner (AIK, 2012). In such a relationship, the public sector retains only a supervisory and/or regulatory role, prescribing the conditions that the private sector must meet. In the case of a contract implemented in this manner, the private sector receives benefits from end-users and/or the public sector. Although there are no uniform rules at the EU level in the form of a directive on PPP, some EU institutions (Eurostat, EIB, European Court of Auditors) have proposed to Member States in their handbooks how to regulate PPPs legally and institutionally. There is legislation and an institutional framework in the Republic of Croatia governing public-private partnerships and it prescribes procedures for planning, preparing, evaluating, approving and implementing PPP projects as well as participating institutions. Since PPP projects represent a complex interconnection of legal, financial and technical aspects, their essential characteristics can only be perceived by the essential elements that characterize each PPP project:

1. Long-term cooperation between the public and private sectors. Since each PPP contract has a long-term duration of usually 10 years or more, the planning and project preparation must be comprehensive. The legal framework of the Republic of Croatia prescribes a minimum contract duration of three years and a maximum of 40 years, and if sectoral legislation allows for more than 40 years, it is also possible to conclude a contract for such a prescribed period. The average duration of a PPP contract in the Republic of Croatia is 27 years[1]. The duration of

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[1] According to the data of the Registry of PPP contracts database (http://registar.aik-invest.hr)

a PPP contract is not determined solely by legislation but also by an economic approach to total costs over the life of the project. (See chapter: Technical aspects of PPP projects)

2. Public infrastructure and public service. PPP schemes are always associated with the provision of public services and the construction and/or reconstruction of public infrastructure. PPP projects differ from privatization in such a way that a private partner usually plays a role in the public service provider's position at a specified time, with the strict scope, rules and conditions prescribed by the public sector. The public sector has the role of project owner and prescribes output specifications and performs regulatory roles.

3. Political support. This is considered the most important element of the success of any PPP program. Without political support, even the best-created PPP project will also be condemned to failure. Given the long-term duration of the contract, the private sector will not be willing to join a PPP project if it does not have comprehensive political support.

4. Public investment. The development of public services is closely linked to the development of public infrastructure, which in itself constitutes public investment. Given the lack of financial resources in the public sector, the implementation of investment projects can be slowed down or completely interrupted. In PPP transactions, the private sector replaces the initial State commitment to finance the construction and/or reconstruction of the project. By using its own forms of funding, it allows the public sector to convert initial capital investment into the payment of a monthly fee throughout the duration of the PPP contract. This gives the public sector the possibility to implement a larger volume of investment projects in a short period of time without exposing it to the risk of a general government deficit.

5. Distribution and transfer of risk. Each investment project is characterized by a number of risks that occur during its life cycle. As the success of implementing a long-term contract between the public and private sectors depends on the way risk is distributed between the parties, it is necessary to identify and quantify (if possible) at the planning stage and prepare a risk project. The risks associated with construction, financing and management are expected to be better managed by the private partner, while the public sector is better able to manage the risks associated with the demand for services. A PPP contract never presupposes that the private sector will assume all the risks, but it is expected to only assume those that it can manage more effectively than the public sector. Transferring all risks to the private sector is a privatization model, not a PPP model.

6. Payment only for the services rendered. Although PPP transactions require substantial private sector investment in the construction and maintenance phase, payments by the public sector and/or end users depend solely on the services provided, i.e. they are carried out in accordance with the availability of infrastructure or the expected risk of demand. In this way, the private sector is motivated to keep the infrastructure in full for the duration of the contract, allowing maximum value for money invested (value for money principle).

7. Existence of a Special Purpose Vehicle – SPV (A company set up for a special purpose).
The selected tenderer in the tender must establish a special project company for the purpose of implementing the project, the SPV, which was established solely for the purpose of implementing the project. The cash flows of the project are thus separated from the cash flows of the selected economic operator. An SPV is a private partner in PPP projects.

II. How to distinguish PPP from other forms of cooperation in cultural heritage revitalization projects

II. How to distinguish PPP from other forms of cooperation in cultural heritage projects?

The regulatory authorities of the EU Member States, Eurostat and other public authorities involved in the project planning and preparation process distinguish PPP from other cooperation agreements solely on the basis of a single parameter. This parameter is called "risk transfer" (AIK, 2014). The level of risk to which the private sector is exposed is an essential prerequisite that distinguishes PPP contracts from conventional service or work contracts between the public and private sectors. Based on past experience in cultural heritage revitalization projects, there are significant differences between the risks in PPP contracts and conventional contracts where we distinguish:

1. Service contract - often concluded in cultural heritage revitalization projects, where public authorities involve the private sector in specific services such as equipment maintenance, conservation research, restoration of cultural heritage, etc. In such contracts, the private sector provides services that are not available within public sector capacities in a very short time frame.

2. Contracts relating to architectural works and construction – the most common way of involving the private sector, where restoration and/or repair and/or construction work involving architectural design and construction is carried out on the subject of cultural heritage. The private sector is fully taking on the associated construction risks, while the public sector is obliged to finance such facility and fully assume the risks associated with the maintenance of this facility.

3. Leasing contracts - the only form of financing contracts for the construction or revitalization of a cultural heritage site where the property is temporarily transferred to a private partner. All project risks related to the construction and operation of such transactions are solely borne by the public sector. Therefore, such a form of cooperation cannot be called PPP, as there is no synergy between the private and public sectors in transferring and managing the risks associated with the construction and maintenance of the facility.

Although these contracts features public-private cooperation characteristics, they cannot be called public-private partnership projects. PPP projects are complex, requiring substantial funding for preparation and planning.

III. Basic forms of PPP contracts

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Although there is no universal form of PPP model at the EU level, each Member State regulates this area in accordance with its legislation. Two basic forms of PPP can be recognized within EU countries:

- **Contractual Public-Private Partnership** – the most common model for implementing PPP projects, where mutual rights and obligations between contracting partners are either a concession model or an availability-based model. The contract prescribes all the essential elements of the business relationship, such as the term, method of service delivery, equipment standards or infrastructure and service as well as the fee-paying mechanism. By this form of relationship between public and private partners, partners maintain their own identity and responsibility. Often, the private sector assumes the responsibilities and risks associated with construction and accessibility and/or demand, while the public sector frequently does not participate in these obligations and risks, but it fulfills a regulatory or supervisory function in the provision of public services.

- **The public-private partnership statute** is based on a public-private relationship in which all rights, duties and risks are shared equally between partners. The legal framework of the Republic of Croatia regulates the statute of the public-private partnership as a model in which the project is implemented in the form of "joint ventures" established by the public and private sectors. Unlike the contract model, where the public sector exclusively plays a supervisory role, or as the case may be a regulatory one, a model is used where the public sector is directly involved in the provision of public services and also takes on all the obligations and risks associated with the construction and maintenance of infrastructure availability.

IV. Criteria for the successful implementation of the PPP model in cultural heritage projects

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Unlike other infrastructure projects, cultural heritage revitalization projects in the public sector have some specificities. While in public investment, public procurement policy aims to achieve the lowest price of public service standards achieved, this is not the case for PPP cultural heritage projects. The main reason is that the theoretical and professional framework of such projects is based on the principle of protecting and preserving the cultural heritage and evaluating the project with the very strict application of the established criteria (Bilušić-Dumbović, 2013). It is often said that such projects have an "inestimable value" for society as a whole, so approach to such projects also differs from the classical approach to new so-called Greenfield investments. Taking into account the complexity of the approach, as well as the significant financial resources to be provided during the implementation of the cultural heritage project, 5 criteria for the successful implementation of the PPP model in cultural heritage projects have been identified based on previous Member States' experiences under the INTERREG Restaura Project.

1. Identifying the public need for projects to revitalize cultural heritage.

The foundation for the sound management of public administration is based on the strategic decisions and action plans adopted, which provide guidance in which the implementation of a specific public policy is required. Before implementing any PPP program, it is necessary to identify the market and the social need for its implementation. This is done by studying the state and trends of possible environmental developments and other areas covered by the program. Depending on the results of such analyzes, a program implementation scenario is implemented on the basis of which decisions on public need acceptance are taken. These steps need to be taken as soon as possible so that public authorities can obtain useful input from potential investors, financial institutions and other market participants. Since PPP is one of the models for implementing a revitalization project, it must be evaluated and compared with at least one of the other implementation models. In practice, comparisons are often made with the traditional model, using a tool called a "Public sector comparator". Such tools include exploring public investment over its lifetime and the purpose of allowing them to reasonably justify a particular project and implementation model.

2. Analysis of the payment capacity of the public sector

Efforts not to increase public sector indebtedness and the existence of budgetary constraints on local governments lead to a thorough analysis of their solvency before the project implementation itself. The aim of such an analysis is to determine whether the project is financially available to the public sector and whether there is a sufficient level of demand for the implementation of such a project. Decisions on public infrastructure projects are not taken

on the basis of their financial viability, but their implementation must be sustainable in the long term. Therefore, the analysis of the public sector solvency by using available public resources aims to determine whether public authority budgets (local, regional, central) may be subject to possible budgetary burdens.

3. Setting up a project team to implement the project

The implementation of cultural heritage revitalization projects requires specific project team knowledge and skills that may not be available within the public body implementing the project, and therefore it is important to have comprehensive expert support at the very beginning of the preparation process. Sufficient legal, technical, financial and other project team skills are important. Unlike the traditional model in which public authorities' orientation is only evident during the reconstruction and restoration of cultural heritage, and the project ends with the completion of construction work, using the PPP model extends this relationship to the operational lifetime of the project. Therefore, at the outset, sufficient budgetary resources need to be anticipated for comprehensive project preparation and the possible involvement of experts. The project implementation team often includes staff from different departments of one and/or more public authorities who contribute to the implementation of the project at all stages through their knowledge and skills. The public sector project team may or may not include external experts.

4. Comprehensive project design preparation

Although PPP projects often point out that their preparation involves a series of comprehensive procedures and documents, it actually requires competent staff to follow the processes that should be applied when implementing any investment project, regardless of the applied model (traditional model, PPP model). The aim of comprehensive training is to define contractual relationships over a long period of time, the cost of providing a public service, the level of planned and anticipated project risks, as well as the optimal timeframe of the project. Such a process reduces possible deviations and minimizes possible disputes.

5. Implementation of "open door" – market testing

Successful implementation of PPP projects depends on well-prepared and structured project designs. As both the public and private sectors need to be prepared for long-term contractual cooperation, market testing is required before procurement procedures for each PPP project and/or program. This type of test includes, among other things, organizing events for potential public service users, where consultations and/or project presentations are carried out, where particular emphasis is placed on what the public sector wants to achieve and how the entire transaction will be conducted. The implementation of PPP projects in the field of cultural heritage is in a certain way specific and requires the use of special techniques for the

reconstruction and revitalization of these objects, the organization of so-called "open door" events, various consultations or other events for the professional as well as the general public allowing the public sector to obtain useful information that can help "fine-tune" the project's implementation, or eventually help attract investors with a view to protecting the public interest.

Should experts be involved in the implementation of PPP projects in the field of cultural heritage?

The question of involving experts is always relevant when implementing PPP projects. Public authorities often point to the high costs of PPP projects as a major obstacle to the wider applicability of this model. However, the role of the public authority in preparing the project and what is required of the expert should be examined before answering the question. At the heart of each advisory team is the representation of at least three types of experts, namely legal, financial and technical. Each expert team is usually composed of several individuals, while the representation of other experts depends on the nature and subject matter of the project being implemented. For example, in cultural heritage revitalization projects, conservation and/or archaeological professionals can also be at the heart of the advisory team. Public authorities with experience in implementing PPPs can only involve a specific group of experts (for example, purely finance experts and/or restorers), while the whole project will be managed by the project team of the public project implementation body.

According to examples of good practice highlighted by the European PPP Expertise Centre (EPEC, 2009), the tasks and roles of individual advisers include:

Legal Advisor
- advises the public sector in the legal field and addresses issues related to the structuring of cultural heritage projects in terms of land use, legal subjectivity, and so on.
- informs the public sector about the possibility of signing a PPP contract,
- informs the public sector of appropriate selection procedures,
- prepares documentation, defines the legal capacity of inquiry,
- analyzes bids and performs professional controls,
- provides information and technical support to the public authority in response to complaints, as well as other legal issues of the project.

Technical Advisor
- produces output specifications as well as standards for space and services,
- develops conceptual design and conceptual solutions of the project,
- conducts a technical feasibility assessment by location.

Financial Advisor
- is in charge of financial analysis and the forecasting of project cash flows
- creates a payment mechanism according to the proposed PPP contract solution,
- provides advice on funding sources and assesses the public sector solvency,
- performs calculations, identifies and quantifies risks,
- formulates financial criteria for selecting the best candidate,
- participates in negotiations with financial institutions and potential candidates.

V. Financial aspects of PPP projects

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Any public investment starts with the question of funding and financial structure. Accordingly, the public authorities assess the extent to which the quality of the public services provided can be assured. This assessment is done through the preparation of the financial model. Although this chapter does not describe the detailed procedure and the way of developing the financial model, it shows the basic guidelines governing public authorities in the preparation of cultural heritage projects in the field of financing and financial aspects.

1. Creating a financial model

The financial model is the starting point for implementing each investment project. It serves as a basic tool through which public authorities decide on the merits of a project and justify the implementation of a particular model. The purpose is to assess the future effects of investment on the public sector (AIK, 2014). The main objective of the financial model is to answer the following questions: (i) how much funding is needed to implement the project; and (ii) what is the cost of providing the public service for the total lifetime of the project to the public sector.

The legal framework for a public-private partnership in the Republic of Croatia prescribes the mandatory development of a financial model for structuring a PPP project. Therefore, the following is an overview of basic assumptions for its creation and analysis of output values that must be displayed.

1.1 Basic assumptions for the development of the financial model

The role of the financial model is to influence the decision to start public investment using the practice prescribed by the European Commission in its cost-benefit analysis (EC, 2014), which lists the 4 basic categories that each public sector financial model must contain: (i) the discount rate, (ii) the project timeframe, (iii) the reference period, and (iv) the investment value estimate as shown in Figure 1:

Figure 1: Categories of financial model
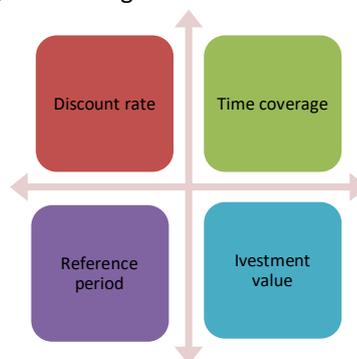
Source: Guide to cost-benefit analysis

(i)   Discount rate

Particular attention should be paid to selecting the appropriate discount rate for structuring the financial model for PPP projects. Funding and implementing public investment require significant financial resources over a long period of time, so effective management of public revenue and expenditure flows must be maintained throughout the project. Since the value of money as a financial category changes over time, i.e. the same amount of money today has a value different than the same amount of money in the future. For this reason, it is necessary to take into account the time value of money in creating the financial model. For this purpose, future cash flows need to be discounted using an appropriate discount rate.

What discount rate should be used?

The discount rate is a measure of the time value of money. It is usually expressed as an interest rate that, by discounting, converts all cash flows to their present value. It is an integral category that is used in practice to make investment decisions. In financial terminology, which includes PPP projects, a distinction is made between (i) the financial discount rate and (ii) the social discount rate.

(i) The financial discount rate is used in the financial model to discount cash flows and represents the opportunity cost of capital or costs for lost opportunities (Brigham, 1995), which represents a potential loss resulting from the decision to invest in one project instead of another. Most often, this value is expressed as the weighted average cost of capital (so-called WACC) or the value that indicates a risk-free interest rate plus investment risk premiums. Regulated securities markets also know the CAPM model for determining the discount rate.

(ii) The public sector uses a social discount rate to evaluate different investment options and/or to compare different cash flows that need to be converted to their present value. Unlike the financial discount rate, it reflects the value of macroeconomic factors and is determined by the long-term growth rate of the economy. Its value is most often determined by regulators or as the interest rate for long-term government bonds.

(ii)   The time frame of the project

An important task before starting any future investment is to decide on the time span of the project. Investments in the revitalization of cultural heritage must be observed in the long term, including the reconstruction/construction period and the period related to the preparation, planning and use of the facility. Experts involved in the design of financial models tend to advocate a longer period for monitoring investment, given their long-term impact on public efficiency. Therefore, it is recommended that the number of years to be used in the projections should be used in the range of 15 to 35 years in response to the economic viability

of the project assets. This period is directly related to the type of infrastructure that the project intends to implement.

In PPP projects, the timeframe must be set at least for the expected duration of the contract or for the economic viability of the asset.

(iii)   Reference period

Given the economic viability of the asset over the life of the project, the reference period is determined by subjective estimation. Nevertheless, increased attention should be paid to setting the reference period. There are different effects from the investment if the period is set, for example at 25 years as if it were set for 35 years. Therefore, when making forecasts for objective comparison purposes, reference is made to standard reference values that are different for each project type. The European Commission proposes to Member States reference periods for certain sectors as listed in Table 1:

Table 1: European Commision reference periods by sectors

Sector	Reference period
Railway	30
Roads	25-30
Ports and airports	25
Public transport	25-30
Water supply/sanitation	30
Waste management	25-30
Energy	15-25
Broadband Broadcasting	15-20
Research and innovation	15-25
Business infrastructure	10-15
Other sectors	10-15

Source: Guide to Cost-Benefit Analysis of Investment Projects 2014-2020

Although social infrastructure projects (schools, hospitals, kindergartens), that are cultural heritage revitalization projects, are not explicitly mentioned, it is considered that the duration of reference periods in such projects is on average 25-30 years.

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(iv)   Estimating the value of an investment

The estimated value of the investment must already be known at the time of preparation of any financial model. Based on these values in the early stages of model planning, management and maintenance costs are assumed, as well as later maintenance costs for the investment. Bearing in mind that the capital costs associated with estimating the value of an investment are the most significant and at the same time the highest value in the financial model, determining their accuracy is a significant factor in the success of financial decisions in subsequent project implementation. Therefore, in assessing investment costs, it is useful to establish a market dialogue in order to obtain the most accurate estimated value of the investment. This is particularly recommended in cultural heritage revitalization projects, where most of the initial capital expenditure is related to the reconstruction of existing historic buildings. Such facilities are most often under special protection and require the use of special recovery materials and skills. Table 2 gives an example of how to estimate the value of an investment when revitalizing cultural heritage.

Table 2: Estimated value of investment by category

CAPEX	Value
Costs of project design and preparation	€ 200,000
Costs for site preparation	€ 20,000
The costs for the implementation of construction works	€ 1,000,000
Material costs	€ 10,000
Equipment costs	€ 160,000
Costs of project monitoring	€ 10,000
Estimated total investment value	€ 1,400,000

By selecting the reference discount rate discounting cash flows, estimating the value of the investment and selecting the time frame in which the investment for the reference period is observed, the underlying assumptions for the financial model are defined. These parameters are the criteria by which the project is assessed and based on which the public authorities decide on whether the project is in accordance with their budgetary capacity and constraints.

Table 3 is an example of defining the basic assumptions for creating a financial model for a cultural heritage revitalization project based on the four categories.

Table 3: Definition of basic assumptions of the financial model

	Basic assumptions of the financial model	Value
I.	Discount rate	5.5%
Ii.	The time frame of the project	
	Year of investment start	2020
	Year of investment termination	2023
	Total investment phase duration	3 years
	The first year of use	2023
	The last year of use	2048
	Total operating phase duration	25 years
	Total time frame of the project	28 years
Iii.	Reference period for similar projects	
	Project A	32 years
	Project B	24 years
	Projekt C	29 years
	Project D	35 years
	Average reference period for similar projects	30 years
Iv.	Estimated investment value	
	Project documentation costs	€ 200,000
	Costs for site preparation	€ 20,000
	The costs of reconstruction work	€ 1,000,000
	Material handling costs	€ 10,000
	Equipment costs	€ 160,000
	Cost of maintaining project monitoring	€ 10,000
	Overall investment value assessment	€ 1,400,000

1.2 Elements of the financial model

By defining basic assumptions, basic guidelines for modeling are given. The financial model should be considered as one process that begins with defining input assumptions and ends with output indicators.

Figure 2: Financial model elements
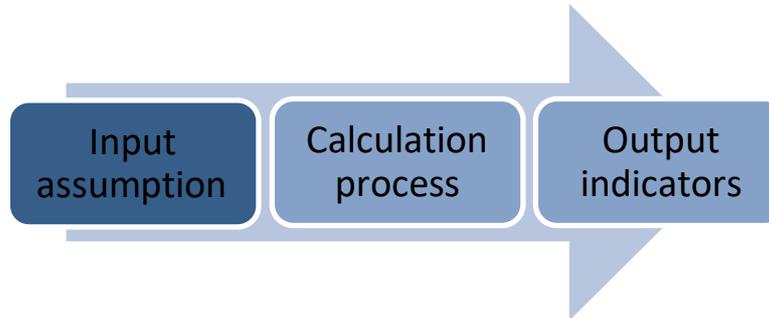
The basis for the financial model includes an estimate of capital expenditure, an estimate of management and operating costs, financial costs and revenue projections. Output indicators include the forecasted underlying financial statements and the financial indicators based on which decisions to justify the investment are taken. The elements of the input assumptions, the calculation process as well as the output indicators are described in detail below.

1.3 Input assumtions

1.3.1 Capital Expenditure (CAPEX) Estimate

The capital expenditure estimate of the project, in addition to the costs incurred during construction/reconstruction, includes the costs of project development as well as the costs of the project's administrative preparation in the form of consultant costs, bid preparation and economic competition. According to Yescombe (2007), the most important elements of capital expenditure include:

a) Project development costs – include all costs incurred in the pre-construction period, i.e. before the conclusion of the decision on the financial structure. They include the costs of legal, technical and financial preparation of the project in terms of financial modeling costs, drafting contracts, defining space standards and services to be achieved by the project, payment mechanisms and other project development categories. Development costs include project team costs and advisory costs (if involved) of the project.

b) Competitiveness neutrality costs – represent the administrative, tax and other costs associated with the preparation of a project proposal, which may have an uneven effect as compared to the preparation of the project by the public sector compared to the private sector. For example, private sector project preparation requires direct costs in the form of

administrative fees, taxes, etc., while project preparation by public sector employees may not require additional administrative costs when creating a financial model, so these costs are adjusted by reducing public or private sources.

c) Project construction/reconstruction costs – the most significant costs incurred after the financial structure has been agreed, and include the cost of construction work, services and equipment for building up to its completion.

d) Working capital costs – the amount of funds needed in the period between the settlement of operating costs and the start of achieving project revenue.

e) Construction phase reserves – since construction is accompanied by unforeseeable costs and risks, creditors often request the project investor to provide additional funds to cover unforeseen work. Such funds are approved after the conclusion of the contract and are kept in a separate reserve account.

1.3.2 Operating Expenditure Estimate (OPEX)

Operating costs arise after the construction is completed and are related to operating activities when the facility is put into use. OPEX does not include financing costs but only the costs of running the project as a whole. These costs include, in particular, management costs, the administrative costs of the companies operating the project, the payment of taxes and insurance premiums. Practitioners often distinguish three types of operating costs:

a) "soft" operating costs (soft facility management costs) that arise as direct costs of electricity, water, telephone, cleaning, catering for staff and the like. These costs are mainly related to the day-to-day operations that are necessary for maintenance and maintaining the operation of the facility.

(b) "hard" operating costs (hard facility management costs) arising from half-yearly or annual maintenance, such as maintenance of heating systems, maintenance for refrigeration systems (air conditioning), maintenance costs of electrical equipment, major repairs, etc.

c) maintenance costs of the investment – for example, the costs of replacing worn out equipment within the overall life of the facility. This category also includes more significant investment activities, such as replacement of boiler parts, etc. Such costs usually occur every 7-10 years.

1.3.3 Financial cost estimate

In addition to capital costs, financial costs represent the largest financial liabilities arising from the project. Most often they occur in the form of borrowing costs from commercial banks. Since PPP funding is based on project finance principles, we distinguish two basic types of PPP funding: (i) equity financing, (ii) mainly debt financing, and (iii) mezzanine or quasi-equity financing.

(i) Equity financing

Equity financing in public-private partnership projects poses the greatest operational and financial risk to the bank (or financial institution and/or institutional investor). Unlike debt financing, equity investors expect the project to generate positive cash flows after all regular operating costs and financial costs are paid. Therefore, the required return on such a form of financing is set at a significantly higher level and reaches between 12% and 20% on average. This is related to the fact that equity is more expensive than foreign capital. Equity may be redeemed in the form of pure equity or subordinated debt.

- pure equity is the most common form where the project bearer brings capital to the project company (SPV). On the basis of the paid-up capital, the owners receive shares on the basis of which dividends are paid.
- subordinated debt is a derived form of equity investment by institutional investors. Such investment is considered the most risky form of investment and therefore has the highest required returns.

(ii) Mainly debt financing

Financing mainly by debt usually covers 70-80% of total project funding resources. This form of financing has the highest priority in paying out the price of the capital, unlike equity financing, it significantly reduces capital costs (between 2% and 4% on average). It may take the form of: a) a conventional bank loan; b) a bond or may be in the form of a c) securitization.

- Conventional bank loans are one of the most common forms of debt financing by one or more banks and /or financial institutions. In practice, they appear in the form of a syndicated loan involving several financial institutions, thus allowing for better risk diversification and thus lower financing costs. The transaction is mainly provided through project finance techniques, where the SPV owners are not liable for the liabilities or they have only limited liability.
- Bond financing is a tool through which a private partner acquires financial resources to implement a project by issuing securities on the secondary market. As a rule, bonds are a debt instrument that entitles its holder to a claim for repayment of the principal plus contractual interest. This form is used in projects that are investment-intensive.
- Securitization – a tool by which the main debt is financed by the partial sale of future claims. By applying this technique, the financial institution pays the discounted amount

needed to finance the main debt while the return on assets is secured from future claims.

(iii) Mezzanine or quasi-equity funding

It is a combination of equity and debt financing. Within the risk structure, it is one of the two forms of financing described above. As a rule, the mezzanine debt bears a high borrowing risk, as such an instrument is after the main debt financing and before equity financing in the structure of the creditors. It represents a relatively high cost of capital on average between 9% and 15% per year. It is most often used in situations where it is necessary to overcome differences that arise before or after the start of debt financing in the short term. It is used, for example, to pay tax or to temporarily secure working capital.

1.3.4 Revenue estimate

Revenue projection is the basis of any investment project. Most public infrastructure projects, in particular social infrastructure projects, are not commercially oriented, i.e. their ultimate goal is not to generate profits but to meet public needs through the provision of public services. Therefore, in practice, such projects are often referred to as non-revenue generating projects. Such projects calculate revenues only in the form of public budget payments when creating a financial model. However, it is important to point out that there are infrastructure projects that can generate revenue and whose operation can be founded on a commercial basis. Such projects are called revenue-generating projects. For example, these are highway projects, airports and the like. Such projects are called economic infrastructure projects and revenues are realized through the market.

Cultural heritage revitalization projects cannot be unambiguously classified as revenue generating projects, commercially oriented or non-revenue generating projects. This depends on the individual case (for example, historic restoration can generate revenue in the form of ticket sales). Unlike commercially oriented projects, where the level of income determines the form and structure of costs, the opposite rule applies in public infrastructure projects, namely that the form and structure of costs determine the amount of revenue needed to provide a public service. The European Commission calls such projects as projects providing services of a general economic interest which are services, they are not provided by the market and/or not provided to anyone and therefore it is in the public interest to make such services available to everyone on equal terms.

1.3.4.1 Determination of the prices of public services

The determination of the price of a public service, as mentioned above, in public infrastructure projects does not depend on the financial criteria that are typical of achieving profitability, but on the availability for the end user or the public sector. There are many ways in which the prices of public services can be set by the public sector. Below are some methods that can

help public authorities estimate the cost of providing public services and/or public infrastructure. Some of the most important methods include:

a) the method of determining the price according to statistical indicators

b) the added value method,

c) the method of determining the price according to the target rate of return,

d) the method of determining the price based on the value for the user,

e) the fair value method or the willingness of the public sector to pay.

Method of determining the price of a public service according to statistical indicators

It is one of the most common methods by which the public sector determines the cost of public services at the strategic level. Each country or region has specific macroeconomic, legal, tax and other conditions that affect the final price of public services. In the planning period, it is very difficult to estimate the price of public services that would be sufficient to cover the costs of the public sector. The general public will always oppose the introduction of any additional charges or price increases. Therefore, it is useful to compare prices with certain macroeconomic categories, such as GDP. As an example of the determination of the price of a public service that the state will provide within a revitalized cultural heritage, comparisons of public national cultural expenditure with GDP can be cited. Subsequently, a comparison of this ratio will be made in the neighboring countries and the public service price will be set relative to those of the surrounding countries. Another method may be to determine the price of a public service (e.g. entrance fee to a cultural heritage object) that can be done by comparing the price of a public service within similar facilities in the region (entrance fee to similar cultural heritage objects).

Value added method

The value added method is the simplest method used by the public sector to define the price of a public service. It sets public service costs in its cost category in such a way that the resulting price for public services or infrastructure use includes fixed costs plus a certain profit margin. For example, a cultural heritage object is visited by an average of 1,000 visitors a month. Fixed (or overhead) costs per guest are € 10, of which € 5 are for cleaning services, € 2 cultural heritage insurance, € 3 for other overhead costs. According to the value added method, a profit margin of 20% is allocated to these costs and the ticket price excluding VAT in this case will be € 12.

Method of determining pricing according to the target rate of return

Unlike the previous method, this method takes into account the target value of the internal rate of return. For example, if we use the previous example and the recalculated investment costs for the restoration of the cultural heritage object to the visitor are € 10 and the target value of the internal rate of return is 40%, the ticket price will be set at € 14 excluding VAT.

Method of determining prices based on the value to the user

It represents the best way to determine the price according to the project's profitability. It is based on a comprehensive analysis according to which the price for the use of public services and/or infrastructure is based on the value for end users. As an example, prices for using one of the world's first PPP projects – the Suez Canal can be used. The price paid by end-users (boats) for crossing this channel is several times lower than the price they would have to pay if they had not used that infrastructure. This gives public authorities the opportunity to benefit from multiple profit margins compared to other projects for the use of such infrastructure.

The fair value method or the willingness of the public sector to pay.

Prices for the use of public infrastructure and/or cultural heritage objects are usually not determined for end users based on the complexity of the assessment of the financial categories of viability. It is also important to estimate the price limit, which is the so-called "fair" value that end users are willing to pay. In the public sector, past experience and an analysis of the public sector's willingness to pay for part of the cost value is therefore applied. Part of the public service is covered by public budgets and part of it is paid by the final beneficiaries of this service.

1.4 Calculation process

By processing the input assumptions of the model, the calculation process begins, which involves structuring the cash flow of the project. Cash flow is the difference between all project revenue and expenditure over a certain period of time. It is considered the safest and most reliable measure of project performance. The cash flow calculation process covers all phases of the project cycle, such as preparation and project work, construction as well as management and operation of public infrastructure. Table No. 4 is an example of revenue and expenditure projections in the form of a simple presentation of cash flows as an element of the financial model. Although cash flows are commonly broken down into three types of project cash flows (cash flows from operating activities, financial activities and investment activities), for the sake of simplicity, they are presented in a single flow.

Table 4: Example of a structure of revenue and expenditure projections in a simple financial model

Time range	1	2	3	4	5	6	7	8	9	10
Revenue	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000
Expenditure										
CAPEX	3 000									
OPEX	400	400	400	400	400	400	400	400	400	400
Financial expenses	100	100	100	100	100	100	100	100	100	100
Difference (Revenue - Expenditure)	-2500	500	500	500	500	500	500	500	500	500

1.4.1 Other elements of the calculation process

The calculation process shown in the table above shows a simple cash flow. However, it does not take into account other categories such as tax issues, indexation, inflation and the like. We therefore briefly characterize these subcategories below.

1.4.1.1 Tax issues

One of the basic assumptions for calculating each financial model is tax calculation and its impact on the final value of the project. Therefore, we distinguish several tax categories, within direct but also indirect taxes, such as income tax, value added tax, excise duties, tourist tax, etc. However, the most important categories of taxes certainly include value added tax, which has a significant impact on the final price for the public service provided in all countries.

In principle, the financial model does not take into account the impact of value added tax, since the tax burden is borne by the public service user, while other tax forms are included in the calculation process (income tax, specific excise duties, etc.).

1.4.1.2 Indices and inflationary issues

Indexing issues include the impact of consumer price indices, inflation and other categories for project cash flow projections. There are different approaches to projecting cash flows. There are two ways to go through this projection:

a) the creation of a financial model at variable prices;
b) the financial model at constant prices.

The variable price model requires indexing all cash flows. The index value is related to inflation movements and/or consumer price index trends. As a rule, using the variable price model,

only those total cost of living categories that can change, such as overheads, management costs and other operating costs, can be indexed, while capital expenditure indices and financing costs do not apply. Table 5 is an example of indexing operating costs with a growth factor per year.

Table 5: Model developed in accordance with the variable set of price index methodology.

Time range	1	2	3	4	5	6	7	8	9	10
Growth rate	2									
Growth factor	1,00	1,02	1,04	1,06	1,08	1,10	1,12	1,14	1,16	1,18
Revenue	1 000	1 020	1 040	1 060	1 080	1 100	1 120	1 140	1 160	1 180
Expenditure										
Capital expenditure	3 000									
Operating expenditure	400	408	416	424	432	440	448	456	464	472
Financial costs	100	108	116	124	132	140	148	156	164	172
Difference (Revenue - Expenditure)	-2500	504	508	512	516	520	524	528	532	536

The constant price model does not include the impact of indexation in the form of inflation and other increases that are given by the discount factor as shown in Table 5.

Making a model at constant prices is recommended to be used by public authorities in order to ensure the comparability of revenue and expenditure over time. The price increase itself can be taken into account when calculating the discount factor rate.

Questions to be answered when defining input assumptions and structuring financial model calculations

- What is the time frame for the project?
- In what year does the construction period begin and end?
- In what year does the operational phase of the project begin and end?
- Does the economic viability of the property cover the entire project period?
- What is the residual value of the property in the last year of the contract?

- What is the amount of the discount rate?
- Is the financial or social discount rate selected?
- Which is the first year for discounting?
- Which is the last year for discounting?
- Is the discount rate defined by the public sector?

- What is the estimated value of an investment?
- Does an investment (investment phase) take one or more years?
- How are operating expenses defined?
- What resources will the project be funded from?
- What is the ratio between own and foreign sources of funding?
- Is mezzanine financing expected?

- How are public service prices set?
- Is the cost of the service accessible to end users and/or the public sector?
- What are the costs of the service in similar projects?
- Are the project revenues mainly from the public budget or from the final beneficiaries?
- Does the project allow commercialization?

- How high is the value added tax rate?
- How high is the income tax rate?
- Is the project subject to special taxes (excise duties)?
- Does the model include the amount of tax relief? If so, which one?

- Is the calculation of revenue and expenditure made at constant or variable prices?
- Does the model provide the opportunity for discounting and taking into account the growth factor?
- What is the amount of the growth factor?
- Which category of revenue and/or expenditure takes into account the growth factor?

1.5 Output indicators

Based on the input assumptions of the calculation process, each financial decision is based on a set of measures that defines the output indicators of the financial model. Although it is often stressed that the creation of a financial model in terms of financial categories of profitability has no impact on public sector decision making, public interest projects (as opposed to commercial projects) must be available and accessible. The output indicators of the financial model provide significant values on the basis of which:

a) the value of the subject-matter of the project procurement is assessed;
b) the public service cost is defined in the total lifetime of the project;
c) the project is considered to be independent of the procurement model (traditional model vs. PPP).

The very existence of the financial model introduces an element in the public sector that has long been known in the private sector - so-called "projection and planning according to available resources".

The presentation of output indicators of the financial model distinguishes three basic output categories, which should be presented in each financial model:

a) the presentation of forecasts for the financial statements,
b) investment project efficiency indicators,
c) financial coverage indicators.

1.5.1 Presentation of financial statement forecasts

Financial statements traditionally consist of a balance sheet, a profit and loss account and a cash flow statement. The financial statements must be interconnected, i.e. the economic result in the profit and loss statement shall be the same as the one on the balance sheet and the cash flow statement balance shall reflect the balance sheet balance. The sample financial statements are described in detail below, which should be presented in the financial model. The PPP legal framework in the Republic of Croatia requires contracting authorities to submit a forecast of basic financial statements when drafting a project proposal:

-   Balance sheet forecast – represents a company's financial reflection for a specific day (usually December 31) It is mainly used to express the value of assets and the sources of its coverage (liabilities) of the accounting unit. Assets are primarily broken down into non-current and current in the balance sheet. Non-current assets are characterized by tangible, intangible and financial assets. Current assets consist of inventories, receivables and financial accounts. The sources of asset coverage

(liabilities side) are primarily broken down into own and foreign resources. Foreign resources are differentiated into long-term and short-term.

- Profit and Loss Forecast – demonstrates the ability of an enterprise to carry out its activities, i.e. its primary objective is to provide information on the costs and revenues of the project and then generate profit or loss for a particular accounting period. Business activity of each project causes a change in its assets. The property that the company owns is transformed from one form to another, generating revenue. Revenue projection, on the one hand, represents an increase in economic benefits leading to asset growth, while expenditure projection, on the other hand, reduces economic benefits, resulting in a decline in assets.

- Cash flow overview – provides revenue and expenditure information. In contrast to the profit and loss statement, where revenue and expenditure are shown, which results in profit or loss, the cash flow overview shows the difference between revenue and expenditure which represent the state of cash in the enterprise. Project cash flow projections are presented in three main groups: cash flow from operating activities, cash flow from investment activities and cash flow from financial activities. When planning cash flows, it is important to determine from which activities cash flows into the enterprise and from which activities cash flows out of the enterprise. When forecasting a cash flow statement, most of the positive cash flows should come from operating activities, while negative cash flows should be related to financial activities.

Table 6 shows the compilation of the financial statements for the first year of the project as described above.

Table 6: Presentation of Financial Statements, Three-Balance System

33
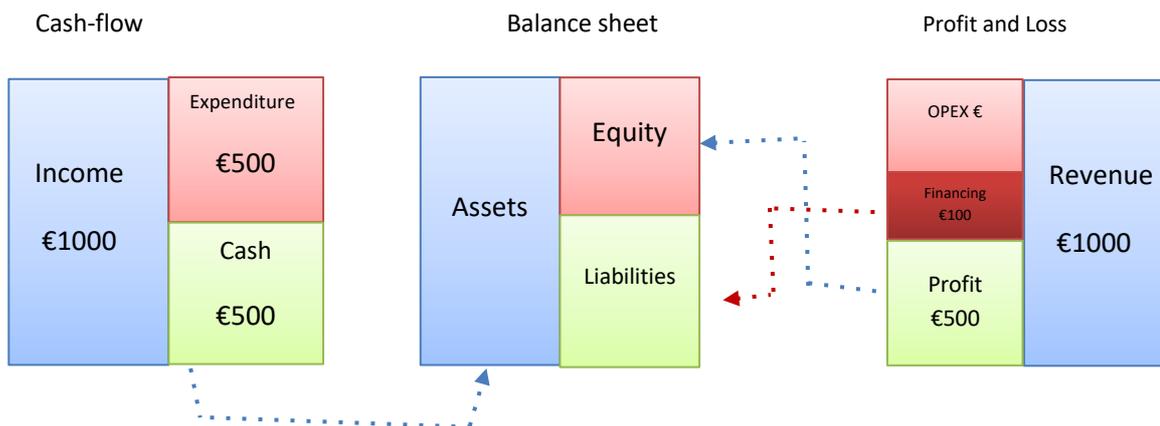
1.5.2 Investment project efficiency indicators

Displaying the forecast of financial statements results in output data that can be used to calculate financial indicators. On this basis, we then decide on the justification and profitability of investment. In practice, there are several basic financial indicators used by public authorities to make investment decisions. We distinguish:

a) payback period;
b) the net present value method;
c) internal rate of return.

1.5.2.1 Payback period;

It is the simplest indicator in which the time period (the number of years) of the project is displayed, when there is a return on the investment. It is based on a simple mathematical recalculation of revenue and expenditure differences, which is subsequently accumulated. The main drawback of the payback period is the neglecting of the time value of money, i.e. the impact of time on the value of money is not taken into account. The payback time is calculated using the following formula:

Figure 3: formula for calculating the payback period on investment

$$DN = \frac{investment}{\sum_{t=1}^{n} cash\ flow_t}$$

Source: Financial Lexicon

An example of the payback period according to the above formula is shown in Table 7.

Table 7: Cash flow period

Period	1	2	3	4	5	6	7	8	9	10
Cash flow of the project	-2500	500	500	500	500	500	500	500	500	500
Cumulative Cash Flow	-2500	-2000	-1500	-1000	-500	0	500	1000	1500	2500

According to Table 7, the payback period of an investment project is 6 years. The return period method is suitable for use in projects that do not have a long lifetime.

1.5.2.2 Net present value method

The use of a PPP model in cultural heritage projects as well as in other sectors implies the existence of long-term contractual obligations, which makes it necessary to plan long-term

cash flows. Unlike the payback method, which does not take the time value of money into account, the Net Present Value (NPV) method takes the time factor into account and is one of the most common methods for making project decisions.

In order to understand the method and form of operation of the method of net present value, it is necessary to define:

a) the project discount factor rate;
b) discounted cash flow.
Choosing an appropriate discount rate has a significant impact on the value and size of the net present value of the project. Unlike the public sector-specific social discount rate, a financial discount rate is required in the financial model to discount cash flows. See more in the next box.

Based on the selected discount rate model, the discounted cash flow of the project is calculated in the second phase.

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What is a discounted cash flow

Discounting adjusts the cash flow by the time value of money. A depreciation of money occurs over time. The rate of this depreciation is expressed by the discount factor rate. The discounting process itself consists in converting the planned amounts of cash flows that are inherently static in nature to their present value, thereby acquiring a dynamic character. The present value indicates the value of future cash flows today.

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The discounting process is shown in Figure 4.

Figure 4: discounting cash flows
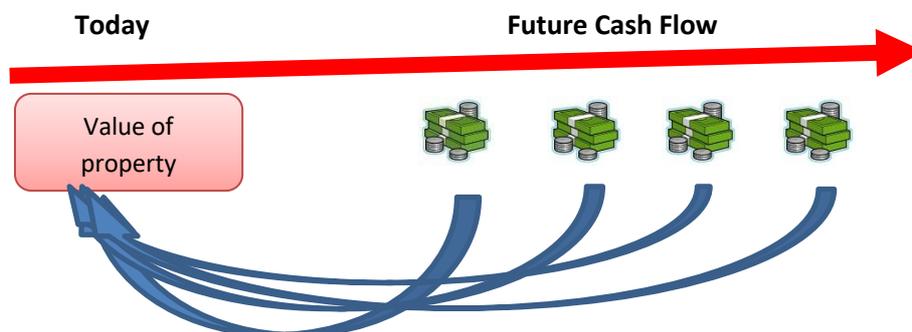
Cash flow discounting is done in 2 steps:
Step 1 – calculation of the discount factor
The cash flow discounting process begins with the choice of the discount factor financial rate. The formula for calculating the discount factor is shown in Figure 5.

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Figure 5: formula for calculating the discount factor

$$df = \frac{1}{(1 + d)^n}$$

Source: Financial Lexicon

Step 2 – calculation of the discounted cash flow

By determining the value of the discount factor, it is possible to calculate the discounted cash flow that represents the discount factor multiplier and the cash flow as shown in Table 8.

Table 8: discounted cash flow

	1	2	3	4	5	6	7	8	9	10
Discount rate	10 %									
Discount factor	0,909	0,826	0,751	0,683	0,621	0,564	0,513	0,467	0,424	0,386
Cash flow of the project	-2500	500	500	500	500	500	500	500	500	500
Discounted cash flow	-2273	413	376	342	310	282	257	233	212	193

Calculation of discounted cash flow is the fulfillment of all the assumptions needed to calculate the net present value of the project, which represents the difference between the present value of cash receipts and the present value of cash expenditures in a given period. The net present value of the project is calculated according to the formula shown in Figure 6.

Figure 6: formula for NPV project calculation

$$NPV = \sum_{t=1}^{n} \frac{C_t}{(1 + r)^t} - C_0$$

Source: Financial Lexicon

where:
CT – represents cash flow in period T
C0 – initial investment.

Table 9 gives a 10-year calculation of the NPV of the project at a discount rate of 10% p.a.

Table 9: NPV calculation at a 10% discount rate

	1	2	3	4	5	6	7	8	9	10
Discount rate	10									
Discount factor	0,909	0,826	0,751	0,683	0,621	0,564	0,513	0,467	0,424	0,386
Cash flow of the project	-2500	500	500	500	500	500	500	500	500	500
Discounted cash flow	-2273	413	376	342	310	282	257	233	212	193
Cumulative DCF	-2273	-1860	-1484	-1142	-832	-550	-293	-60	152	345
NPV @ 10%	345									

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1.5.2.3 Internal rate of return method

The net present value method makes it possible to make investment decisions based on the presentation of positive financial model absolute values, but whether a project obtains positive or negative NPV values often depends on choosing an appropriate discount factor rate. Choosing a higher rate will result in a lower net present value and a lower rate will result in a higher net present value.

In order to avoid such "manipulation" with a discount rate, the internal rate of return can serve as an alternative method for investment decisions based on financial indicators.

Internal Rate of Return (IRR) is a discount rate at which the net present value of a project is zero. Like the net present value method, it takes into account the time value of money.

How to calculate IRR?

IRR by the iterative method, i.e. the value of the discount factor rate is gradually introduced into the net present value calculation until the net present value reaches zero. According to the internal rate of return method, the investment is justified if the IRR is at least equal to the cost of capital.

An example of the IRR project calculation by the iteration method based on the cash flows presented so far is shown in Table 10.

Table 10: Example of IRR calculation

	1	2	3	4	5	6	7	8	9	10
Discount factor rate	10									
Discount factor	0,909	0,826	0,751	0,683	0,621	0,564	0,513	0,467	0,424	0,386
Cash flow of the project	-2500	500	500	500	500	500	500	500	500	500
Discounted cash flow	-2273	413	376	342	310	282	257	233	212	193
Cumulative DCF	-2273	-1860	-1484	-1142	-832	-550	-293	-60	152	345
NPV @ 10% = IRR	**345**									
NPV @ 11% = IRR	**242**									
NPV @ 12% = IRR	**147**									
NPV @ 14% = IRR	**0**									

The internal rate of return of the projects presented in Table 10 is 14%, which means that the project generates a return of 14%.

1.5.3 Financial coverage indicators

The third category of the financial overview represents indicators of financial coverage. Their aim is to reflect the strength of the cash flow of the project for the satisfaction of creditors. In implementing public-private partnership projects, the cash-flow structure is limited in time, i.e. it is influenced by the duration of the contract, so financial providers (creditors) require a stable cash flow. For the purpose of such an assessment, coverage indices are calculated with respect to the size required. Therefore, we distinguish:

a) *Annual Debt Service Cover Ratio (ADSCR)* – represents the company's ability to properly repay its debt from the annual cash flow of a project after the operational costs of the project have been paid. Most creditors require that the ratio of the coverage of the debt is at the level of 1.2 to 1.4, which will provide them with the assurance that the project will properly carry out the duties associated with the repayment of funds. ADSCR reaching less than 1.05 often indicates that the company is in trouble. ADSCR is calculated according to the formula shown in Fig. 7:

Figure 7: Formula for calculating the ADSCR

$$ADSCR = \frac{Net\ Operating\ Income}{Annual\ Debt\ Level}$$

Source: Yescombe (2007)

Table 11: example of ADSCR calculation

Time range	1	2	3	4	5	6	7	8	9	10
Revenue										
Revenue	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000
Expenditure										
Capital expenditure	3 000									
Operating expenditure	400	400	400	400	400	400	400	400	400	400
Cash flow available for long-term maintenance		600	600	600	600	600	600	600	600	600
Financial costs		100	100	100	100	100	100	100	100	100
ADSCR Indicator		6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0

b) Loan Life Coverage Ratio (LLCR) – Unlike ADSCR, which is calculated on an annual basis, LLCR focuses on cash flow projections throughout the credit relationship, i.e. it measures the net present value of the future operating cash flow over the life of the loan in relation to the outstanding debt. As a rule, LLCR must be higher than ADSCR. The formula for calculating LLCR is shown in Figure 8:

$$LLCR = \frac{NPV\ cash\ flows\ over\ the\ duration\ of\ the\ loan}{value\ of\ outstanding\ debt}$$

Source: Yescombe (2007)

c) Project Life Cycle Coverage Indicator (PLCR) - an additional indicator that has a controlling role in whether a project is able to repay the principal debt on a specified credit end date. In contrast to the loan life coverage ratio indicator, the project life-cycle coverage indicator takes into account the current value of the entire cash flow of the project, not just the cash flow over the duration of the financial liabilities, allowing one indicator to reflect on the overall financial state of the project. PLCR is calculated according to the formula shown in Figure 9.

Figure 9: PLCR calculation formula

$$PLCR = \frac{NPV\ project\ cash\ flows}{value\ of\ outstanding\ debt}$$

Source: Yescombe (2007)

By using financial coverage indicators together with the presentation of planned financial statements and financial indicators, all output parameters that must be included in the financial model should be defined to enable investment decisions to be made.

Recommendations for creating a financial model

Recommendations can be used to implement cultural heritage projects:

1. The financial model shall be created electronically in a spreadsheet compatible with the Excel spreadsheet, as set out in the tender specifications.
2. The financial model shall be executed in the currency of kuna at constant prices.
3. The financial model shall consist of three basic parts: I) project activity assumptions; (II) the budget with financial statement projections; and (III) output indicators.
4. In the section on project activity assumptions, (I) all dimensions on which project forecasts are based need to be taken into account, and in particular: the investment structure; the structure of funding sources; interest and discount rates; tax rates; depreciation rates; the start and end dates of each process. The assumptions must be logically and functionally linked to the budget section and the output values.
5. In the financial statements forecast section, (II) all budgets are based on the assumptions described. The budget section presents the financial statements, including the profit and loss account, balance sheet and cash flow statement.
6. In the budget section, the projections of the total cost of the project's life cycle, including capital costs, energy costs, maintenance costs, insurance and management costs, financial costs, etc., must also be clearly highlighted.
7. In the overall life cycle cost structure, the nominal costs should be clearly indicated if they are included in the tender documents.
8. As part of the projection of total costs throughout the life cycle, it is clearly necessary to refer to the remuneration that the client will pay to the beneficiary in the total contract period.
9. In the third part, at output level (III), the values of at least the following indicators are shown: internal rate of return (IRR), weighted average cost of capital (WACC), net present value of the project with a discount rate equal to WACC (NPV @ WACC), debt ratio (DSCR). In addition, the final accounts should also be clearly stated in the output value section.
10. The financial model must not be blocked or protected and must provide the client with unrestricted access to all its parts.
11. In the financial model, it is desirable that the IRR correction mechanism be installed after the provision of capital aid to public partners.

Technical aspects of cultural heritage PPP projects

VI. Technical aspects of cultural heritage PPP projects

6.1 Needs Analysis and Options Analysis

The definition of financial aspects in the previous chapter describes in detail the manner and scope of the project financial breakdown in the form of a comprehensive financial model. However, the process of project preparation and planning in the field of cultural heritage requires knowledge of the technical aspects of the project, i.e. defining what the project should achieve. Therefore, one of the first steps that public authorities need to take before starting a project structuring is to identify project needs:

● Needs Analysis – represents the beginning of the technical structuring of the cultural heritage project. Regardless of the project delivery/procurement model, the purpose of the needs analysis is to identify a project that is actually needed in the public sector, taking into account the demand for public service, market structure and the willingness of the public sector to provide public service in the long term.

● Options Analysis – after determining the public needs of the project, several technical options are created by which the project can be implemented. A classic example of analyzing options in cultural heritage projects is the ability to provide a particular public service. For example, if the aim of the project is to enable the operation of a historical museum, we can:

Reconstruct an existing facility and then provide a public service, or build a new facility where the public service will be provided and the existing facility will be removed from a public function, or rent premises on the market with a partial renovation of an existing facility.

Needs and options analysis as technical feasibility models should always be considered together. In particular, if there is no need to provide a public service through the revitalization of cultural heritage, the analysis of options does not make sense to us. The opposite logic also applies, i.e. if we decide to reconstruct an existing building but do not carry out a prior analysis of needs, estimate the risks associated with the demand and readiness of the public sector to implement the project, then there is a high probability that the planned investment project will be in trouble.

6.2 Feasibility of project technical requirements

By implementing the needs and options analysis at the public strategic level, the technical direction of the implementation of the particular project is decided. The second step to follow after performing these analyzes is to structure the project's technical requirements.

Technical requirements are defined by contracting parties to potential private partners, regardless of how the project is implemented (PPP model or traditional public procurement). The formulation of technical requirements must begin before the PPP project preparation and planning process begins. They include the development of action plans and ways of implementing a public service to revitalize cultural heritage. In the early stages of project

preparation, it is not possible to carry out a detailed formulation of technical requirements, but only general one. Requirements must answer the following questions:

- How do we want to bring a historical object into function?
- What services do we want to provide in the cultural heritage facility?
- Do we want the project to be energy efficient?
- Will the object be open to tourists and/or end users or not?
- What equipment standard do we expect?
- Will we carry out detailed archaeological and/or conservation research on the facility and/or surroundings? Etc.

During the process of structuring investment projects, it is important that public authorities define in more detail what their expectations of future cooperation with the private sector are. This needs to be done before public tenders are launched. In the public procurement process, it is no longer desirable to discuss the type of commercial services provided in the cultural heritage that we want to provide, or whether the entire part of the facility will be open to end users and/or tourists or not. However, this does not mean that it is not permissible to design and provide a better technological solution during this procedure.

Before launching public procurement, it is necessary to decide to what extent the private sector will be involved in the implementation of the project to revitalize the cultural heritage in terms of the technical feasibility of the project. The degree of participation is most often determined by the legal framework for the involvement of the private sector in the implementation of PPP projects regarding the technical feasibility. It means the distribution of risks and responsibilities for the provision of public services between partners. For example, the private sector may be solely responsible for the technical component of the project, while the public sector may be responsible for other elements of the public service (e.g. a curator in a museum). Table 12 is an example of structuring the feasibility of technical requirements required by the private sector in the early stages of preparing a technical project for Castle X.

Table 12: Public sector technical requirements using the example of revitalizing the Castle X project

Revitalization of Castle X	The public sector	The private sector
Area A – exhibition part	Cleaning of the space	Construction work Renovation
	Protection of objects	Maintenance of electrical installations
	Maintenance of exhibited items	Maintenance of water equipment
		Maintenance of fire extinguishers
Area B – restaurant	No responsibility	Construction work Renovation
		Maintenance of all installations
		Cleaning of the space
		Protection of the space
Area C – roof	Maintenance of glass surfaces	Construction work Renovation
		Cleaning gutters
		Maintenance of equipment and lightning conductors

The structure of the public sector technical requirements for each individual facility area enables defining the shape and structure of the project, i.e. the future degree of private sector participation, and thus the PPP contract structure, that is, the contractual relationship.

By defining the technical requirements, the basic conditions and answers to the following questions are set (i) What do we want to achieve with the project? (ii) How to provide the public service? (iii) What is the level of private sector participation we expect? However, for the execution of tenders, it is necessary to develop the output specifications of the project as described in the following chapter.

6.3 Structuring Output Specifications

By structuring technical requirements from the public sector, all the preconditions for producing the project's output specifications were met. By preparing the project, the public sector determines the need to revitalize the cultural heritage project while analyzing needs, while the analysis of options helps to select the best way in which such a project can be implemented. By setting technical requirements, the status of a project will change from a "strategic level" to an "operational level", defining the scope and technical feasibility of the project, as well as the shared responsibility of the public and private sector in project implementation.

As the selection of a private partner is preceded by a tender, it is necessary to define the needs of the public sector as well as the technical requirements in a specific form that focuses solely on results – I.e. providing the maximum service expected from project implementation. Such specific forms of technical requirements by the public sector are referred to as *output specifications.*
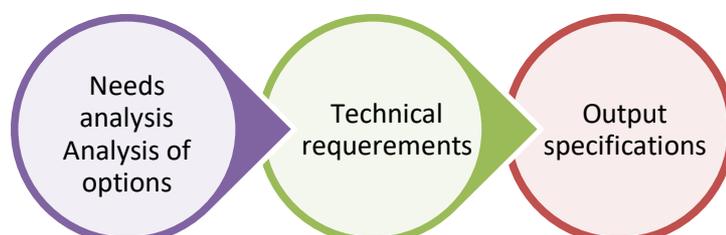
Output specifications include result-oriented structuring of the project, not focusing on input parameters. For traditional public procurement procedures, the public authority determines the technical requirements for the preparation of the technical design documentation. Therefore, it is directly involved in the processes related to the design and reconstruction/construction of the building, i.e. defining the so-called input specifications of the project. By applying the PPP model, public authorities has the role of customers and their technical requirements are expressed in the form of output specifications, i.e. the final result to be achieved by implementing the project. The project thus focuses on the output achieved, not on the way of achieving this output.

An example of structuring input and output specifications in a cultural heritage revitalization project through the reconstruction of Castle X is shown in Figure 10.

Figure 10: Input and Output Specifications

Input specifications	Output specifications
The requirements in the phase of construction works	
Use of MB50 on concrete walls and pillars	Pillar concrete must be waterproof, plasticized with pressure force X
The walls must be constructed of 25 cm thick brick with a polystyrene thermal insulation of 10 cm	The wall thermal conductivity coefficient must not exceed 0.09 W / M2K
Wood-aluminum, 85mm profile with three-layer glass and external roller shutters must be used for exterior joinery structures	External joinery structures must comply with the coefficient of thermal conductivity of the window and frame of 0,7 W / M2K, with protection from indirect sunlight.
Object heating requirements	
Heating will be in the form of radiators with a pellet boiler of 25 KW	When using the object in winter, the room temperature must not be less than 23 ° C, and humidity should not be less than 55%
Air-conditioning the premises using multi-split systems that will be placed above the entrance to each room. Power of 5.5 kW	When using the object during the summer, the room temperature must not exceed 26 °C, and the humidity should not exceed 55%
Requirements relating to electrical installations of strong and weak currents	
The interior lighting of the building is carried out with cluster floats at a distance of 50 cm	The interior lighting must allow at least 100 LUX on the floor surface in each room to measure the light beam brightness.
Network installation with RJ45 connectors and CAT 5E cable connection	A network installation that will allow a transfer rate of at least 100 Mbps per port
Each room is equipped with a coaxial cable for radio and television	Each room must have a TV and radio reception

Defining output specifications is somewhat easier in projects where the public sector has already introduced public service standards through regulations, such as in education (schools, kindergartens) or health care, where regulatory provisions prescribe the standard of building and operating space. In addition, the prescribed technical requirements defined by the public sector must be in accordance with the available financial capacity and constitute a public need for infrastructure.

Defining output specifications for the revitalization of cultural heritage objects does not mean ignoring the basic principles on which the available existing public service/infrastructure is built. At the very beginning of structuring technical requirements and output specifications, it is useful to revise the "existing standards" used in the already revitalized cultural heritage and to define accordingly the expected "future standard" expected from the project and the private sector. In particular, the lack of required standards and/or prescribed requirements that are significantly higher than the public sector can afford (financially and/or technically) can lead to unrealistic solutions that cannot be realized within the available budgetary capacity. It is therefore beneficial for the public sector to have a list of required standards for the revitalization of similar facilities that will serve as a model for the private sector in the form of a reference list for the proper implementation of the project. By developing public sector technical requirements in terms of output specifications, public authorities avoid direct responsibility for the technological risk of a revitalization project. As the private sector is a major driving force of technological know-how, the best possible technological solution remains the responsibility of the private sector. However, this does not mean that the public sector does not have the necessary knowledge of the best technical performance solution.

Unlike other sectors where it is desirable for the private sector to make full use of technological know-how, the application of the PPP model to cultural heritage revitalization projects is needed to partially involve and take into account public sector knowledge, especially in the case of archaeological or conservation experts and employees in the field of nature conservation, involving urban and/or local units dealing with urbanism and cultural heritage protection. Such projects, unlike other conventional investment projects, require a different approach to the preparation of the project itself in the form of a detailed previous subject testing, material testing and development of special plans and procedures that propose the realization of the object revitalization. Implementation of procedures related to reconstruction or construction depends on the time and method of implementation of the archaeological and conservation studies of the subject. Therefore, the time scale of the individual phase of the project cycle is extremely important as it directly affects the final price of the project.

For example, if the technology of cultural heritage reconstruction is new and insufficiently explored on the market, and competition on the market is relatively small, then the cost of providing the public service will ultimately be higher.

6.4 Defining Space and Service Standards

Determining output specifications defines the public sector requirements that are expected to be achieved in the operation of a project in terms of the space in which the public service is provided. Such standards, as outlined in the output specifications, do not allow the definition of adequate space availability that is suitable for the provision of specific public services. For example, if the output specification defines that room A must be 40m2, then the same space may be available according to different standards as shown in Figure 11.

Figure 11: Defining space standards
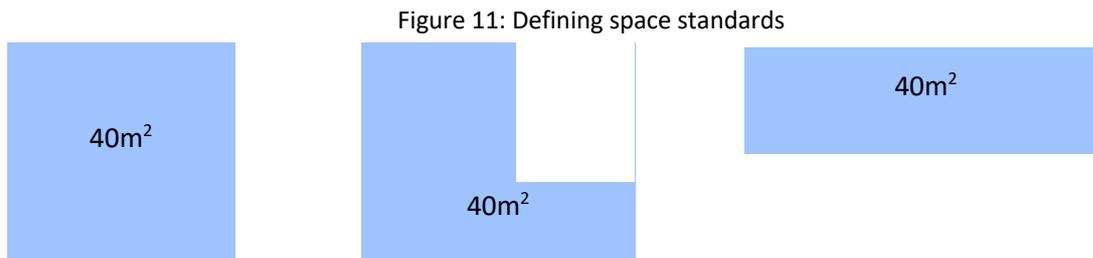
Therefore, once the output specifications have been identified, the public sector shall define the standards of space and services more precisely. This leads the private sector to achieve the required public service standards within the lifetime of the project.

The structure of standards required for premises and services is usually defined in the form of 3 categories that apply to the overall lifetime of the project. We distinguish:

- the requirements on the availability of space,
- maintenance standard requirements,
- defined standard of public service provision.

Space availability requirements

The provision of public services in cultural heritage areas gives the competent authorities in the public sector the right to precisely define the measurable standard that the private sector must achieve by constructing an or reconstructing the facility. The required standard for space availability is the starting point for structuring a payment mechanism within a PPP project. Unlike output specifications, standards set the availability of space in order to define more accurately the way the public service is provided. As an example, Table 13 lists the standards for the utility area and the required temperature within the reconstruction project - Castle X.

Table 13: Standards for space availability-Castle X

Spatial standards-availability	Hall A - Castle X
Space Area - Hall A 40 m2	The space must be rectangular in shape, with a capacity of at least 50 guests
	The walls must be coated with reflective, dispersive white paint
	Floors must be abrasion-resistant according to HRN205412
	The ceilings must be at least 2.5 m high
Space temperature-Hall A	When using the exhibition space, during the exhibition of oil paints, tempera, watercolors or pastels paintings, the temperature must be at 22 °C 24 hours a day, and humidity should not exceed 55%, while there should be at least 5 air exchanges for 1 hour of ventilation
	When using the space for the exhibition of wood, clay and earth items, the temperature must be between 14 °C - 27 °C and the air humidity should not exceed 70%. For 1 hour ventilation, at least 2 air changes must be made
	When using the space for the display of exhibits made of metal, plastic or rubber, the temperature must be between 0 °C - 27 °C and the humidity should not exceed 70%. For 1 hour ventilation, at least one air change must occur

The defined standards allow the private sector to maximize its know-how in providing public services by assuming responsibilities that it can adequately manage.

Maintenance standard requirements

By completing the construction work on the reconstruction of the building which is the subject of the public service, the investment phase is terminated and the operation phase begins. While the space availability requirements provide a detailed description of the conditions under which public services are provided with regard to the specified output technical specifications, in the third phase of the development of the technical aspects of the PPP project, it is necessary to define minimum operating standards, which most often include cultural heritage revitalization projects:

- regular daily maintenance,
- regular monthly maintenance,
- regular annual maintenance,
- urgent maintenance,
- investment maintenance,
- extraordinary maintenance.

Requirements for maintenance standards listed by group are defined by the public sector through specific regulations and/or manuals that are annexed to the PPP contract. Based on

these standards, it is possible to determine the costs of providing a public service. The lack of prescribed maintenance standards in the form of handbooks and rules by the public sector makes the operation accountable to the private sector. If the daily cleaning standard is not prescribed, the private sector can perform cleaning twice a week, thereby reducing the quality of public service provision. As an example, the daily maintenance standard in Table 14 can be provided

Table 14: Example of defining regular daily maintenance standards

Maintenance standard requirements – regular maintenance	Hall A – Castle X
Cleaning of a space – Hall A	During an event in a hall where the average daily movement is more than 1,000 persons – the space should be completely cleaned at least 4 times a day by dispersing agents
	During an event in a hall with an average daily movement is of 500 to 1,000 people – the space should be completely cleaned by dispersing agents at least 2 times a day
	During an event in the hall where the average daily movement is up to 500 people – the space should be completely cleaned by dispersing agents at least 1 time a day

Defining regular maintenance standards on a daily, monthly, and yearly basis is a relatively simple task, as public authorities often have access to available data on prescribed regular maintenance standards. Such standards should already be included in the tender documents, which must be available to potential bidders. However, defining investment and extraordinary maintenance standards is a more complex issue that is not generally known and in some cases it is difficult to anticipate such maintenance.

Investment maintenance data require knowledge of the overall structure of the cost of living of the building, which is relatively easy to detect and define in the construction of new buildings, but for cultural heritage revitalization projects such data usually do not exist and require knowledge and skills of the preservation and restoration profession.

Cultural heritage restoration projects are often not typical projects, but each object requires a specific analysis and evaluation approach. For example, while the repair costs for waterproofing of new facilities may be relatively easy to estimate, they cannot be defined in cultural heritage reconstruction projects. Such renovation usually requires the use of specific materials, mostly the original ones. An example of defining investment maintenance standards for a cultural heritage site – Castle X, is shown in Table 15.

Table 15: Example of defining investment maintenance standards

Maintenance requirements - investment maintenance	Hall A – Castle X
Investment maintenance Time frame: **After 5 years** Venue – Hall A	Walls should be restored so that all defects, cracks, angles and other irregularities are leveled, impregnated and coated with white dispersion paint in two layers so that the overall structure of the space looks even.
	External timber structures need to be repaired by grinding, impregnation and application of durable green weather-resistant materials.
	It is necessary to replace all tables and chairs in Hall A with new ones that match identical or better conditions defined by the output specifications
Investment maintenance Time frame: **After 10 years** Venue – Hall A	All activities and procedures described in the framework of investment maintenance after 5 years must be carried out again
	It is necessary to repair the floor of Hall A by grinding the wooden floor, repairing cracks and painting with high-gloss lacquer in 3 layers
	The safety equipment needs to be replaced, in the scope of heat sensors, motion sensors, flood sensors and smoke sensors. New sensors should respond equally or better than sensors defined in the output specifications

Standard of public service provision

The provision of public services includes not only the definition of accessibility and maintenance standards, but also the established standard of public service provision, which is specifically measurable and consistent with the services provided. The measurability of standards involves defining so-called Key Performance Indicators (KPIs) that combine space maintenance elements with maintenance standards. In technical terms, it defines the importance of a particular part of the object and the way of structuring the expected payments. For example, inadequate cleaning of the auxiliary space is not as important as, for example, inadequate cleaning of the main compartments and the like. To define public service standards, it is necessary to define:

- category of accessibility and maintenance,
- the time required to eliminate the deficiencies.

In this way, the public sector clearly prescribes what type of standard of public service it wants and to what extent. In practice, the categories of space availability and maintenance are the definition of a space usage criterion, i.e. the definition of the meaning of certain parts of the object serving the public service. Four categories of availability and maintenance are most commonly defined in PPP projects:

- *The first category* - includes the premises of the building, which must be available 24h and represents the core of the public service provided, in the case of the project to revitalize the cultural heritage – castle X, this category will be defined as the main hall and main building area.
- *The second category* - includes premises that must be available for 24 hours but are not the main public service facilities, where public service is provided, such facilities as toilets, commercial objects (cafe, restaurant), etc.
- *Third category* - includes premises that does not have to be available 24 hours but only at the time of public service provision. Such spaces include entrance areas, corridors and technical rooms where air conditioning, boiler room, etc. are located.
- *The fourth category* - includes premises where the availability standard is not defined, but also includes premises where the maintenance regime can be performed regularly, such as outdoor areas and the like.

In addition to defining the category of availability and maintenance of premises, the setting of standards for public service also requires the setting of deadlines in which potential deficiencies need to be removed, i.e. to allow unrestricted use and/or provision of public services. As it can be expected that in the overall contractual relationship (about 20 - 30 years) with the use of the cultural heritage object, the risks to the availability of the facility increase in the form of failures, deficiencies, etc., it is necessary to set a time period for the private sector to eliminate any defects. According to technical specifications, this deadline is most often divided into three or more categories. For example, we distinguish the following categories:

- *Immediate deadline* - the most common is a deadline of up to 8 hours, in which the defect of the space availability must be eliminated. The private sector has a time limit of 8 hours to remedy shortcomings in the provision of public service. The immediate deadline refers to a category of risk and event whose occurrence causes significant damage to the object and the inability to provide a public service. For example, in the event of a water pipe rupture, the private sector will have an 8 hour repair period.
- *Priority deadline* - the most common is a deadline of up to 48 hours, in which the defect in space availability must be eliminated. The private sector has a 48-hour deadline to remedy shortcomings in the provision of public service. Usually, the priority deadline has the characteristics of an event that does not cause significant harm but there is a reduced possibility of providing a public service. An example of a priority deadline is a failure in the heating and air conditioning systems.
- *Regular deadline* - the most common is a period of 72-96 hours, in which a defect in space availability must be eliminated. Usually, the regular deadline to correct the defect includes regular maintenance, such as replacing an electric bulb or batteries.

Individual standards for the provision of public services can be broken down by category into: a) standards of availability of premises; and b) standards of time to eliminate defects. Based on the output specifications, the public sector defines these standards already in the tender documents for the selection of a private partner. An example of a set public service standard for the revitalization of the facility of Castle X is given in Table No. 16.

Table 16: An example of defining public service standards for the reconstruction of a cultural heritage site – Castle X

Space category	The area of the provision of public services	Space availability requirements	Time needed to correct the deficiency
First category	Hall A – temperature	When using the space for the exhibition of paintings, when using oil paints, tempera, watercolors or pastels, the temperature must be at 22 °C 24 hours a day, and humidity should not exceed 55%, while there should be at least 5 air exchanges for 1 hour of ventilation	Immediate Deadline (8h)
		When using the space for the exhibition of wood, clay and earth items, the temperature must be between 14 °C - 27 °C and the air humidity should not exceed 70%. For 1 hour ventilation, at least 2 air exchanges must be performed	Priority Deadline (up to 48h)
		When using the space for the display of exhibits made of metal, plastic or rubber, the temperature must be between 0 °C - 27 °C and the humidity should not exceed 70%. For 1 hour ventilation, at least one air exchange must occur	Priority Deadline (up to 48h)
Space category	The area of the provision of public services	Space availability requirements	Time needed to correct the deficiency
First category	Hall A – cleaning of the space	During an event in a hall where the average daily movement is more than 1,000 persons – the space should be completely cleaned at least 4 times a day by dispersing agents	Immediate Deadline (up to 8h)
		During an event in a hall with an average daily movement of 500 to 1,000 people - the space should be completely cleaned by dispersing agents at least 2 times a day	Immediate Deadline (up to 8h)
		During the event in the hall where the average daily movement is up to 500 people - the space should be completely cleaned by dispersing agents at least 1 time a day	Immediate Deadline (up to 8h)

By establishing output specifications as well as space and service standards, setting space availability criteria, maintenance criteria and the public service standard itself, it is possible to define a contractual relationship between the public and the private sector over the lifetime. However, to calculate the level of public sector payments, criteria for compensation should be established. Such criteria are determined by the payment mechanism.

6.5 Payment mechanism

The payment mechanism is a link between the technical aspects of PPP projects that define public service delivery standards, through framework specifications and financial aspects, on the basis of which all payments defined in the PPP contract are made. It is often said that a payment mechanism is at the heart of every PPP contract. It defines the remuneration paid by the public sector and/or final beneficiaries to the private sector or vice versa, in the event of defects or deficiencies or public service unavailability there is compensation paid by the private sector to the public sector.

Preparing a payment mechanism requires defining the way payments are made within defined technical frameworks, the basic rule of which is that all payments must be made according to the availability of the public service, regardless of the related operational or financial costs of the project. This approach is target-oriented, i.e. to ensure the level of service provided and payment based on predefined output specifications as well as space and service standards.

To create an appropriate payment mechanism, it is necessary to know the nature of the contractual relationship and the sector in which the project is implemented. In economic infrastructure projects, the payment mechanism will be directly linked to the number of end-users to whom the public service is provided, for example, the length of the motorways to be built depends on the number of vehicles that will use the motorway and so on. In the case of social infrastructure projects in which the financial flows come mainly from public sources, the structure of the payment mechanism will be different. In particular, it will depend on the degree of availability of the space and the monthly payment to the private sector will be set so that the private sector can collect the full contractual amount only if it reaches 100% public service availability, as defined in the previous chapters of the technical aspects.

The problem arises in defining compensation, i.e. output factors that assess the quality of the service provided below the agreed level and result in a reduction in monthly payments. In practice, such factors are negative points and relate to non-compliance with defined space standards and services provided. It can be expected that the implementation of the project in the long term will result in operational risks, thus reducing the standard of public service provision and limiting the availability of premises in part or in full.

Technical aspects (standards of space and services) are prescribed by the conditions and time limits within which the private sector should move. Under these conditions, the private sector sets its offer and conditions that provide the best value for money in providing public services. For example, according to Table 16, if the heating/air conditioning system of Castle X – Hall A is inoperative, i.e. the temperature and ventilation are not at the agreed target level, the private partner has a time period of 8 hours (immediate deadline) to remove the defect or state of unavailability (if the space is used for the exhibition of oil paintings, paintings using tempera colors, water colors or pastel colors). The question, however, is what if the private partner does not remove this deficiency within the agreed time limit. Thereafter, the payment

mechanism is automatically triggered, or the compensation is adjusted in accordance with the unavailability condition on the basis of pre-agreed terms. There are two categories on which the structure of the payment mechanism is based:

- *The reduction factor after the deadline for the correction of deficiencies* - most commonly defined as a percentage reduction or negative points, according to which the monthly fee for the availability of the space or services is reduced. By activating this factor, the reduction in compensation is automated and the private sector is given an additional period, usually in the form of a triple time defined to eliminate the deficiency. This means that if a private partner is unable to correct a defect after 8 hours, by activating this factor, the monthly fee is reduced and the private partner is given 3 x 8 hours = 24 hour limit for deficiencies.

- *The growth factor for not eliminating deficiencies at time t* - the growth factor of compensation that increases over time if the private partner has not eliminated the shortage after a specified time. For example, if the defect has not been removed at 24 hours, the compensation reaches the agreed growth rate.

By what amount can the public sector reduce the monthly fee to a private partner?

With the emergence of unavailability and activation (I) of the reduction factor after the deadline for correcting deficiencies, as well as the activation (II) of the growth factor for not correcting deficiencies in time t, the question arises as to what level the public sector can reduce payments to the private sector. As a rule, monthly fees can be reduced by a monthly fee level, i.e. the payment mechanism must be set in a way that, in the case of *100% availability, it pays 100% of the monthly fees, while 0% availability = 0% of the monthly fee.* It is possible to predict a smaller level of public service unavailability, for example up to 50% of monthly fees, but such provisions are contrary to the criteria defined by Eurostat.

The aim of determining the factors is to ensure the continuous provision of public service throughout the lifetime of the project. Without the possibility of reducing compensation, it is difficult to structure a payment mechanism based on availability. An example of defining a reduction and growth factor to compensate for the reconstruction of a cultural heritage object - Castle X within the payment mechanism is shown in Table 17.

Table 17: An example of structuring the factors of impairment and growth factors of monthly fee increasing

Space category	Public services - space	Space availability requirements	Time needed to correct the deficiency	Reduction factor after the deadline for correcting deficiencies	Increasing the growth factor for disregarding the call to eliminate defects
First category	Hall A – temperature	When using the space for the exhibition of paintings of oil paints, tempera, watercolors or pastels, the temperature must be at 22 °C 24 hours a day, and humidity should not exceed 55%, while there should be at least 5 air exchanges for 1 hour of ventilation	Immediate Deadline (up to 8h)	8	1.03
		When using the space for the exhibition of wood, clay and earth items, the temperature must be between 14 °C - 27 °C and the air humidity should not exceed 70%. For 1 hour ventilation, at least 2 air exchanges must be performed	Priority Deadline (up to 48h)	2	1.02
		When using the space for the display of exhibits made of metal, plastic or rubber, the temperature must be between 0 °C - 27 °C and the humidity should not exceed 70%. For 1 hour ventilation, at least one air exchange must occur	Priority Deadline (up to 48h)	2	1.02

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Space category	Public services - space	Space availability requirements	Time needed to correct the deficiency	Reduction factor after the deadline for correcting deficiencies	Increasing the growth factor for disregarding the call to eliminate defects
First category	Hall A - cleaning of the space	During an event in a hall where the average daily movement is more than 1,000 persons - the space should be completely cleaned at least 4 times a day by dispersing agents	Immediate Deadline (up to 8h)	10	1.1
		During an event in a hall with an average daily movement of 500 to 1,000 people - the space should be completely cleaned by dispersing agents at least 2 times a day	Immediate Deadline (up to 8h)	10	1.1
		During the event in the hall where the average daily movement is up to 500 people - the space should be completely cleaned by dispersing agents at least 1 time a day	Immediate Deadline (up to 8h)	10	1.1

By combining all the basic characteristics of the technical aspects of the payment mechanism through a reduction factor and a growth factor to avoid deficiencies, a formula of the payment mechanism can be determined. This formula sets the monthly fee depending on the fulfillment of the expected standards of space and services. An example of defining a payment mechanism formula is shown in Figure 12.

Figure 12: Example of structuring payment mechanisms of monthly fees

$$Monthly\ fee\ =\ Contracted\ monthly\ fee - Reduction\ for\ unavailability$$

Under condition:

$$Monthly\ fee \geq 0$$

$$Reduction\ for\ unavailability\ \leq Contracted\ monthly\ fee$$

The monthly fee definition is always linked to a contracted monthly fee. However, a fee reduction due to unavailability of the service may range from zero to 100% of the value of the contractual fee.

The monthly fee cannot be negative, or if the private partner is constantly violating the contract provisions and the monthly fee is not paid to it by the public sector due to a

permanent state of unavailability, such a situation gives the public partner the right to activate guarantees for proper performance of the contract and initiate termination of the contract.

The reduction in monthly payments due to unavailability must be set in such a way that the project can be structured so that the monthly fee can be reduced by up to 100%. An example of the structuring of the reduction formula for non-availability is shown in Figure 13.

Figure 13: Example of structuring a payment mechanism - reduction for unavailability

$$Reduction\ for\ unavailability = Monthly\ fee\ x\ Fa\ x\ Es$$

Where:

Fa - is the Reduction Factor after the deadline to correct the deficiencies, while

Es - Growth Factor for Not Correcting Deficiencies. Correcting deficiencies within the agreed deadline does not activate the payment mechanism associated with reducing the unavailability payment. The overall process of creating technical aspects of PPP projects is shown in Figure 14.

Figure 14: Technical aspects of the PPP project
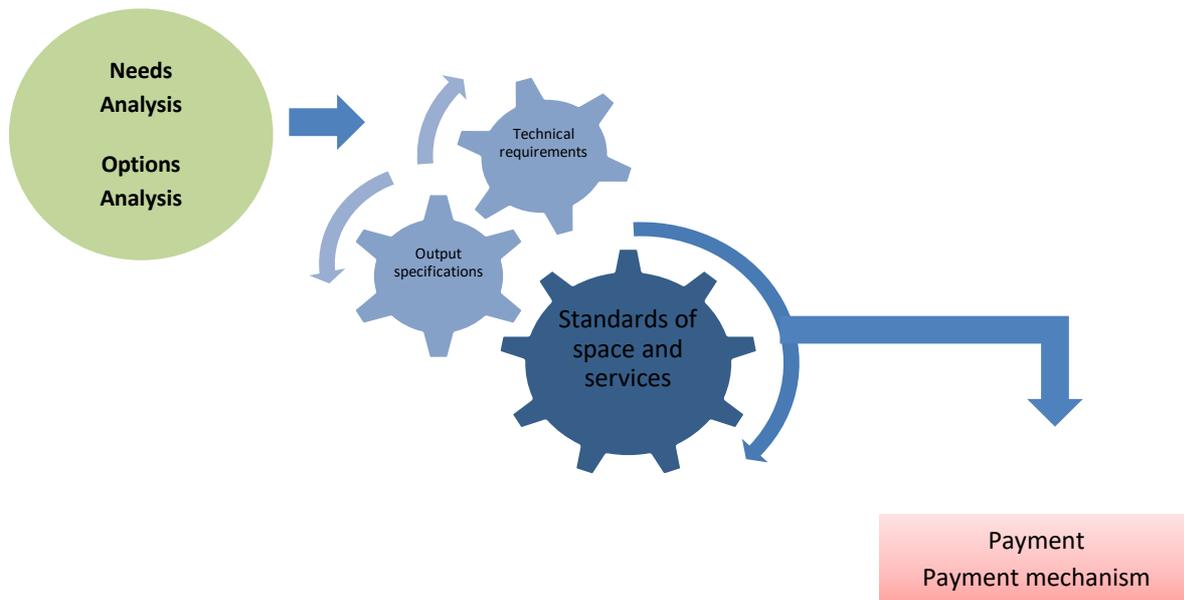
VII. Legal aspects

VII. Legal aspects

7.1 Legal framework

Legal and regulatory framework that supports PPPs is meant to facilitate investments in complex and long-term PPP arrangements, reduce transaction costs, ensure appropriate regulatory controls, and provide legal and economic mechanisms to enable the resolution of contract disputes.

The design of PPP legal frameworks varies across EU countries depending on legal tradition and existing laws. A PPP legal framework should include:

- *Provisions that make a PPP project possible and facilitate its functioning* (e.g. the legal right to establish a PPP company, the terms and conditions under which public assets may be transferred to non-public entities, the power of the PPP company to choose sub-contractors on its own terms); and
- *Provisions that enable governments to provide financing, where relevant* (for example, to provide subsidies or to make long-term commitments of public expenditure for the life of the PPP contract).

A PPP legal framework is typically identified in laws and regulations, but also in policy documents, guidance notes and in the design of PPP contracts. The exact nature of the legal and regulatory framework applicable to a particular PPP transaction also depends, among others, on the financing mechanisms contemplated and the scope of responsibilities transferred to the PPP company. These are issues on which the public sector should always secure advice from suitably qualified advisers.

Whereas the purpose of this manual is to facilitate and further clarify the Public Authorities of the PPP project in the field of cultural heritage, further in the text are described in detail all the essential elements that enable legal structuring and Preparation of the PPP project, and are manifested through:
- Risk analysis
- Structuring of PPP contracts

7.2 Risk analysis

The main risks of the PPP projects comes from the complexity of the arrangements between public and private sector bodies. It is very important to approve organizational structure of the project before operational phase. In project organization structure all positions should be covered to obtain full contact with project environment and to minimize risks and difficulties in delivery. Issues such a political leadership, bureaucratic resistance to change and corruption often create disinterest and disillusion in the private sector.

Knowledge and pre-defining periods of the total lifespan is necessary for the implementation of the risk analysis process. The risks of the project do not only occur in a single period, but during the overall duration of the project, thus the process and risks must be viewed through all periods of the life cycle, which means the risk needs to be identified in preparation phase, procurement phase, construction phase, operation and maintenance phase and end contract phase.

Risks	Preparation	Procurement	Construction	O & M phase	End Contract
No interest	X				
Design failure		X	X		
Construction risk		X	X		X
Availability risk				X	X
Demand risk				X	X
Maintenance				X	
Force majeure	X	X	X	X	X
Residual value					X
Regulation policy	X	X	X	X	X

The procedure for the implementation of risk analysis is composed of three parts : risk identification, quantification and risk allocation.
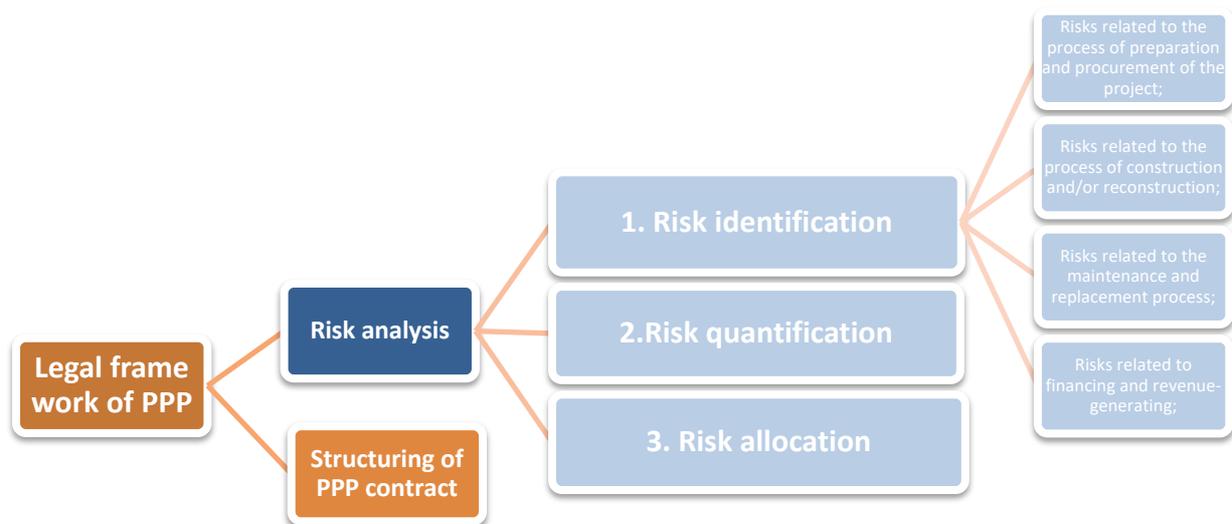
7.2.1 Risk identification

The process of risk analysis begins with the identification process, which aims to define all risks that occur throughout the duration of the contract, i.e. in the total lifetime.

On the basis of defined technical and financial aspects in the projects of revitalization of cultural heritage, and taking into account the total life expectancy of the project, we distinguish 4 basic phenomena of risk:

- Risks related to the process of preparation and procurement of the project;
- Risks related to the process of construction and/or reconstruction;
- Risks related to the maintenance and replacement process;
- Risks related to financing and revenue-generating;
- Other risks of the project in cultural heritage projects.

Risks related to the preparation and procurement process of the project

When structuring a PPP project in the area of revitalization of cultural heritage, the rights and obligations of the future contractual relationship are defined. By creating technical specifications, as well as structuring of the financial model, the price and scope of public service is defined. In this period, a draft PPP contract is drafted as well as the necessary decisions of the public sector, which the project wants to achieve. Inadequate planning in technical and financial terms, can lead to difficulties in subsequent periods of project implementation. Therefore, it is important to recognize the risks that occur in this period. Since the preparation of PPP projects requires specific knowledge and skills and require financial resources, it is useful to identify the costs and obligations that can burden the project when defining risks in this period. One of those are the nominees, which the public sector can transfer to the private sector, then costs related to procurement, etc. is therefore

recommended to the Public Authorities to include at least the following risk group when defining risks related to the project preparation:

- The risk of preparing a financial model
- The risk of defining technical specifications
- The risk of wrongful legal structuring
- Risk of increasing the cost of preparation above the planned
- Risk of inadequate public tendering procedure
- Risk of public tenders (not the existence of interest)

Risks related to the process of construction and/or reconstruction

The period of reconstruction and/or construction is the period at which the level of risk is transferred at the highest level. While the construction of new buildings has a relatively low degree of risk exceeding the cost and construction deadlines, reconstruction of significant historical buildings, such as cultural heritage objects, causes the materialization of a large number of risks, due to numerous unforeseen events related to the investigation of objects and plots, which can significantly delay the beginning and/or continuation of works. When identifying the risks associated with the construction period and/or reconstruction, it is recommended to the Public Authorities to include at least the following risk group:
- Archaeological risks
- The risks of designing and conservation testing
- Risks of exceeding the costs of construction and/or reconstruction
- Risks of exceeding the deadlines of construction and/or reconstruction

Risks related to the maintenance and replacement process

With the completion of the construction period, the period of use and maintenance of the object begins and the risks are associated with them. All defects reported in the risks associated with construction and/or reconstruction materialize in the period of use, which lasts for an average of 25-30 years in the PPP projects. The output specifications in the technical part define the direction and method of management of these risks, whereby an important category occupies the technological component, that is, the probability that the technology used for the purpose of providing public services is obsolete in the total contractual period. Although cultural heritage facilities do not have a significant technological risk, such as the telecommunications sector or the air transport sector, the change of technology for example heating and cooling standards can significantly affect the height of operational cost of the facility. In addition to the technological component, other events that can cause significant delays in the provision of public service, such as faults on the devices and equipment or the constructive parts of the facility, with the availability of the infrastructure, are reduced. When identifying the risks associated with the maintenance and replacement period, it is recommended to the Public Authorities to include at least the following risk group:

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- Technological risk
- Risk exceeding operating costs
- Risk exceeding management costs

<u>Risks associated with financing income</u>

In addition to the risks associated with construction, the risks associated with financing represent the second most common risk category of the project. They appear at all periods of the project cycle, starting from the preparation of the project in which the risk of financing is materialized in the form of the inability to close financial construction, over the construction period in which it represents the need for additional financial sources until the period of use in which they are able to provide a tidy service to the obligations. Financial risks are partially mitigated by applications of project finance techniques in which banks and other institutional investitures are significantly represented in the project. Public Authorities in the analysis of financial risks are most often focused on the risks associated with interest rates and currency clauses, while completely ignoring the risks associated with income revenue, which represent a major factor financial analysis, and the most efficient concealer of all other financial risks. Namely, if the project has a strong and stable cash flow, i.e. the income, servicing of long-term commitments and related risks is not a significant influence on possible materialization. When identifying the financial risks and risks associated with income revenue, it is recommended to the Public Authorities to analyze the following risk groups:

- Risk of revenue achievement
- Public service price risk
- Currency risk
- Interest rate risk
- Liquidity and solvency risk

<u>Other risks in cultural heritage projects</u>

The identification of the risks associated with the preparation, construction, management and maintenance process constitutes the backbone of each PPP project, but the conclusion of the contract in different sectors requires a specific approach to defining the risk. In the projects of revitalization of cultural heritage, there is a specific risk group that is linked exclusively to the subject of public service provision. Namely, while in the classical PPP projects, the risks associated with conservation and/or archaeological studies will constitute an exception, in the projects of cultural heritage, will constitute a necessary rule. In addition to the specific risks of the project, other risks occur and those that cannot be expressed in value, such as political risk or ecological risk. When identifying other risks in the projects of cultural heritage, it is recommended to Public Authorities to analyze the minimum following groups of risks:

- Risk of conservation studies
- Political risk
- Ecological risk

Implementation of the risk identification process defines the basic categories of risks that should be taken into consideration when structuring the project. The size and number of identified risks depends on the readiness of the public body to identify more relevant risks that may affect the cash flow during the preparation period. Completion of the identification process constitutes a risk matrix, which represents a tabular representation of all the defined risks of the project. The risk matrix display is displayed in table below.

Table 18: Risk matrix

Risk Period	Name of the risk	Risk description	Impact
Project preparation	The risk of preparing a financial model	Inadequate preparation of financial projections	Increased preparation costs, delay in public service delivery
	The risk of defining technical specifications	inadequately defined output Specifications	Increased costs, delay in the provision of services
	The risk of wrongful legal structuring	Inadequate legal basis, inability to project implementation, legal uncertainty	Increased costs, deadlock in the project preparation process
	Risk of increasing the cost of preparation above the planned	Increased costs of preparation of project proposals above planned	Increased costs
	Risk of inadequate public tendering procedure	Inadequate selection procedure, inadequate conditions of competition	Increased costs, delay in the provision of public service
	Risk of public tenders (not the existence of interest)	Lack of market interest in the project	Impasse in the provision of public service
Construction	Archaeological risks	Occurrence of archaeological findings in the field of project realization	Increased costs, delay in public service delivery
	The risks of designing and conservation testing	Inadequate design, subsequent requests for testing	Increased costs, in the provision of public service
	Risks of exceeding the costs of construction and/or reconstruction	Construction costs/reconstructions above planned	Increased costs
	Risks of exceeding the deadlines of construction and/or reconstruction	Exceeding of the deadlines associated with construction	Increased costs, delay in public service delivery
Use	Technological risk	Technology obsoleting	Increased costs
	Risk exceeding operating costs	Increased operating costs above budgeted	Increased costs
	Risk exceeding management costs	Increased management costs above budgeted	Increased costs
Other risks	Risk of conservation studies	Increased duration of conservation studies	Increased costs, delay in the provision of public service
	Political risk	Inability to continue realization of the project, stopping the project	Increased costs, a stalemate in the provision of public service
	Ecological risk	The emergence of ecological pollution caused by the implementation of the project	Increased costs

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Funding	Risk of revenue achievement	Revenues lower than planned, the inability to collect revenues	Increased costs, impact on liquidity and solvency
	Public service price risk	Inadequate price of public service	Increased costs, effect on solvency
	Currency risk	Adverse currency movement	Increased costs
	Interest rate risk	Increase of funding costs	Increased costs
	Liquidity and solvency risk	An inability to do a tidy service	Public service, increased costs

7.2.2 Quantification of risk
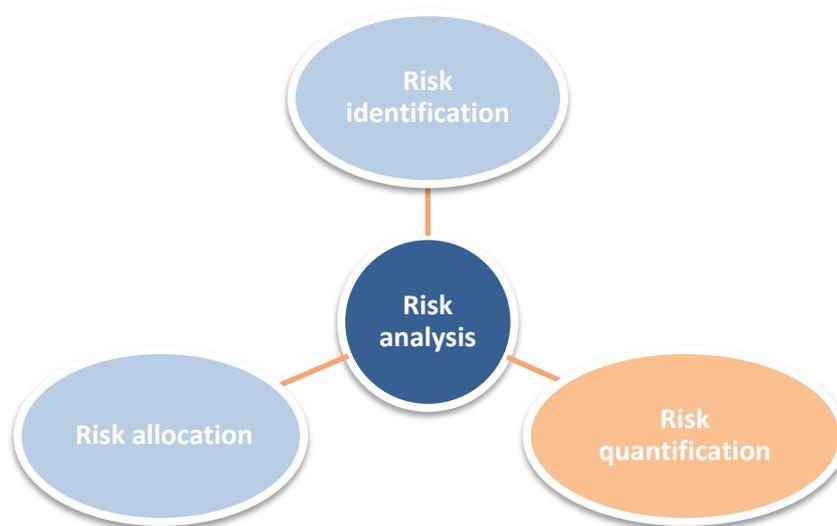
Risk quantification is the process of evaluating the risks that have been identified and developing the data that will be needed for making decisions as to what should be done about them.

The process of estimating the impact of financial and operating risks on a firm using formulas, statistics, and actual techniques. Refer to risk identification and risk management.

The cost estimation of some risk starts from the basic value given in the financial model. Therefore, before starting the quantification process, it is necessary to create a financial model on the basis of which further analysis steps can be undertaken. The development of risk analysis without the existence of a structured financial model leads to significant errors in the preparation of the project and uncertainty in the period of construction and use. There are numerous recognized methods and tools that serve for the purpose of quantification of risks (Monte Carlo simulation, Value-at-risk, risk, etc.).

The simplest method by which the identified risks of the project can be quantified is the method of the average weighted average displayed in table 19.

Table 19: Example of using the average weighted average for risk quantification

Name of the risk	Definition	Most likely value	Impact	Impact value	Probability	Expected value	Risk cost
1	2	3	4	5	6	7	8
Risk exceeding construction costs	Construction costs/reconstructions above planned	3 000	5	2 850	5	142,5	
			0	3 000	50%	1 500	
			+ 5%	3 150	20	630	
			+ 10%	3 300	15	495	
			+ 20%	3 600	10	360	
Total						3 127,5	127,5

Source: AIK, 2014

According to table 19, the risk quantification process is presented *Exceeding the cost of building the castle X.* The estimated value of capital costs according to the financial model (see: financial aspects) is 3,000 EUR. This value in the analysis represents (3) the most probable value. Since this amount of capital costs can vary from-5% to + 20%, the calculation is given (5) different probability of impact from 2,850 to 3,600 EUR. The probability of each impact is different (6) that results ((5) * (6)) different weighted values from The expected value of (7) 3.127, 5 EUR. The difference between the expected value (7) and the most likely value (3) represents the cost of risk (8) in the amount of 127.5 EUR. The amount of 127.5, 00 EUR should be added in the financial model when assessing the value of capital costs. The process of quantification and other risks should also be performed on the same principle.

The risk quantification process is quite complex and sometimes no suitable for projects of smaller values. Therefore, the basic question is whether the analytical mechanisms related to the legal structuring of the process of identification and quantification of the risk can be simplified.

The answer is affirmative. Namely, while the risk-identification process primarily serves for the purpose of structuring PPP contracts and defining future contractual relations, in the relatively simple PPP projects of social infrastructure (such as schools, kindergartens, public buildings Cultural heritage – museums, galleries, etc.), with special regulations defined by the scope and manner of providing a public service (such as the policy on education, ordinances on the standards of space and equipment of schools, minimal technical conditions for museums, etc.) can be the majority of risks in the quantification process reduce the underlying risks defined by the public-Private Partnership. That is to implement the project, the Private Partner must take over:

- Construction risk
- Availability risk
- Risk of demand

In this way, Eurostat proposes to the Member States to define a more closely defined public-Private Partnership. In table 20, a proposal is presented on which Public Authorities can outline the risk quantification process. By displaying this table, when preparing the project proposal, Public Authorities are focusing solely on key risks in the process, which is the goal of the PPP model – focusing on results. The individual risk groups accompanying the project cycle are directed to three underlying risk categories, i.e. *Risk of construction, risk of availability and risk of demand*.

Table 20: Example of minimum requirements related to risk quantification

Risk Period	Name of the risk	Risk description	Impact	Risk group
Project preparation	The risk of preparing a financial model	Inadequate preparation of financial projections	Increased preparation costs, delay in public service delivery	Construction risk
	The risk of defining technical specifications	inadequately defined output Specifications	Increased costs, delay in the provision of services	
	The risk of wrongful legal structuring	Inadequate legal basis, inability to project implementation, legal uncertainty	Increased costs, deadlock in the project preparation process	
	Risk of increasing the cost of preparation above the planned	Increased costs of preparation of project proposals above planned	Increased costs	
	Risk of inadequate public tendering procedure	Inadequate selection procedure, inadequate conditions of competition	Increased costs, delay in the provision of public service	
	Risk of public tenders (not the existence of interest)	Lack of market interest in the project	Impasse in the provision of public service	
Construction	Archaeological risks	Occurrence of archaeological findings in the field of project realization	Increased costs, delay in public service delivery	Availability risk
	The risks of designing and conservation testing	Inadequate design, subsequent requests for testing	Increased costs, in the provision of public service	
	Risks of exceeding the costs of construction and/or reconstruction	Construction costs/reconstructions above planned	Increased costs	
	Risks of exceeding the deadlines of construction and/or reconstruction	Exceeding of the deadlines associated with construction	Increased costs, delay in public service delivery	

Use	Technological risk	Technology break down	Increased costs	Availbability risk
	Risk exceeding operating costs	Increased operating costs above budgeted	Increased costs	
	Risk exceeding management costs	Increased management costs above budgeted	Increased costs	

Other risks	Risk of conservation studies	Increased duration of conservation studies	Increased costs, delay in the provision of public service	Availability risk
	Political risk	Inability to continue realization of the project, stopping the project	Increased costs, a stalemate in the provision of public service	
	Ecological risk	The emergence of ecological pollution caused by the implementation of the project	Increased costs	

Funding	Public service price risk	Inadequate price of public service	Increased costs, effect on solvency	Availability risk
	Currency risk	Adverse currency movement	Increased costs	
	Interest rate risk	Increase of funding costs	Increased costs	
	Liquidity and solvency risk	An inability to do a tidy service	Public service, increased costs	
	Risk of revenue achievement	Revenues lower than planned, the inability to collect revenues	Increased costs, impact on liquidity and solvency	Risk of demand

7.2.3 Risk allocation
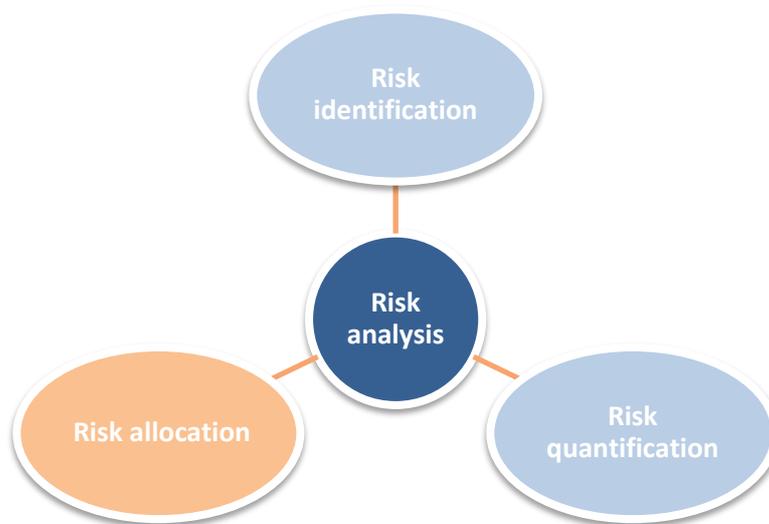
By implementing the risk identification and quantification procedure, the process of defining and valuing the project risk analysis was completed. The final step in the legal structuring of the project is to define the risk allocation of the project, which defines the rights and obligations of each of the contracting parties. On the basis of the allocated risks of the project the legal advisor together with the project team for the preparation of the PPP project is drafted by the PPP contract. Table 21, is given an example of project risk allocation matrix.

Table 21: Example of project risk allocation

Risk Period	Name of the risk	Risk description	Impact	Risk allocation		
				Public	Private	Shared
Project preparation	The risk of preparing a financial model	Inadequate preparation of financial projections	Increased preparation costs, delay in public service delivery			
	The risk of defining technical specifications	inadequately defined output Specifications	Increased costs, delay in the provision of services			
	The risk of wrongful legal structuring	Inadequate legal basis, inability to project implementation, legal uncertainty	Increased costs, deadlock in the project preparation process			
	Risk of increasing the cost of preparation above the planned	Increased costs of preparation of project proposals above planned	Increased costs			
	Risk of inadequate public tendering procedure	Inadequate selection procedure, inadequate conditions of competition	Increased costs, delay in the provision of public service			
	Risk of public tenders (not the existence of interest)	Lack of market interest in the project	Impasse in the provision of public service			

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Construction	Archaeological risks	Occurrence of archaeological findings in the field of project realization	Increased costs, delay in public service delivery			
	The risks of designing and conservation testing	Inadequate design, subsequent requests for testing	Increased costs, in the provision of public service			
	Risks of exceeding the costs of construction and/or reconstruction	Construction costs/reconstructions above planned	Increased costs			
	Risks of exceeding the deadlines of construction and/or reconstruction	Exceeding of the deadlines associated with construction	Increased costs, delay in public service delivery			
Use	Technological risk	Technology break down	Increased costs			
	Risk exceeding operating costs	Increased operating costs above budgeted	Increased costs			
	Risk exceeding management costs	Increased management costs above budgeted	Increased costs			
Other risks	Risk of conservation studies	Increased duration of conservation studies	Increased costs, delay in the provision of public service			
	Political risk	Inability to continue realization of the project, stopping the project	Increased costs, a stalemate in the provision of public service			
	Ecological risk	The emergence of ecological pollution caused by the implementation of the project	Increased costs			
Funding	Public service price risk	Inadequate price of public service	Increased costs, effect on solvency			
	Currency risk	Adverse currency movement	Increased costs			
	Interest rate risk	Increase of funding costs	Increased costs			
	Liquidity and solvency risk	An inability to do a tidy service	Public service, increased costs			
	Risk of revenue achievement	Revenues lower than planned, the inability to collect revenues	Increased costs, impact on liquidity and solvency			

7.3 Structure of PPP contracts

PPP Contract is a basic contract concluded between a Public Authority and a Private Partner, which, for the purpose of the implementation of the PPP project, regulates the rights and obligations of the parties to the contract. All legal, technical and financial aspects are contained in the contract, therefore its structuring as well as essential parts must be defined and adequately clarified.

Most PPP projects present a contractual term between 20 and 30 years. The term should always be long enough for the private party to adopt a whole-life costing approach to

project design and service management, guaranteeing service performance at the lowest cost.

PPP Contract is complex legal document and a long term contract that may contain several types of basic contracts, such as :

- design & construction contract,
- contract on the provision of services,
- maintenance contract,
- lease contract.
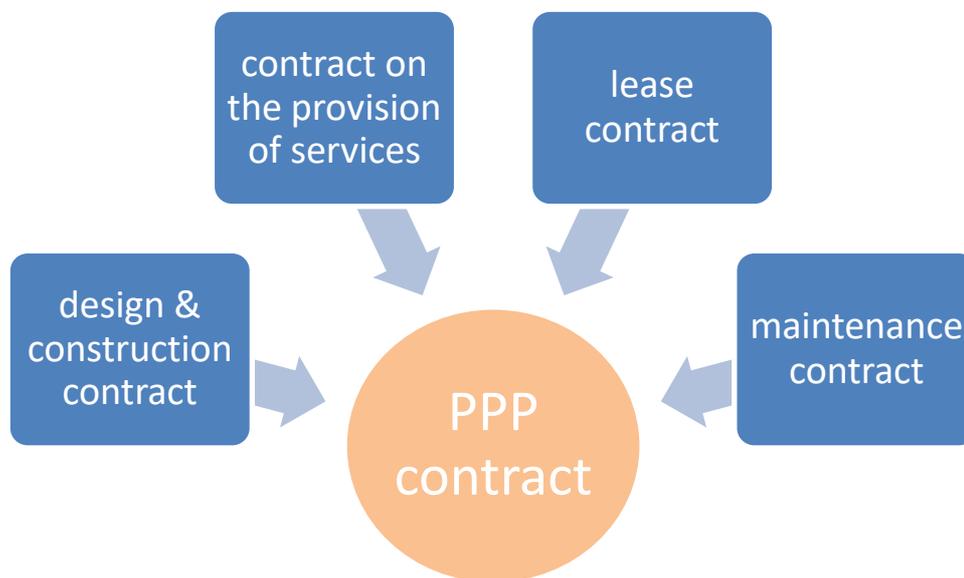
Key provisions of PPP contracts.

A well-designed contract is clear, comprehensive and creates certainty for the contracting parties. Because PPPs are long-term, risky and complex, PPP contracts are necessarily incomplete—that is, they cannot fully predict future conditions. This means the PPP contract needs to have flexibility built in to enable changing circumstances to be dealt with as far as possible within the contract, rather than resulting in renegotiation or termination.

As the contract is complex, it sets out some key considerations in following areas/provisions of PPP contract design:
1. Provision of purposes and subject of contract
2. Provision of the term contract
3. Provision of risk division between Contracting Parties
4. Provision of financing and refinancing
5. Provision of warranties and insurance policies

6. Provision of payments by Contracting Parties
7. Provision compensating and liberating cases
8. Provision of contract penalties
9. Provision consequences of the failure to comply with the contract
10. Preterm termination of contract and method of resolution of relations
11. Provisions of intellectual property protection, trade secrets and confidentiality of data
12. Provisions of the procedure and conditions of acquisition of buildings
13. Provisions of the dispute resolution procedure between Contracting Parties

7.3.1 Provision of purposes and subject of contract

The purpose and subject of the contract shall determine the manner in which a particular public service is provided and represents an underlying indicator of Public Authorities in which the direction should be structured by the PPP project.

In principle, the purpose of the project of revitalizing cultural heritage facilities will be aimed at restoring significant historical buildings, protecting property and valuable cultural parts, and must be related to public service.

7.3.2 Provision of the term contract

The deadline indicates the period on which the contract was concluded. It represents the essential part of the contract for both the Public Authority and the Private Partner, since all payments by the Public Authority and/or end-user can only flow when the object is placed in function, i.e. when the construction period is finished. In nature, the shelf life of the contract usually corresponds to the economic life of the asset, i.e. the assumption is that at the end of contractual relationship the residual value of the asset equals zero.

7.3.3 Provision of risk division between contracting parties

Structured risk analysis in the preceding chapter defines the rights and obligations of the Public Authority and the Private Partner, so this provision stipulating rules based on the risk allocation matrix. Those risks taken by the Public Authority will be stipulated in the form of the contractual obligations of the Public Authority in the PPP contract, that is, those risks taken by the Private Partner shall be stipulated as contractual obligations of the Private Partner.

Practical example of risk division in design& construction part of the PPP contract :

> *Design contract:* In most cases, Private Partner takes responsibility under the PPP contract for designing the asset in order to meet Public Authority specification . PPP contract typically gives the Public Authority the right to review, comment on or approve Private Partner design work .
>
> *Construction contract:* Private Partner takes responsibility for completing the construction of the asset by a fixed date, obtaining permits as far as this is in its control , constructing the asset to the Public Authority specification. Public Authority has rights to monitor the progress and quality of the construction work and to require the Private Partner to rectify issues of non-compliance.

7.3.4 Provision of financing and refinancing

The realization of each PPP project depends on the insured sources of financing, i.e. loans or other financial derivatives by financial institutions and by their own means of the Private Partner. This part regulates the procedure and ways of financial structuring of the project. In principle there are two types of sources of financing:
 1.own sources (equity), which most often provides Private Partner
 2.other sources (principal debt or senior debts), usually provided by the bank or other financial institution.

7.3.5 Provision of warranties and insurance policies

The implementation of the PPP contract in the long term aims to enable regular delivery of the public service, therefore both Public Authority and Private Partners require certain warranties and guarantees.

The PPP contract should clearly specify what is expected from the private party in terms of the quality and quantity of the assets and services to be provided. For example, this could include defining required maintenance standards for a cultural heritage building, or defining the required service quality and connection expansion targets for utility services provided directly to users. Performance indicators and targets are typically specified in an annex to the main PPP agreement.

A key feature of a PPP is that performance is specified in terms of required outputs (such as building surface required quality), rather than inputs (such as building surfacing materials and design) wherever possible.

In addition to the guarantees in PPP projects, the Public Authority may also require insurance policies for the entire duration of the contract. Insurance policies are most often contracted as property insurance by the principle of *All Risks.*

7.3.6 Provision of payments by Contracting Parties

The payment mechanism defines how the private party to the PPP is remunerated. Adjustments to payments to reflect performance or risk factors are also important means for creating incentive and allocating risk in the PPP contract.

Payment provision defines the cash flows of the private and/or public sector for the duration of the contract. In such cases, for example in projects based on the availability risk, payments will be made predominantly from public budgets, while in the case of projects based on the taken risks of demand by the private sector, payments will be predominantly based on the intent of the end users. Projects of revitalization of cultural heritage will most often have a combination of both forms of payment, therefore it is of utmost importance in the financial and technical aspects to create a quality financial model, as well as the structure of payment mechanism, to be defined Structure and forms of payment.

7.3.7 Provision compensating and liberating cases

PPP projects are long-term, and are often risky and complex. Sometimes, there are circumstances where the Private Partner should be relieved from liability failure to commence or provide the service. Although a PPP delivery model allows certain project risks to be transferred to the private party, many risks are still retained by the Public Authority . Risks for which the Public Authority is responsible under the PPP contract are often referred to as "supervening events" or "compensation events."

Compensation events consist of special circumstances that are under the control of the Public Authority or are most e efficiently managed by the Public Authority. Typically, the PPP contract specifies that as a result of the compensation event the private party must be left in a no-better or no-worse position than if the compensation event had not occurred. In other words, the private party will receive financial compensation for costs related to the occurrence of the event.

There are three groups of supervening events:

1. Compensation events
2. Relief events
3. Force Majeure events
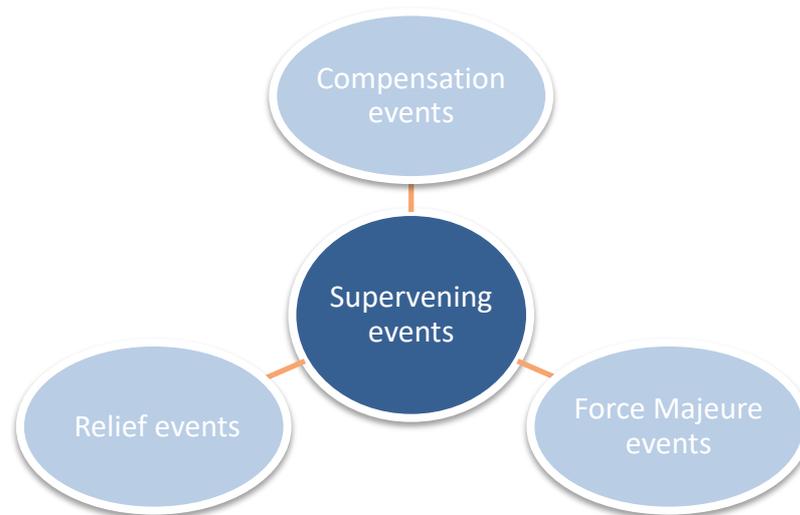
7.3.7.1 Compensation events result in a delay to Service Commencement and/or increased costs to the Partner. Following types of event are commonly treated as compensation events:

- Public Authority breach of the PPP contract
- a change in a law or regulation that adversely affects the project's operations
- unreasonable delays in issuing permits or obtaining right of way for the project
- site conditions that are unforeseeable or for which the consequences are not estimable (e.g. contamination, utilities relocations, latent defects in existing structures)
- incorrect data on ground conditions provided by the Public Authority or discovery of archeological or cultural resources in the project right of way

Consequences:

- If the event causes delay to the construction, the Private Partner is given an extension of time for the construction and completion date and relief from paying any liquidated damages to the Public Authority
- If the event causes unavailability or service failures, the Private Partner is given relief from any deductions that would otherwise occur
- If the event causes an increase in the Private Partner's costs (construction or operational) or loss in the Private Partner's revenues, the Private Partner receives full financial compensation from the Public Authority

7.3.7.2 Relief events are events which prevent performance by the contractor of its obligations at any time and/or cause increased costs to the Private Partner, but in the case of relief event the Private Partner is often expected to bear (fully or partly) the financial consequences of the event but is given relief from the other contractual consequences of the event. Following types of event are commonly treated as relief events:

- fire
- explosion
- accidental loss or damage to the asset or other infrastructure on which the Partner relies for the performance of its obligations
- failure or shortage of power, fuel or transport
- industry-wide labour disputes or strikes

Consequences

- If the event causes delay to the construction, the Private Partner is given an extension of time for the construction and completion date and relief from paying any liquidated damages to the Public Authority
- if the event causes unavailability or service failures, deductions are usually still applied to the Operational Payments, but the Private Partner is given relief from its failure to perform (e.g. relief from early termination)
- if the event continues for an extended period of time, some contracts allow either party to treat it as a force majeure event

7.3.7.3 Force Majeure events are a limited set of events which may arise during the term of the PPP contract through no fault of either party. These are best managed by the Private Partner. They are more severe than relief events, will typically last longer and may result in termination of the PPP contract. They are, by definition, unusual and rare events, and the contract management team should deal with these as exceptions. The focus should be on avoiding termination by the Private Partner mitigating the effects and, if required, obtaining support from the lenders to defer payment until such time as the project is stable again.

7.3.8 Provision of contract penalties

The contractual penalties indicate the amounts that the Public Authority makes to penalize the Private Partner for the failure to fulfil the contractual obligations. In principle, the contractual penalties are related to the provisions governing payments by contracting parties, since public sector payments in projects based on availability are directly related to the provision of the public service and the agreed payment mechanism.

7.3.9 provision consequences of the failure to comply with the contract

By defining these provisions, it aims to regulate relations between the public and private sectors in the event that one party does not fulfil its obligations. Whereas the Private Partner has pledged to enable the availability of the facility and/or the implementation of the public service, and the Public Authority shall make a payment, by non-compliance with the provisions provided for the right of the contracting parties certain instruments and procedures that they may take.

For example, in order to protect the public interest and to facilitate a continuous provision of public service at the agreed level, the Public Authority shall make a payment solely for the level of availability and/or services provided. Therefore, the most common provisions that apply for the purpose of failure to comply with the private sector contract are:

- reduction of monthly fees due to the unavailability of the object
- activation of guarantees for the orderly fulfillment of contracts in the construction period and/or use
- activating parent company guarantees
- termination of the PPP contract
- activate *Step-In right* Provisions
- requirements for changing subcontractors etc.

Besides the failure to fulfil the obligations of the Private Partner, the failure to fulfil the obligations of the Public Authority to a Private Partner is for the right to:

- the warranty provided by the Public Authority
- initiate the process of termination of the PPP contract and compensation for the loss of profit

In principle, the main controller of the contractual obligations fulfillment is the *Payment mechanism.* This is an independent tool whereby all measurements, payments and procedures that determine the availability level of the facility and/or the provision of public service are carried out in accordance with the agreed technical specifications.

7.3.10 Preterm termination of contract and method of resolution of relations

Early termination refers to the termination of a PPP contract prior to the scheduled end of its contract duration. A PPP contract and the applicable laws will set out the circumstances which could trigger such a termination. An early termination event can typically be triggered by a serious breach of the provisions of a PPP contract by either the Private Partner or the Public Authority.

The typical grounds for termination are:

1. Default by the Public Authority/ a voluntary decision by the Public Authority
2. Default by the PPP Private Partner
3. Expiry of the PPP contract term
4. Termination in the event of prolonged force majeure
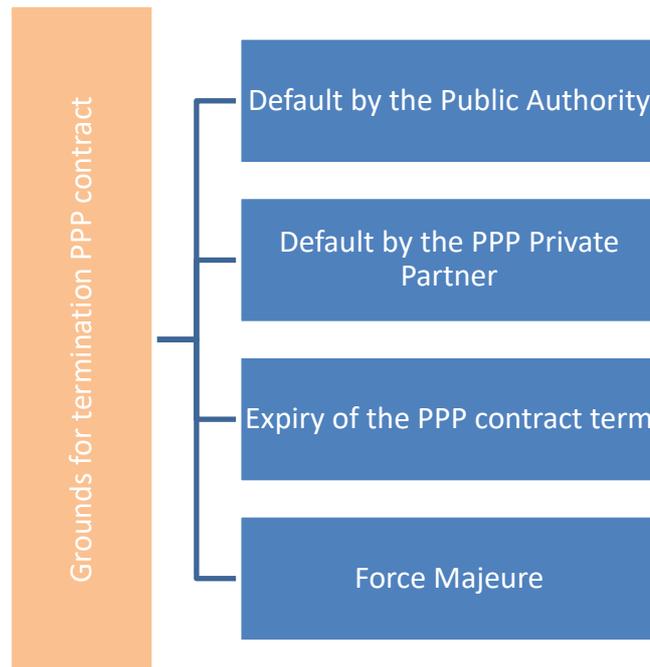
7.3.10.1 Default by the Public Authority

The PPP contract will usually contain the following events for Public Authority default:

- non-payment of amounts owed by the Public Authority to the Private Partner
- breach of contract by the Public Authority that prevents the Private Partner's performance
- expropriation or confiscation of the asset or the Private Partner's business
- sometimes, a change in the Public Authority credit-worthiness or legal status

It is necessary to add, that there is the same level of compensation on termination for Public Authority default and on a voluntary termination. In most PPP contracts, the compensation due by the Public Authority to the Private Partner on termination for Public Authority default is designed to ensure that the Private Partner and its lenders are left no worse off as a result of the Public Authority default than they would have been if the PPP contract had continued as expected.

Typically the compensation will cover the following key components:

- outstanding senior debt
- sponsors equity and subordinated debt
- loss of return
- payments due to third parties

7.3.10.2 Default by the PPP Private Partner

Private Partner default will usually contain following events:

- insolvency/bankruptcy of the Private Partner
- failure by the Private Partner to reach certain construction milestones
- failure by the Private Partner to deliver services to the agreed standards
- the Private Partner breaks restrictions on changes in ownership or transfers of the contract
- material breach of the PPP contract by the Private Partner
- corrupt behavior by the Private Partner

The most common approach in PPP contracts is where the Partner receives compensation based on the market value of the PPP contract.

7.3.10.3 Expiry of the PPP contract term

PPP contracts typically take one of two approaches to defining the date on which the contract expires:
- most contracts expire on a date that is a fixed period of time from the date of financial close (i.e. the overall duration of the PPP contract is fixed)
- other contracts expire on a date that is a fixed period from the date on which the asset becomes operational (i.e. the operational phase is fixed)

The Private Partner takes the risk that, on expiry of the contract, the physical condition of the asset meets a minimum specified standard.

7.3.11 Provisions of intellectual property protection, trade secrets and confidentiality of data

The structuring of PPP contracts through the definition of financial and technical aspects involves the application of knowledge and skills that often have the characteristics of business secrets and/or intellectual property. Therefore, when drafting a PPP contract, it proposes to the Public Authorities to provide the contractual provisions with the protection of the data posed by the *Business secret and intellectual property of a Private Partner.* Namely, it incorporates the private sector into the elements of the contract and *Know-how*, which may not be available on the market and representing the intellectual property of a Private Partner. By public disclosure of such data, it may result in information disclosure that may adversely affect the contractual relationship and business entities involved in the overall process. It is therefore important at the beginning of the structuring of contracts, to predict which parts of the contract will represent a business secret, and which parts of the publicly available information.

7.3.12 Provisions of the procedure and conditions of acquisition of buildings

This provision shall only apply if the Treaty on the PPP is covered by the building construction process. With the completion of the PPP contract, in accordance with the legal order, all buildings and/or facilities, as well as equipment, are passed to the property of the Public

Authority, without payment of compensation. The transfer of ownership is carried out in the land register by deleting the rights (the right of construction/concession) which the Public Authority founded in the conclusion of the PPP contract with the Private Partner. In this direction, it is proposed to the Public Authorities to define:

- Day and period of the transfer of the building – which represents the process in which the Private Partner surrenders the subject of the PPP contract to the Public Authority. This provision defines the obligations of the Contracting Parties with regard to the transfer costs as well as the manner of providing the service.
- The state of the building – represents the minimum technical conditions which the building must meet on the day of the transfer of the building, a It refers to the condition of the building's availability as well as the contracted standards of space and services.

In practice, it is often emphasized the engagement of an independent engineer and/or assessor who, during the transfer period, assessed the state of the building and determines whether the condition of the building is in accordance with the contractual provisions of the PPP contract.

7.3.13 Provisions of the dispute resolution procedure between Contracting Parties

While in classic mandatory legal agreements, the formulation is commonly used that, in the case of disputes, the agreed parties will resolve the dispute with agreement and/or to the local-competent court, in the PPP contracts, the provisions of this Regulation shall be devoted to significant attention. Namely, it is expected that disputes between Contracting Parties may occur in a long-term contractual period, so it is important when structuring the contract to develop mechanisms and procedures for which disputes will be addressed. The most common procedures for resolving disputes between Contracting Parties are consensual dispute resolution, expert consultation, arbitration or judicial dispute resolution.

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