APPROVED

By Order No 2014/8-337

of the Director of the Central Project Management Agency

of 31 December 2014

(as amended by Order No 2023/8-4

of 6 January 2023)

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**Methodology for Preparing**

**Investment Projects**

Version No 2.1.1

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Online version available at www.ppplietuva.lt and/or www.cpva.lt. The methodology has been updated in carrying out the functions of the Methodological Assistance Centre as defined in subparagraph 4.5.1 of the Resolution of the Government of the RL on the implementation of the RL Law on Strategic Management, Article 4(3) and (5), Article 7(1) and (4) of the RL Law on Regional Development and Article 14(3)[[1]](#footnote-2) of the RL Law on the Budgetary Framework and in subparagraph 25.3 of the Rules on the distribution of responsibilities and functions between institutions in implementing the Operational Programme for the EU Structural Funds Investments for 2014-2020 and in preparing for the implementation of the EU Structural Funds Investment Programme [[2]](#footnote-3) for 2021-2027.

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# Terms and abbreviations

**Demand for working** **capital** – meansworking capital is the difference between current assets and current liabilities. Working capital requirements are assessed each year and, in the event of a situation where liabilities exceed assets, sources of funds are identified to cover the shortage of cash flows.

**Discount** **rate –** means percentage used to determine the present value of future cash flows.

**Discount** **factor –** means coefficient which is multiplied by the value of future cash flows to calculate their present value. The present value is the current value of money.

**Discounted net** **revenues –** means net revenues valued at the present value of money, i.e. the net revenues for each year multiplied by the relevant discount factor.

**Discounted investment** **costs** – means investments valued at their present value of money, i.e. each year's investment multiplied by the relevant discount factor.

**Economic net present value, ENPV** – means economic benefits of a project in aggregate calculated by summing up the discounted economic net cash flows over the project’s time horizon. It shows the benefits of the project to the public in terms of the current value of money.

**Economic benefit / cost ratio, EBCR** – means economic analysis indicator that shows how many times the economic benefits generated by a project exceed the economic costs necessary for its implementation.

**EU** – means European Union.

**Economic internal rate of return, EIRR** – when such a discount rate is applied, the ENPV equals zero.

**FDR** – means financial discount rate.

**FNPV** – means financial net present value.

**Financial resources** – means (1) resources for financing project investments and operating costs that are not covered by project revenues, (2) income generated by public sources, public insurance funds and other income from products and/or services created upon implementation of the project.

Based on their origin, financial resources are usually classified into EU financing, co-financing, national or municipal budgets, private capital and other sources.

**Financial benefit / cost ratio, FBCR** – means financial analysis indicator that shows how many times the financial benefits generated by a project exceed its implementation costs.

**FIRR** – means financial internal rate of return at which the FNPV is equal to zero.

**Net** **cost** – means arithmetic difference between the amounts of investments, operating costs including reinvestment, and operating revenues over the same period.

**Net budget expenditure** – means arithmetic difference between the amounts of investment, operating costs plus reinvestment, interest and input VAT (if not included in the cost of goods / services), and operating revenues of the same period.

**Net budget revenue** – means revenue generated from the provision of the service over the same period exceeding resources from public and private sources allocated for the implementation of the project and the provision of the service.

**NPV** – means net present value.

**Net operating revenue** – means arithmetic difference between amounts of operating revenues and operating costs plus reinvestments during the same period.

**Net cash****flow** – means difference between positive and negative cash flows in each year of the time horizon of the project.

**Homogeneous projects** – means projects with the same goals, objectives, activities and monitoring indicators (e.g., kindergarten renovation projects, projects to replace heating boilers with more energy efficient boilers, etc.).

**Investment object** – means tangible and intangible fixed assets to be created (improved, renovated, etc.) during the implementation of the project. Investment objects may be buildings, civil engineering structures, intangible assets, equipment and vehicles.

**Financial net present value of investments,** **FNPV** – means value calculated by summing the discounted flows of investments, residual value of investments and net operating revenues over time horizon of a project. The indicator shows how the flow of the project’s net operating revenues over the entire time horizon measured at the present value of money covers the investments.

**Financial internal rate of return of investments, FIRR** – means discount rate at which the value of discounted investments equals the discounted value of cash flows, i.e. the discount rate at which the FNPV of investments is equal to zero.

**Engineering systems**[[3]](#footnote-4) – means systems designed to meet the needs of people living, working or otherwise using a building for the purposes of its use and maintenance: water supply, waste water disposal, heating, ventilation, air-conditioning, gas, electricity, electronic communications, fire protection, detection, alarm and extinction, smoke, garbage disposal, alarm, elevator and other systems, together with their regulation, control and automation equipment.

**Engineering networks** – means municipal or local water supply, waste water disposal, heat, oil, gas or other fuels, process pipelines, electricity transmission, energy and electronic communications networks, together with power sources and equipment, installed on the construction site of a building (excluding interior of the building) and beyond its boundaries.

**Engineering structures** – means communications, engineering networks, channels and all other structures that are not buildings.

**IP**– means investment project.

**IP calculator** – means MS Excel document used to carry out the financial and (if the CBA method is used) economic analysis and risk assessment of an investment project.

**Equipment** – means machinery, devices, appliances intended to produce energy, materials and to receive, transmit or transform information.

**Financial net present value of capital, FNPV(C)** – means value calculated by summing up the discounted cash flows of the financing allocated by the project owner[[4]](#footnote-5), residual value of investments, interest and net operating revenues during the time horizon of the project. The indicator shows the return on capital invested by the project owner (value of net revenues) calculated according to the present value of money.

**Financial internal rate of return of capital, FIRR(C)** – means discount rate at which the FNPV is equal to zero.

**Conversion factor, CF**– means factor used in economic analysis which is applied to a specific financial flow in order to convert it into an economic flow. The CFs used in the IP calculator for the analysis of options using the CBA method are calculated and updated annually by 1 December and applied from 1 January of the next year.

**Cooperation** – means connecting to another entity’s existing resources / infrastructure to achieve the result of the project and to deliver the service.

**Residual value** – means amount calculated by adding to or deducting from the cost of acquisition or production of a tangible or intangible fixed asset any amount of changes in the asset value (fair value changes, revaluations) and deducting the accumulated amount of depreciation or amortisation.

**Incremental analysis** – means CBA performed by comparing the cash flows and benefits (costs) generated of each option to the present situation.

**Local estimate** – means investment requirement for the construction of a building itemised by construction activities.

**Depreciation rate** – means systematic allocation of the depreciable amount of an asset over its useful life. The depreciation rate for each year is obtained by entering 1 in the numerator and the economic useful life of the investment – in the denominator.

**Object estimate** – means investment requirement for the construction, installation and acquisition of equipment for the construction of a building (components of a building or separately constructed buildings) itemised by component parts of the project.

**Optimisation** – means the substantial improvement in existing performance indicators, in whole or in part, through changes in the principles, method, procedures of implementation of activities, people carrying out the activities, etc.

**Loans**– means funds borrowed from credit institutions, other legal and natural persons used for the implementation of the IP.

**Service** – means public service, public administration and public goods. For the purposes of this Methodology, the concept of service does not include commercial services, as IP is only prepared for the improvement or development of public services, public goods or public administration.

**Changes of output level, PPR** – means quantified result to be achieved by a project linked to a change in the socio-economic benefits or service being provided.

**Building renovation (modernisation)** – means construction operations that restore or improve the physical and energy performance of a building and/or its engineering systems and/or ensures the use of energy from renewable energy sources[[5]](#footnote-6).

**Premises** – means area of a building enclosed by walls and other partitioning.

**Private equity** – means any asset owned by the project organisation and used to implement the IP (money, real estate, knowledge and intellectual property, etc.).

**Private legal entity** – means legal person whose purpose is to serve private interests of its founder(s). A legal entity is classified as a private legal entity in accordance with the law regulating the legal form of legal entities and the Regulations of the Register of Legal Entities approved by Resolution No 1407 of the Government of the Republic of Lithuania of 12 November 2003.

**Time horizon of a project** – means number of years for which projections of project investments, operating costs, operating revenues, taxes, financing and socio-economic benefits (damages) are made.

**Investment period of a project** – means number of years for which the project investments (excluding reinvestments) is foreseen.

**Market** – means market for the provision of paid and free (funded by the public sector) services.

**Analysis object** – means part of the project activities distinguished in developing the project’s options and conducting analysis of search for their most useful or efficient solutions, comparing the developed implementation options with each other by means of calculations performed in the IP calculator. If the project involves several problem causes or several similar investment objects, for each of them a separate activity (separate set of activities) can be developed – an independent analysis object and comparing for each of them the implementation options by means of calculations performed in the IP calculator.

**Cost effectiveness / efficiency analysis indicator, SEVR** *(cost effectiveness analysis (CEA) indicator)*– means ratio of change in net costs less residual value of investments to the changes of output level (PPR).

**SDR** – means social discount rate.

**Cost / benefit analysis, CBA** – means method of assessing the efficiency of investments by comparing the project implementation costs with socio-economic benefits generated by the investments.

**Socio-economic** **benefits and costs** (*economic benefits and costs*) – means benefits or costs expressed in monetary terms to which the society is exposed due to changes resulting from the project implementation. These benefits are measured according to the principle of the willingness-to-pay and may be direct, influenced by external impact or affecting climate change.

**Cost effectiveness analysis, CEA** – means method of assessing the efficiency of the investment, based on a comparison of the total net cost, reduced by residual value, of each project option considered, and the target changes of output level (PPR), measured in terms of net present value.

**Vehicle**[[6]](#footnote-7) – means of transporting people and/or goods and fixed equipment mounted on it. This term also includes tractors, self-propelled machinery and off-road vehicles.

**Operating** **costs** – means costs incurred or expected to be incurred for the operation of the assets created during the project and for earning operating revenues of the project.

**Operating** **revenues** – means cash flow directly received from consumers for goods and/or services provided as a result of the implemented project (created or modernised infrastructure).

**Public administration** – means activities carried out by state and local self-government bodies regulated by laws and other legal acts, as well as other entities authorised by laws, aimed at implementation of laws, regulations, decisions of local self-government bodies, and administration of the public services envisaged. Public administration includes the following functions:

1. Administrative regulation – making and issuing the administrative (regulatory) acts needed to implement laws and regulations.

2. Monitoring the implementation of laws and administrative decisions (control of subordinate entities, supervision of non-subordinate entities).

3. Provision of administrative services:

3.1. Issuing permits, licences;

3.2. Issuing documents to confirm a certain legal fact;

3.3. receiving and processing declarations;

3.4. consulting individuals on matters within the remit of an entity of public administration;

3.5. providing information to individuals as required by laws from a public administration body;

3.6. carrying out an administrative procedure.

4. Administration of the provision of public services. An entity of public administration that administers the provision of a public service may not itself provide such service, except where a structural unit of the municipal administration provides public services according to the conditions and procedure laid down by the Law of the Republic of Lithuania on Local Self-government.

5. Internal administration of an entity of public administration – to ensure the proper performance of functions 1-4.

**Public service** – means activities of legal entities controlled by the State or municipalities when providing social services to persons, as well as services in the spheres of education, science, culture, sports and other services provided for by laws. Other persons may also provide public services in the cases and according to the procedure established by laws. Public services also include the internal administration of the entity providing these services, which is considered an integral part of the public service. Therefore, if an IP envisages improving internal administration it shall be demonstrated what impact this will have on the delivery of the public service.

**IRR** – means internal rate of return.

**Public** **goods** – means goods that are important for the public wellbeing and are available free of charge to a very large number of users who do not consume their benefits or reduce the quantity of these goods, e.g., city streets, pavements, squares, bridges, national defence, footpaths, lighthouses, street lighting, lookout towers, parks, etc.

**Public legal entity** – means legal person established by the state or municipality, their institution or any other person who is not seeking benefits for itself (state or municipal enterprise, state and municipal institution, public body, religious community, etc.), the purpose of which is to serve the public interest. A legal entity is classified as a public legal entity in accordance with the law regulating the legal form of a legal entity and the Regulations of the Register of Legal Entities approved by Resolution No 1407 of the Government of the Republic of Lithuania of 12 November 2003 on the [establishment of the Register of Legal Entities and approval of the Regulations of the Register of Legal Entities](http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=221119&p_tr2=2).

**Funds of public and private sources** – means total amount of financing requested during the time horizon of the project (corresponding to line G.1 of the Worksheet of the IP calculator’s options), own funds (corresponding to line G.2 of the Worksheet of the IP calculator’s options) and loan repayments (corresponding to line G.3.2 of the Worksheet of the IP calculator’s options).

**Total investment** **costs** – means amount of investments (including reinvestments) required for the implementation of all project activities. Includes all investments anticipated to be incurred to produce the defined outcomes of the project.

**Total** **expenditures** – means sum of the project’s investments, operating costs, taxes and cash flows planned for repayment of loans.

**Total** **revenues** – means amount sum of operating revenues and financing sources of a project.

**Public – private partnership, PPP** – means partnership of the private and public sectors.

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| Purpose and structure of the Methodology In order to improve the efficiency of the project preparation and evaluation process, to reduce the public sector's expenditures on the preparation of investment projects (hereinafter – IPs), to improve the competences and skills of investment planning in the public sector, and to make the practice of IP preparation more consistent, the public institution Central Project Management Agency (CPMA) has developed a methodology for the preparation of IPs in the public sector (hereinafter – the Methodology). This Methodology sets out the detailed requirements for the structure and content of projects seeking financing from various financing sources and/or the public budget, and provides practical examples of how to apply the Methodology. Requirements for structure define the number of parts that make up the IP, while requirements for content define the key questions that should be answered in the IP in a justified and reasoned way in order to assess the benefits and effectiveness of the planned changes.  Based on the experience gained in the evaluation of projects and taking into account the provisions of the Economic Appraisal Vademecum 2021–2027 General Principles and Sector Applications[[7]](#footnote-8) prepared by the European Commission (EC) DG REGIO, the Methodology has been updated in order to comply with the current legislative requirements and EC practice.  IPs may always be prepared according to the Methodology, but their preparation according to the Methodology is mandatory where this is provided for in the Strategic Management Methodology[[8]](#footnote-9).  The provisions of the Methodology have been aligned with the following documents:   1. RL Law on Strategic Management adopted on 25 June 2020, No XIII-3096; 2. RL Law on Investments adopted on 7 July 1999, No VIII-1312; 3. Strategic Management Methodology; 4. Order No 1K-256 of the Minister of Finance of the Republic of Lithuania of 13 August 2010 on approval of the description of procedure for determining the criteria for assessing public investments and the evaluation of the results achieved; 5. Regulation (EU) 2021/1060 of the European Parliament and of the Council of 24 June 2021 laying down common provisions on, and rules for, the European Regional Development Fund, the European Social Fund +, the Cohesion Fund, the Fair Transformation Fund and the European Maritime, Fisheries and Aquaculture Fund, as well as for the financial support instrument for the European Union, and the Asylum, Migration and Integration Fund, the Internal Security Fund and the Financial Support Instrument for Border Management and the Visa Policy; 6. Regulation (EU) 2021/1058 of the European Parliament and of the Council of 24 June 2021 on the European Regional Development Fund and the Cohesion Fund; 7. Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088; 8. The European Commission’s Guide to cost-benefit analysis of investment projects (Final report 12/2014) (hereafter – the CBA Guide); 9. Economic Appraisal Manual 2021-2027 prepared by the European Commission's DG REGIO; 10. Methodological recommendations for state aid evaluation prepared by the CPMA; 11. Methodology for calculating conversion factors and assessing socio-economic impacts (benefits/costs) prepared by CPMA.   The Methodology consists of the descriptive part and annexes. The descriptive part explains the basic requirements and principles for the preparation of an IP, concepts, how to carry out a cost-benefit analysis (CBA), a cost-effectiveness analysis (CEA), principles for calculating indicators, etc. The annexes contain additional explanatory information, the IP template and the MS Excel calculator (hereinafter – the IP calculator) used for the analysis calculations.  The steps in the IP calculator and their link to the descriptive part of the Methodology are indicated in the Methodology tabs marked with a triangle with an exclamation point. |
| Definition and goal of the investment project The IP is a document providing a financial (economic), technical and social justification of investment goals, assessing the return on investment (commercial project) and other efficiency indicators, specifying resources needed to implement the project, and the sources and timing of financing[[9]](#footnote-10).  The IP shall be prepared in order to find the best (most efficient, effective or useful) solution to the cause of the problem (or several causes) – an attractive option of the solution by improving the quality or increasing the efficiency of the existing service, by expanding it, or by creating new services, if the market does not offer such a service without state or municipal intervention. IP preparation includes:   1. detailed analysis of the problem situation and the service for which the implementation of the IP is required; 2. analysis of changes and trends in the service, justification of the need for the service, definition of the requirements for the specific changes to be achieved by the project, analysis of the feasibility of the project and analysis of options; 3. cost-benefit analysis of the project; 4. project sensitivity and risk analysis; 5. developing a roadmap for the implementation of the attractive option (identifying the sequence of actions, their relationships, importance, and their positioning in the overall project process).   The IP is prepared from the perspective of provision of services of the public sector, whether state or municipal, with a view to assessing the costs the public sector would incur for improving, developing or creating a new service, and the maximum socio-economic benefits that could be generated by the implementation of the project. The IP may be prepared by the legal entity that provides the service itself or by the institution that administers the provision of the service within its sphere of governance.  When an IP is prepared by an institution that is not itself a service provider, but administers the provision of a service within its sphere of governance, it is more likely that a wider context of the service will be analysed, the full range of benefits and costs, will be assessed and socio-economic solutions that are more beneficial to the public will be proposed than would be the case for individual public service providers (institutions / operators subordinate to the public service administrator).   |  |  | | --- | --- | |  | BEST PRACTICES   * In order to improve pre-primary education services, the IP is prepared by the municipality, covering pre-primary institutions in the whole municipality or in a part of its territory. Such analysis allows for a more qualitative approach to the problem than if each pre-school institution were to prepare its own IP and address the issue of pre-school education services only in the context of its own. * In the case of expansion and modernisation of services provided by the subordinate to the municipality and financed from the budget, the municipality prepares the IP, since the final financial benefit will not accrue to the subordinate institution, which finances its activities from the budget appropriations it receives, but rather to the municipality, which allocates to the institution the amount of resources needed to finance it to the extent that the revenues from the services it provides do not cover the financing need. Increased revenues and/or more efficient service delivery reduce the need for budget financing. In cases where resources saved by the subordinate institution have to be returned to the budget or result in a corresponding reduction in the following year’s appropriations, the IP should be prepared from the municipality’s perspective (the same logic for the preparation of the IP also applies to national planning). Otherwise, an IP prepared from the perspective of a subordinate institution does not reflect the full financial benefit of the IP. | |
| General requirements for the investment project The data and information used in the IP shall be:   1. **Consistent** – if the analysis relevant to a particular IP (e.g., *problem causes*) has been carried out in detail in any planning document (development programme and/or progress measure, regional planning documents in the case of regional interventions), it shall not be repeated, and the results and main conclusions shall be presented in a concise manner in the IP, with a reference to the full analysis document (unless due to change in circumstances it is appropriate to revise the relevance of the analysis in the light of changes in data). The information provided in the IP should make clear how the specific project contributes to addressing the root causes of the problem as defined in the higher-level planning documents. Meanwhile, if a full analysis has not been carried out before, it shall be carried out (supplemented, extended, deepened) during the preparation of the IP. In any case, the information provided in the IP should allow a reliable assessment of the rationality, usefulness and effectiveness of the planned intervention. 2. **Credible** – IP assumptions should be based on the results of research, studies or analyses. References are provided to verify the validity of the information, with preference given to open access sources. If calculations are used to support the assumptions, they are provided in the additional Worksheets of the IP calculator – the calculations are provided with all the internal formulas to show how the calculated results were obtained.  |  |  | | --- | --- | |  | The prices of contract works shall be supported by at least one of the following sources: the cost estimate, local estimates, comparative economic indicators of estimated prices, prices for similar works carried out in the past. Prices of intangible assets, equipment, furniture, vehicles – by suppliers' quotations or links to websites that would allow checking the reasonableness of prices. Other sources may also be used to justify prices. |  1. **Official** – the source of the information in the IP should be publicly available. It is recommended to use strategic plans, statistical data collected in information systems and/or databases of public entities, feasibility studies, sectoral surveys, territorial planning documents (concepts, solutions of master plans, etc.), official forecasts and surveys of the development of the Lithuanian economy, data of general population censuses, data collected in information systems and/or databases of other institutions. 2. **Relevant** – using at least one year’s data to justify the need for the project and at least five years’ data to show trends. Demand forecasts are based on socio-economic trends. 3. **Unambiguous** – using unambiguous statements that clearly convey views and attitudes, maintaining the internal logic of the project. 4. **Comprehensive** – if statements in the IP are based on the theses or conclusions of research papers, references to relevant sources of information and data shall be provided so that the IP assessors or users of information can have full access to the justification. 5. **Non-repetitive, concise** – textual information provided once in the IP should not be copied later. If there is a need to repeat information previously provided, the explanation shall include a reference to the exact place in the IP where it was first provided. The information shall be concise and limited to what is necessary to justify the project problems and benefits and/or efficiency of the planned change. The provisions of the Methodology shall not be repeated. If this principle is followed, the IP will be shorter and each Section will contain only new and relevant information.   The IP should clearly disclose the internal logic of the project: the project results shall be the outcome of the project activities, the project activities should provide prerequisites for the achievement of the project goals, and the latter – for the attainment of the specified objectives (vertical project logic).  Tables and figures can be used to make the IP more informative. Large figures and tables (more than 1 page) shall be provided in annexes. The IP should consist of main parts following the structure proposed in the Methodology, and additional parts may be added if necessary.  The IP Calculator (Annex 9 to the Methodology) is provided as an integral part of the IP together with the descriptive part of the IP. It should be saved in the memory of the work computer before it is used and should be used after the preparation of Parts 1 and 2 of the IP. |

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| 1. Project context | | |
| The purpose of this part of the IP is to set the context for the services for the improvement, enhancement of effectiveness or development of which the IP is being prepared, and to identify and justify the problems to be addressed. A detailed analysis of the context of the service provision, the long term need, the possibilities to meet it with the existing capacities and the resulting problems is necessary to subsequently assess the optimality, reality and feasibility of the IP content (the preconditions for and results of implementation of goals, objectives and activities). The services covered by the IP are understood as public services, public administration functions or public goods.  The service context is analysed in the following steps:  1. Service supply and demand.  2. Legal framework of the project.  3. Problems and their causes. |
| 1.1. Service supply and demand | | |
| The IP describes the service and the socio-economic environment of its provision at the chosen level of analysis: international, national, regional, part of a city, intra-institutional. The main aspects of the analysis are dealt with in the following order:   1. Identification of the service: description of the essence, relevance, purpose, objectives and users. 2. Analysis of supply**:** revealing how the service is currently provided and the principle scheme of its delivery:  * describing the essential characteristics (e.g., *time of provision, number of services per hour, cost per service provided, time of availability of the service, seasonality constraints, main functions of the service, their inter-relationships, whether there are any functions that are independent of each other, etc.*) that would allow a subsequent assessment of the change in the quality and/or efficiency of the service following the implementation of the project as a baseline. * presenting information on the service providers in the selected market (natural and/or public and/or private legal entities): number, types, pricing (if applicable), who is responsible for planning of the service and overseeing its implementation.  |  |  | | --- | --- | |  | The above analysis process is adapted to examine the case of public services. When analysing the supply of services classified as public goods or public administration functions, the analysis should follow the same principles and logic as for public services, but depending on the specific situation, the requirements for analysing the market supply may be adapted to make the analysis rational. If there are no other potential entities in the market to perform the function, it shall be limited to the statement of the situation. For example, quality tests of surface water bodies can also be carried out by market entities, so the market supply analysis is carried out, while functions related to legislation, supervision of operators, etc., can only be carried out by public sector bodies, accordingly, conclusions of the analysis in this part are limited to the finding that there are no other private and public operators on the market providing the service. |  1. Demand analysis**:** a comprehensive assessment of demand potential in a selected geographical area or level of analysis:  * identifying the current and potential number of users and describing their needs. * an analysis of the volume of service provision over the last 5 years in terms of quantitative characteristics (where appropriate, the volume shall be broken down by individual user groups). * identifying which internal causes and which external socio-economic environmental factors have had a significant impact on changes in the volume of demand. Demand is the result of the factors that affect it.   Table 1.1. Demand drivers   |  |  | | --- | --- | |  | Potential demand drivers:  *Socio-economic trends –* changes in productivity in the analysed area, income, unemployment rate, economic structure of the region.  *Demographic trends –* population structure by age group, level of education, proportion of people in employment, etc.  *Regulatory changes –* change in a service potentially influenced by changes in requirements arising from government policy and/or legal acts.  *Elasticity of demand related to quality, timing and price / tariffs –* elasticity is an important factor in the assessment of projects where the asset use intensity determines price levels (and vice versa), the asset use conditions and characteristics of asset quality.  *Area changes –* any change in characteristics of the environment and/or its infrastructure that leads to changes in economic potential.  *Technological changes –* changes that affect the cost structure of a project and its options, e.g., fuel efficiency, increased productivity, etc.  *Industrial and logistics structure and development –* covers areas with concentrations of industrial activity, natural resources, major transport hubs (rail, ports and airports), logistics structure and likely developments in supply chain organisation (clustering, accounting and monitoring, changing distribution patterns, etc.).  *Digital literacy and skills –* the higher are digital skills of population, the greater is the likelihood that they will use digital services.  *Deployment of energy efficiency measures –* the deployment of energy efficiency measures can have a significant impact on the overall energy demand.  *Climate conditions and change –* seasonality or other climate changes capable of influencing the demand.  *Other relevant factors*. |  * the extent of unsatisfied demand shall be determined, if any. * after taking into account the past trends, the extent of unsatisfied demand and trends of change in demand drivers, annual forecasts of demand for the service shall be prepared for the period of the target change (depending on the length of the IP time horizon subsequently chosen).   Where the service in question is not available on the market covered by analysis, the identified demand shall be *benchmarked* against existing demand in the relevant geographic regions or markets. The same should be done in cases where the service under analysis is already available on the market. The region chosen for benchmarking should be similar to the IP region in terms of characteristics such as size, income level, population density, transport infrastructure, etc. When benchmarking, potential distortions in the results are eliminated.  After taking into account the demand factors examined, their trends and circumstances, a demand forecast shall be prepared under three scenarios: pessimistic, most likely and optimistic, of which the most likely or more pessimistic scenario is recommended for further analysis to avoid optimistic bias (see Figure 1.1).  Table 1.2. Service supply and demand analysis   |  |  | | --- | --- | |  | **BEST PRACTICES**   * The District Hospital Modernisation Project analyses the number of population of the district, its demographic composition, morbidity trends and provides forecast assumptions. The location and accessibility of health care facilities, the services they provide, and the possibility of transporting patients to regional centres is analysed. The critical time needed for the patient to reach a medical facility is defined. * The service accessibility enhancement project examines in detail the organisation, processes and procedures for the public services provided physically, current costs, generated operating revenues, and legal constraints, introduces the shortcomings of physical provision of public services, potential number of users and potential demand. Changes in the service demand after its transfer to electronic environment are assessed in the light of experience of implementation of similar projects. * - In the Social Housing Stock Increase Project the number of applications submitted for obtaining social housing is analysed and the needs are assessed taking into account the composition of households and the number of persons with disabilities. The possibilities of adapting municipally-owned property for social housing, as well as the possibilities of renting, acquiring and adapting housing or buildings on the market are analysed.   **BAD PRACTICES**   * In projecting the need for expanding the college in city X, only the change in the population of city X is considered, although 40 % of the college students come from other cities of Lithuania. The increase in the number of urban dwellers in city X may distort the projections, as other cities have lower fertility rates. * Identified need for IP: the existing infrastructure has not been renovated since its creation in 1952 and needs investment. It is not clear whether the infrastructure is needed now, or whether it will be needed in the future, and by which user groups. * In forecasting the demand for e-services the scope of the service that is most attractive to its user groups and the level of computer literacy that would be sufficient for users to access the service in the country are not analysed. |   *Current moment*  *of time*  Forecast  Factual situation  *Size*  Factor X2  *Effect of the factor*  *Time*  *Connection*  *Connection*  *Connection*  *Effect of the factor*  *Size*  *Optimistic*  *Most likely*  **Demand**  *Pessimistic*  *Time*  *Effect of the factor*  *Effect of the factor*  *Size*  *Link*  *Link*  *Link*  Factor X1  *Time*  15 - 30 y  3 - 5 y  *Prerequisites*  *Official forecast*  1 - 5 y  Figure 1.1. Developing the demand forecast taking into account the influence of factors  The IP part of the service supply and demand analysis and the quality of the analysis should enable to ascertain the reality of the forecasted demand. | |
| 1.2. Legal framework Description of legal environment, indicating legal acts regulating the provision of the service, the possible constraints on project feasibility, activities, outputs and financial continuity, and the regulatory requirements arising from them. The documents being assessed should cover the national, regional and, where available, sectoral levels.  The legal analysis shall focus on the aspects that lead to the choice of options for solving the problems identified later in the project (e.g., the *possibility of renting property to provide the service, the possibility of cooperation with other public entities*), the choice of technical solutions (e.g., *heritage protection constraints, nature conservation area*), the obligation to comply with service quality standards, and the resulting higher costs (e.g., reconstruction of the premises in accordance with the universal design may entail additional costs than if there were no such requirement). | | |
| Main issues for legal analysis:   1. Legal restrictions applicable to service providers (legal entity’s form, founder, size of institution or body, operating restrictions). 2. Legal prerequisites for the implementation of the project:  * Analysis of the disposition of the assets used or planned to be used for the service (project organisation manages the state property by right of trust, is the owner or only the user of the property, etc.). Where relevant, assessing the legal possibilities for renting the infrastructure needed to provide the service and for cooperating with other public entities. Indicating whether permits, consents, registrations, etc., are required, estimating the time needed to complete these works. * When developing a service that is not currently provided, or changing the format of its provision *(e.g., from physical to electronic, mobile, etc.*), legal acts applicable to the provision of the service leading to restrictions on the service being provided or planned to be provided shall be examined and it shall be considered whether there are any constraints on the entity that plans to provide the service. * Provisions of legal acts that need to be adopted or amended in order to provide the service (indicating the planned dates of adoption or amendment, the authorities responsible for drafting and adopting the legal acts), and explaining the reasons why those legal acts need to be amended or adopted.   Table 1.3. Legal framework of a project   |  |  | | --- | --- | |  | **BEST PRACTICES**   * The social housing development project part dealing with legal framework specifies the legal acts and explains those provisions that have an impact on the scope, content, investment size, income rates, options considered, financial and economic flows (e.g., CTR requirements, energy class, hygiene and environmental standards and other regulations).   **BAD PRACTICES**  The legal analysis part of the social housing development project only lists the legal acts, but does not provide explanations of their provisions that have an impact on the project, nor does it refer to general legal acts, such as the Constitution of the Republic of Lithuania, the Republic of Lithuania Law on Public Administration, the Republic of Lithuania Law on Local Self-Government which do not directly affect the scope and content of the project. | | | |
| 1.3. Problems and their causes | | |
| This Section identifies the service provision related problems *(e.g., no quality assurance of the service, failure to provide the service that meets the user needs, inefficient provision of the service, excessive cost of provision of the service, etc.*) and their causes, and provides their grouping (this may be done in a graphical, tabular or other way), showing the possible consequences if the problem is not solved. Indicates the links to the causes (or consequences) of the problem identified in the relevant investment planning documents of the strategic management framework – the development framework and the progress measure (regional planning documents in the case of regional interventions) – to the removal of which the specific project contributes.  The analysis of problems in the IP does not need to be repeated if it has been carried out in higher-level planning documents and there is no need to update it at the time of the IP preparation (the underlying assumptions of the analysis have not changed). In this case, a brief analysis of the problem and its causes is provided, together with a reference to the specific document in which the analysis carried out to the full extent. If necessary, the IP may extend or deepen the analysis carried out in the planning document. In any case, the IP shall provide sufficient information to assess the rationality, usefulness and effectiveness of the planned intervention.  The causes of the problems must be logically linked to the information revealed earlier in the IP: the results of the supply / demand analysis, the needs of users, the legal constraints on the provision of the service etc. In the case where the project intends to address only part of the causes of the problem, it shall indicate which of the causes identified will be addressed by eliminating or reducing their impact.  At a later stage of the IP preparation, the project implementation options are formulated in the light of the main causes of the problem to be addressed, selecting activities that could eliminate or reduce them. | | |
| Table 1.4. Problems and their causes (example)   |  |  |  | | --- | --- | --- | |  | **PROBLEM / CONSTRAINTS**  Inadequate access to pre-school education (1,000 children without access to  pre-school education or care) | **MAIN CAUSES**   * Infrastructure capacity does not meet current needs * The price of the service on the market is not affordable for users | | | |
| If it is known that a similar problem has already been solved in another region, municipality, etc., a brief description of the solutions applied shall be provided.  It is also important to take into account the precise problem identified in other parts of the IP, in particular the description of the content of the IP, the economic analysis and the risk assessment. It is crucial for the IP author to understand the nature and purpose of the project problems, as an objective assessment of the current situation is essential for the subsequent formulation of an appropriate project objective, the planning of project activities and the definition of the expected results.  A common mistake in the investment projects is that the underlying problem is not disclosed or is determined inaccurately, there are no logical links to the causes, the root causes are not identified or the scope of the problem is not fully assessed, and consequently, when measuring the socio-economic benefits of the project, the logical link between the problem to be addressed and the benefits generated by the project is not clear. This raises doubts about the benefits generated by the project.  A clear and precise definition of the problem shows how big the project needs to be and whether the scope of the planned activities is appropriate for addressing the problem. Accurately defined problem and identification of its underlying causes help understand the relevance of the project goal, objectives and investments described in other Sections of the IP, and to assess whether the chosen solution is attractive.  Table 1.5. Analysis of project problems   |  |  | | --- | --- | |  | **BEST PRACTICES**   * The demand analysis has shown that the problem of insufficient access to housing for the disadvantaged is and will continue to be an issue for at least the next 15 years. * The research and technological development (RTD) supply does not match the current demand due to the mismatch of RTD equipment with today's needs, which leads to the problem of the inadequacy of RTD equipment to ensure the supply of RTD research. * The analysis of supply and demand has shown that the public services provided by the Central Archives are in demand, but are unattractive due to the way they are delivered, which leads to the problem of the lack of accessibility of public services provided by the Central Archives.   **BAD PRACTICES**   * The problem is the unused building in the centre of Vasarvidis village. The problem of the project is considered to be vague – the purpose of furnishing the hall, the service for the provision of which it would be needed and the possible demand for the service are unclear. * The problem is a broken fountain in the town square. The project problem being evaluated goes beyond the problem scope and does not specify the service users to whom the problem is related. * The problem is that public information services provided do not meet market needs (the use of provided data is inconvenient, the data is irrelevant, and there is no possibility to choose between different data profiles). It is not possible to ascertain the validity of the problem. | | | |
| Following the analysis of the project context, a brief description of the results of the analysis shall be prepared (to be included in the executive summary of the project according to the procedure set out in Section 7.6 of the Methodology), which should include:   * the main results of the service supply and demand analysis; * the description of legal constraints; * the list of problem causes be tackled. | | |
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| 2. Project content | |
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| For the purpose of addressing the problem in a focused manner and articulating the target changes, this Section sets out the essential elements of the project content:  1. The project goal and objectives, i.e. the target change.  2. Links with other projects.  3. Target groups directly affected by the implementation of the IP and the socio-economic benefits (costs) of the IP, distinguishing the project impact limits.  4. Project organisation – the legal or natural entity or group of entities (if the project is implemented with a partner) that assumes responsibility for the implementation of the project and carries out the main activities of the project.  5. The target changes of output level, i.e. the planned impact of the project on quantitative and/or qualitative changes in the service. | |
| Goal and objectives A clearly defined project objective helps understand the benefits that project investments will generate. The objective is formulated to address the selected problem. The key question to answer when defining the goal of the project is: “what main benefits will the implemented project generate?” The project goal should demonstrate the desired systemic, structural changes, which are usually linked to improving the quality, accessibility and efficiency of service delivery and are not merely a change in quantitative indicators.  Where it is intended to use various financing resources for the implementation of the project, the goal of the project should be clearly aligned not only with the aims of strategic planning documents, but also with the aims of the financing sources, which should also be disclosed in the IP. | |
| Table 2.1. Setting project goals   |  |  | | --- | --- | |  | **BEST PRACTICES**   * Project goal – to improve the quality of personal healthcare services for the population of Western Lithuania. * Project goal – to improve the access to prevention programmes and early diagnosis of diseases. * Project goal – to facilitate the population’s access to courts by saving some of their costs. | |  | **BAD PRACTICES**   * Project goal – to reconstruct the surgical unit of the Western District Hospital. Reconstruction cannot be an end in itself. * Project goal – to reconstruct the building at Vilniaus g. 5, Eastern Town. The objective of the project does not indicate what benefits will be generated by its implementation. * Project goal – to purchase computer equipment and renovate the server room. The project objective does not show the target changes in quality, accessibility and/or efficiency of the service. | | |
| The project objectives being formulated should answer the question “what is essential to achieve the project goal and to eliminate or reduce the identified problem causes?” The objectives formulated for the project should allow achieving the defined goal of the project.  The objectives of the project should maintain its coherent internal logic: the project activities planned in the subsequent Sections should create preconditions for achieving the project’s objectives and the project output should be the outcome of its activities. | |
| Table 2.2. Formulating project objectives   |  |  | | --- | --- | |  | **BEST PRACTICES**   * The author of the IP, having formulated the project goal – to improve the quality of personal health care services for the population of Western Lithuania, defines the objective to achieve this goal – to provide the compliant infrastructure for improvement of quality of personal health care services for the population of Western Lithuania. * Project goal – to facilitate the population’s access to courts in the process of administration of justice by saving part of the population’s costs, and the objective is to transfer the main services provided by courts in the process of administration of justice to the electronic environment. | |  | **BAD PRACTICES**   * Project objective – to reconstruct the building at Birutės g. 102, Klaipėda, in order to ensure the quality of personal health care services for the population of Western Lithuania. The choice of objective is not correct, since only after the financial and socio-economic analysis of options and the identification of the attractive option for the implementation of the IP, it will be clear whether or not to proceed with the reconstruction of this building. | | |
| Links to other projects | |
| This part of the IP shall contain brief descriptions of projects implemented by the project organisation itself and by other institutions, organisations and/or other enterprises related to the IP being prepared, the results achieved (activities being implemented if the project is ongoing), the total value and purpose of investments. **Information shall be provided only on those projects that could be directly or indirectly related to the project under preparation.** When providing information on these projects:   * the links between the projects in terms of activities and results shall be explained (e.g., *the result of project No 1 – 10 km of the newly built cycle path on route A-B, the result of project No 2 – 5 km of the newly built cycle path on route B-C*); * To avoid the risk of double financing, it shall be made clear where the former or concurrent IPs begin and end (often, in order to provide clear information, this is best done by adding an explanatory figure). This information is necessary for assessing the risk of double financing of the project; * It shall be assessed whether individual projects are not linked in terms of service provision and public benefits, i.e. if only the implementation of two and/or more individual projects exclusively results in the provision (or improvement) of a public service and the creation of socio-economic benefits for society (e.g., CO2 savings or attraction of visitors to a cultural heritage site), the socio-economic benefits and costs of such projects should be assessed jointly. This provision also applies where the IP is being prepared for the improvement or creation of an asset where a service of an economic nature is to be provided, and where it is known that the possibilities of a public entity to provide the service is limited by legal acts. In any case, the IP should be prepared for the entire scope, to ensure the provision of the service, whoever provides it in the future (a public entity or the service will be outsourced to a private entity), i.e. the costs and revenues and socio-economic benefits of the provision of the service, in addition to the costs and revenues of the creation of the asset, should be foreseen.   The results of analysis of the project’s linkages shall be used to determine the minimum results to be achieved by the IP, the IP impact limits, the potential activities and scope of the IP. | |
| Target groups and limits of impact The target group of the project – users (beneficiaries) of the service created and/or improved during the project for whom the benefits generated and/or costs reduced by the project are intended.  This part of the IP details the project’s target groups and identifies the limits of its impact to be considered in defining the scope of the project:   * taking into account the results of the demand-supply analysis, the target group(s) of the project and their size (number of persons) shall be indicated. The size of the target group for the IP may be the same as the potential number of users of the service estimated in the demand analysis, or smaller than it if the IP is not expected to meet the full demand; * defining the territorial scope of the anticipated impact of the project on target groups. | |
| Table 2.3. Defining target groups of the project   |  |  |  | | --- | --- | --- | |  | **BEST PRACTICES**   * The IP author, after analysing the service demand and supply in respect of the disabled grouped according to various characteristics, has identified that the problem the project aims to solve is only relevant for the disabled of Group II, aged 25-45 and permanently residing in problem areas of Lithuania. This represents 35 % of the total number of users served by the service provider, i.e. 150 persons. In this context, the target group of the project is 150 disabled persons in Group II aged 25-45, permanently residing in the problem areas of Lithuania. * The IP author, after analysing the types of public services provided (physical and electronic), identified in Section I that there is not a sufficient variety of electronic public services and that the provision of the services should be expanded to take into account the age and educational background of users. The survey on the satisfaction of needs has shown that the lack of services is most relevant for people over the age of 18 studying under the bachelor’s and master's degree programmes. In this context, the target group of the project are people over the age of 18 studying under the bachelor’s and master’s degree programmes. | **BAD PRACTICES**   * Project goal – to improve the quality of providing consultations to teaching staff by testing a new model of activities of provision of information and consultations to teaching staff. Target groups are not separately identified. The organisation provides information and consultancy services to teaching staff in Lithuania, and therefore the service users are all teachers of Lithuania. All clients of the organisation, institution and/or enterprise before the project is implemented are described without explaining the target groups of the project and without specifying the impact that the project will have on them. * Project goal – to increase access to public services offered by the institute. The institute does not currently provide electronic services. Increasing accessibility will lead to creation of new electronic public services that are not currently available. The target groups that will use the e-services are assumed to correspond to the users of physical services, i.e. the users currently physically served by the institute. The target group (size, distribution by age, etc.) for the new public e-services being developed is not assessed. | | |
| Project organisation This part of the IP introduces the organisation, institution, company or their group planning to implement the IP. The main details of the project organisation’s composition are provided: number of members, lead (managing) member, other members, the relationship between them, and additional information that would help to disclose the division of responsibilities and the main functions in the implementation of the IP.  Information on the project organisation:   * The project promoter (in cases where the project is implemented jointly with partners, in international practice it may be designated as the lead partner). The project promoter has the main responsibility for the implementation of the project activities: in financial, organisational, physical terms and delivery of results; therefore, it is important to fully disclose the capacity (possibilities) to implement the project: the number of staff, diversity of activities being carried out, experience, etc. The name of the legal entity, its identification number, business address, the number of employees, the public services provided, the responsibility for the public service the quality of which is intended to be improved by the project, functions delegated by the State, independent functions, other activities carried out. * Project partner(s) (if applicable). Project partner – a legal or natural person interested in implementing the project with the project promoter and sharing the responsibilities, activities and costs of those activities. The information analogous to the project promoter’s details shall be provided. Also, any additional information that would reveal the resources required, the public service it provides, its experience in providing the service and in carrying out the projects shall be provided. * Justification for cooperation between the project promoter and partner(s) (if applicable). The partner's participation in the project should be justified: the project promoter and the partner must provide the arguments regarding their cooperation. The reasons for the cooperation and its nature shall be indicated – details of the joint operating (partnership) agreement, activities to be implemented by each partner, the role of each partner in ensuring the continuity of the project, and the division of responsibility for the implementation of the project. It shall be demonstrated that the cooperation is not formal, but explicitly addressing the problems of the project. The envisaged project partners should be involved in the process of preparing the IP, in order to be informed about the project in advance and to participate in the planning activities together. * Positioning of the project in the project organisation. The relevance of the project for activities of the promoter and partner shall be introduced indicating the public service for the improvement of which the project is intended and how the service delivery will change. Indication of the public service provided by the partners, or part of it, for which the IP is being prepared; the processes that will be changed by the implementation of the project in the project promoter's and the partner's institutions; the impact of the project on the partners' human and material resources. | |
| 2.5. Change of output level of the service This part of the IP describes how the service and its delivery will change after the project is implemented, and what minimum change of output level will allow achieving the goal of the project.  The target minimum change of output level should be clearly linked to the problem being addressed, facilitate in eliminating the identified problem causes and explain how and to what extent the project implementation solves the problem for which the project implementation is sought. All planned options must provide for at least a minimum change of output level. The result to be achieved should contribute to the targets (indicators) set out in the relevant progress measure. The descriptive part of the IP shall indicate the link between the project and the targets (indicators) to be achieved by the measure.   |  |  | | --- | --- | |  | The change of output level shall be focused on target measurable qualitative changes of the service, the increase of its accessibility and/or the efficiency of delivery. |   Where appropriate, other intended results may be identified alongside the main target change of output level. Outcomes that cannot be quantified but are sought by the project shall be described and itemised in such a way that their level of achievement can be assessed after implementation of the project.  In order to examine options of similar scope, the change of output level sought by options under consideration may be set at a similar value or at different values, depending on the calculation principle chosen. In order to use the resources for the intended result in the most efficient manner **(principle of efficiency**), the values of outcomes of different options should not differ by more than 3 %, whereas when the solution is sought on the basis of the available amount of resources **(principle of effectiveness)**, where the total amount of financial resources varies by not more than 3 %), the values of outcomes can differ substantially.  Table 2.4. Quantitative and qualitative change of output level (example)   |  |  | | --- | --- | |  | **BEST PRACTICES**  **Quantitative output level:**   * Access to regular swimming lessons (twice a week) provided for minimum 200 children; * At least 30 % increase in the number of complete cures; * Increased access to education by providing school transport services for 580 pupils; * Access to social housing provided to 18 medium-sized households; * At least 25 % savings in electricity and heat energy costs; * As a result of the intervention programme, life expectancy of patients will be extended by 5 years; * Access to public transport services provided for not less than 5,000 people with disabilities; * Heat supply quality improved for 5,000 people.   **Qualitative output level:**   * Ensured waste sorting service for residents of Vilnius City in line with Directive X of the European Parliament and of the Council; * Ensured compliance of the pre-school education infrastructure with requirements of the Hygiene Standard HN X:X; * Achieved at least B energy efficiency class of the building.   **BAD PRACTICES**  - 1 building reconstructed;  - 4 cars purchased;  - 2 km of engineering networks constructed are physical results of the IP implementation, which can be known only after the analysis of options.  - Improved quality of education service – not clear how to measure the level of achievement of such result after the project implementation, such result would be incorrect. Specific indicators should be chosen that would show the improvement in the quality of the education service, e.g., *pupils' achievements in a particular study subject,* *results of examinations, etc.* |   Physical results of the IP implementation (e.g., *acquisition of 40 square metres of premises, construction of 1 building, acquisition of a computer set, acquisition of 1 bus, renovation of 1,500 lighting points, etc.*) cannot be foreseen in this part of the preparation of the IP, as the specific physical results will only be known after the identification of the possible options, and they may vary from one option to another. | |
| Table 2.5. Problems and their causes, minimum results sought (example)   |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | |  |  |  | | --- | --- | --- | | **Problem / constraints** | **Main reasons** | **Target change of output level\*** | | Inadequate access to pre-school education (1,000 children without access to pre-school education or care) | Infrastructure capacity is inadequate to meet current needs, with 70 % of service users served. | Quantitative results:  200 children provided with  pre-school education or care facilities (the provision of services will be started for another 200 children, who have not been provided with the services to date) | | The price of the service on the market is not affordable for more than half of users. | | Buses of the public transport fleet operated by the municipality do not ensure that the routes are serviced according to the scheduled timetable and the safety of the passengers they carry is not ensured. Buses in the public transport fleet do not comply with EC directives on pollution.  Public transport can currently transport up to 200,000 passengers. | The municipality's public transport fleet buses are old and often out of order, they are not adapted for the disabled, and highly polluting the environment (not environmentally friendly and exceeding the pollution standards set by the EC Directive). | Quantitative results:  Access to eco-friendly public transport provided to 40,000 public transport passengers (old vehicles are replaced by new ones, so the beneficiaries are the same people who have already used the services, but the quality of the service will be improved for them), and accessibility for the disabled who were previously not able to use the public transport services will increase).  Qualitative results:  Eco-friendly public transport vehicles comply with the EC Directive on reducing pollution. | | People choose to travel in their own cars leading to traffic congestions and pollution, and also choose option private carriers, but the cost of the service is not affordable to the bigger part of them. |   *\**  *All options should aim at the same change of output level, or if it is planned to achieve different output levels (all options should achieve at least the minimum output levels), then the sum of resources from public and private sources may not differ by more than 3 %.* | | |
| Where the project implementation options include activities of investment in fixed assets, requirements for assets necessary for the provision of the service shall be assessed according to the demand characteristics of the service, legal constraints and opportunities, the size of the target group to be served and the minimum change of output level planned to be achieved as analysed in the previous Section (see Figure 2.1). | |
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| **Figure 2.1.** Restrictions on assets needed for service delivery | |
| Table 2.6. Link between results and requirements for assets   |  |  |  | | --- | --- | --- | |  | **BEST PRACTICES**   * Ensuring the infrastructure that meets the FIBA requirements for size and seating capacity; * Improved access to the public transport service for at least 60 passengers; * Volleyball and basketball for a group of at least 30 people; * Ensuring the pre-school education that meets hygiene standards for 150 people. | **BAD PRACTICES**   * 5-storey office building – whether a 5-storey building is the best solution can only be determined after analyzing the options; * Update of the information system – it is not clear what the requirements for the information system are. | | |
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| The likely direct and indirect impact of the project, which may also be the outcome sought by the project shall be described. Direct impact is understood as impact on direct target groups (consumers, employees, the organisation, etc.), and indirect impact – as impact on third parties and external environment. The impact indicator the project aims to achieve, e.g., *reducing the number of drowning by at least 1 per year, reducing CO2 emissions by at least 20 %, a reducing sick leave for people of working age by more than 2 days, etc.* | |
| Table 2.7. Project results   |  |  |  | | --- | --- | --- | |  | **BEST PRACTICES**   * An electronic asset declaration system will enable electronic filing of declarations, speed up the review and correction of declarations, reduce the risk of mistakes, and make declaring assets and income more accessible to everyone in Lithuania. The project's minimum target is to reduce the time taken to check a single electronically submitted declaration by at least 40 minutes; * The street lighting project will create a safer environment for road users and local residents. The project's minimum intended results are 35 % annual electricity savings at the site of the existing infrastructure and a 10 % reduction in the number of serious accidents. | **BAD PRACTICES**   * The reconstruction of the hospital will create two new doctor posts in the surgical department, which has been assessed as a direct impact of the project on reducing unemployment in Lithuania. This does not take into account the fact that the two posts will be created by redeploying two posts from the traumatology department and that the workload in the latter will be reduced after implementation of the project. Furthermore, it is stated that the targets of the project implementation include the purchase of 104 sets of new equipment, although it will only be possible to determine whether this is the attractive option of the project implementation after the analysis of options. | | |
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| After analysis of the project content, a brief description of the results of the analysis shall be worked out (to be included in the executive summary of the project according to the procedure set out in Section 7.6 of the Methodology), the essential elements of which include:   * project goal; * links to other projects; * characteristics of target groups and project impact limits; * description of the project organisation; * project objectives; * target change of output level and impact. | |
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| 3. Feasibility and options | | | |
| The feasibility and option analysis shall be carried out in the following order:  1. Description of the current situation in terms of the extent of the problem being assessed (in absolute terms), and assessment of the situation if activities are carried out in a usual manner. This is the starting point for the project implementation.  2. Identify potential activities (sets of activities) to achieve the goal and objectives of the project.  3. Form the sets of activities – options.  3. Choose the analysis method.  The choice of potential activities to achieve the objectives of the IP depends both on the analysis carried out in the preparation of the IP and on the analysis carried out in the higher-level planning documents – the development programme and the progress measure (or regional planning documents in the case of regional interventions). If no strategic analysis has been carried out in the preparation of the progress measure (or regional planning documents), the IP shall examine both the strategic level and the technical options for implementing the IP in the most beneficial or efficient way for society. Conversely, if strategic options have already been examined in the preparation of the progress measure (or regional planning documents), the IP shall examine the technical options for implementing the project. In any case, the IP analysis carried out should be a continuation of the analysis carried out in the higher-level planning documents.  The choice of potential activities shall depend on the level of analysis: territorial (e.g., municipality or functional area), the scope of the problem (e.g., quality of educational content), etc. As part of preparation of the IP, it is important to consider that the higher the level of analysis, the better the quality of the service analysis and the choice of potential activities to address the causes of the problem.  The feasibility and options of implementation of the PPP projects shall be conceived in the same way as of the conventional IP: by looking at what options are available to achieve the project goals, and which of the options is attractive. Common mistakes in the design of PPP project implementation options are:   * The benchmarking of one solution when the option is implemented in the public sector with a completely different option when the project is implemented by a private partner. Irrespective of whether a PPP project is being developed, the analysis of options should be carried out from the perspective of the project organisation pursuing the project goal. The analysis of feasibility and options carried out in the IP is designed to identify the problem solution most appropriate for the public sector, which, if selected in the PPP questionnaire, would lead to assessment of this option if the project is implemented and the activities are carried out by the private partner. * The benchmarking of technical implementation solutions (e.g., *comparing options to construct a building with conventional construction materials or with prefabricated panels*) – in preparing an IP that can be implemented through the PPP, it is necessary to bear in mind that in the PPP projects, technical solutions are usually proposed by the private partner during the selection procedure and during preparation of the IP are relevant only to the extent necessary for estimating the investment cost with maximum accuracy. * The benchmarking of different options resulting from legal constraints, even though not all of them allow achieving the project goals to the full extent (e.g., *in the case of a service concession, where the essential scope of the activity to be transferred to the private partner does not consist of the creation of an asset, but rather of the provision of a service within already created infrastructure and the maintenance of this asset, it is not appropriate to consider it as an option to the provision of the asset by way of lease as it would not allow to ensure the requirements for the provision of public services, which is the primary goal of the public entity*). | | | |
| Description of the current situation The current situation is analysed within the framework of the problem being addressed, describing what would happen if the project organisation continues business as usual without implementing the project. The description of the current situation should focus on the characteristics of the service *(e.g., number of users per year, energy consumption per year, number of requests processed per year*, etc.) and the cash flows within the project scope. If the IP cash flows remain unchanged over the project's entire time horizon, the amount of the flows for one year of the current situation shall be indicated. The flow data of the current situation is needed as a reference point enabling further assessment of changes of output level resulting from the implementation of the IP in terms of financial and economic indicators  A situation where operations continue without substantial investment does not in fact mean that there is no cost to maintain the current situation – forecasting should include planning of the necessary operating costs, assessing the costs of maintaining the infrastructure, the revenues generated and expected to be generated, and the financing. The current situation becomes the reference point for further assessment of financial and economic flows.  Main characteristics describing the current situation:   * the reference point assessment is mandatory for all IP; * the essence of the analysis of the current situation – continuing business as usual, without including the change envisaged by the project; * is essential for the fair assessment of options, as their financial and economic flows are expressed as the difference (change) between the current situation and operation together with the project implementation option under analysis; * it means that the service is provided currently and will continue to be provided even if the project is not implemented.  |  |  | | --- | --- | |  | If, in the assessment of the project organisation, it is not feasible to continue the activity under the current conditions, it is necessary to assess whether the financing allocated to the relevant public sector functions has been used efficiently, whether it is sufficient in scope and quality required to deliver the service, and whether priorities have been properly allocated using the limited budget.  Where these circumstances have been assessed and it is ascertained that the public sector is delivering the service efficiently, but due to external influences (inflation, emigration, etc.), the usual allocated financing is insufficient for ensuring the services in quantitative and qualitative terms, in exceptional cases, the current situation may be assessed in the preparation of the IP by providing for the abandonment / continuation of the service, e.g., the central heating company is not in a position to supply heat without investment, in which case the current situation against which the change in financial and economic flows is assessed could be seen as the liquidation of the central heating company, with the residents no longer paying their respective share of charges and switching to individual heating. |   Analysis of the current situation shall include:   * the disclosure of the financial and socio-economic situation if the project organisation were to continue its current activities without changes; * the assessment of income, expenditure, electricity, heat, water consumption and financing characteristic of the current situation of the last 5 years. the assessment whether the necessary investments and costs are needed to maintain the existing infrastructure[[10]](#footnote-11); * cash flows of the current situation shall be expressed in absolute terms, not in terms of their change: i.e. assessing the project organisation's operating revenues and costs, financing flows received to finance the activity incurred in the normal course of business. | | | |
|  | Only in the case of a PPP project and within the project limits, cash flows of the current situation in absolute terms shall be entered in the special Worksheet in the PPP calculator (e.g., *if the object of the analysis is "A", the Worksheet of the current situation would be “A.0” and Worksheets for options under consideration – “A.1”, “A.2”, etc*.).  Please note that when completing the PPP calculator, all cash flows (both of the current situation and change) related to the activities to be transferred to the private entity should be indicated in it, whereas cash flows related to activities retained by the public entity (e.g. *utility payments, salaries of persons providing education services, etc., shall be excluded*).  For a non-PPP project, the financial data for the current situation may be evaluated in the Assumptions’ Worksheet or in the additionally created Worksheet of the IP calculator, if this is necessary for calculating the change of the project implementation options from the current situation. | |
| Table 3.1. Presentation of current situation   |  |  |  | | --- | --- | --- | |  | **BEST PRACTICES**   * Providing for the necessary costs to maintain the activity of provision of the public service. * Assessing the current situation within the project framework – analysing the project organisation’s activities to the extent necessary to introduce the project implementation context. * Assessing the project organisation's currently available information technology, public services it provides, and technical capacity to modify, complement and extend these services. | **BAD PRACTICES**   * The statement that if business is continued as usual provision of the public service would be terminated, i.e. public services would not be provided to the public at all is not substantiated. * Operating costs, financing and expenses for implementation of the current situation are set to zero, even though the public service is currently being provided to the same target groups and will continue to be provided during the time horizon under consideration. | | | | |
| Potential project activities | | | |
| Taking into account the project problem, its causes, minimum sought results, the context and content, and the results of analysis carried out in the higher-level planning documents, possible project implementation activities shall be identified and the list of activities shall be drawn up.  If the analysis of potential activities of a strategic nature (service level) has not been carried out in the preparation of a progress measure (or regional planning documents), the IP shall examine both strategic (operational level) and technical (asset provision) options for the implementation of the IP in the way that is most beneficial, efficient or effective for society. Whereas strategic activity selection options have already been analysed in the preparation of the progress measure (or regional planning documents), the IP shall analyse technical options of the project implementation, with the results of the analysis briefly reported in the IP. In any case, the analysis carried out in the IP should be a continuation of the analysis carried out in the higher-level planning documents.  The number and content of the project implementation activities to be considered depends on the scope of the problem (e.g., *national, regional, municipal, institutional level*), investment goals (e.g., to *create a new service or to increase the scope of existing service, to improve the quality and/or efficiency of existing service*), the public service provision options (e.g., *possibilities of remote, mobile, stationary provision of the service by purchasing the service on the market or by cooperating with an entity capable of providing a similar service*), the requirements of the possible sources of financing, the assets available to the organisation planning to implement the project for the provision of the service (e.g., *using available assets, cooperating, acquiring assets*) and the possible investment object of the project, if assets are needed. We recommend using the flowchart in Annex 3 of the Methodology for the identification of potential activities.  The potential activities may be optional or complementary to each other. In order to avoid the risk of double financing or disaggregation of the project, the list of potential activities shall also take into account the related projects identified in Section 2.2 of the IP.  When compiling the list of activities, the main activities and/or groups of activities shall be indicated, without breaking down minor ancillary activities such as technical design preparation or expertise, project performance and maintenance, preparation of the IP, conducting of public procurement, etc.   |  |  | | --- | --- | |  | Any form of public support for an industry or individual firms can give them an advantage over their competitors, which can lead to distortions of competition and negative effects on the economy. The choice of potential activities for the implementation of the project should take into account the State aid aspect. State aid regulation, which may influence authorities' decisions or plans to support the economic activity, is described in the CPMA’s methodological guidance for State aid evaluation[[11]](#footnote-12). |   Examples of IP implementation options to be considered:   * the municipality's health promotion project analyses the construction of a multi-purpose sports hall or swimming pool, cooperating with neighbouring municipalities to use existing infrastructure or to create new one, and reimbursing a part of the cost to residents who use the analogous infrastructure of commercial type; * when formulating technical level (asset provision) options, where strategic level analysis has already been carried out in higher-level planning documents, infrastructure provision activities may be considered to achieve the most efficient outcome (e.g., c*omparing the activities of building an extension to a sports hall and reconstruction of the existing hall with retractable stands; installing a pool with a raised bottom or an additional pool of a lower depth; developing a new e-platform for the provision of the service or adding modules to the current operating version of the system, etc.).*   Table 3.2. Identification of potential activities to be linked to fixed assets   |  |  | | --- | --- | |  | In order to correctly assess the activities that can be analysed, the existing possibilities in respect of all available assets to provide the service under analysis shall be assessed (e.g., *several different buildings or sites could potentially be used for the service*), the condition of individual sites shall be detailed (e.g., *only part of the building is used*), the existing and maximum possible load shall be assessed, and the supply of infrastructure suitable for the service shall be analysed, both existing and potential, in the market. The analysis of the assets at the disposal of the project promoter shall be carried out using the asset requirements identified in Section 2.6 and the identified need for assets necessary for the provision of the service. In order to identify potential activities to be linked to fixed assets, it is useful to use the questions below:  1. When a possible investment object under analysis is buildings / premises:  - Do you have the building/premises where you currently provide the service? Is the building/premises used to the full capacity, or are there any vacant unused premises that could be used to provide the service?  - Do you have the building/premises currently not in use that could be adapted to provide the service?  - Do you have a building under construction that could be adapted to provide the service once completed?  - Do you have a building that could be demolished to make way for a new building to provide the service?  - Do you have a plot of land that could be used to build a new building and provide a service after its adaptation? If you don't have a land plot, are there any market constraints to buying one?  - Are there any market constraints on the rent of premises that can be adapted to provide the service?  - Are there any market constraints on the acquisition of the building/premises necessary to provide the service?  2. When a possible investment object under analysis is engineering structures:  - Are there any civil engineering structures that you use or can use to provide the service and that, once improved, will be fit for further use?  - Are there any technological constraints on engineering structures (more than two technologies exist)?  - Are there any market constraints on the acquisition of engineering structures?  - Are there any market constraints on the rent of engineering structures?  3. When a possible investment object under analysis is an intangible asset:  - Are there any intangible assets that you currently use to provide the service and that will remain fit for use after improvement?  - Are there any technological constraints on the intangible asset (more than two technologies exist)?  - Are there any market constraints on the acquisition of the intangible asset?  - Are there any market constraints on the rent of the intangible asset?  4. When a possible investment object under analysis is installations / equipment:  - Are there any installations / equipment that you are currently using to provide the service that will remain fit for use after improvement?  - Are there any technological constraints on installations/equipment (more than two technologies exist)?  - Are there any market constraints on acquisition of installations/equipment?  - Are there any market constraints on rent of installations/equipment?  5. When a possible investment object under analysis is vehicles:  - Are there any vehicles that you are currently using to provide the service that will continue to be fit for use after improvement (including the installation of equipment and/or software in the vehicle)?  - Are there any technological constraints on vehicles (more than two technologies exist)?  - Is the infrastructure necessary for the use of vehicles in place?  - Is the necessary energy production and supply for the operation of the vehicles ensured?  - Are there any market constraints on the acquisition of vehicles?  - Are there any market constraints on the rent of vehicles?  Based on the completed analysis of assets, the options for using the already available assets to implement the project activities shall be identified. |   If the plan is to address more than one problem cause or the IP includes several analogous parts that require different problem solutions and for that purpose separate activities or sets of activities are needed, alternative activities may be selected within the scope of these parts. For the purpose of structuring the analysis, such individual parts of the project (e.g., *individual problem causes or individual analogous objects, e.g., schools*) shall be identified as independent objects of analysis, and potential activities to address the causes of the problem shall be selected within their scope (see Table 3.2).   |  |  | | --- | --- | |  | Climate proofing is the process by which climate change mitigation and adaptation activities are incorporated into the design of infrastructure projects. This process enables European institutional and private investors to make informed decisions on projects deemed compatible with the Paris Agreement. The process consists of two steps (mitigation and adaptation) and two phases (verification and detailed analysis).  In order to increase the climate resilience of the project and the outcome it produces, the selected mitigation activities should be included in the list of project activities. The costs for implementing these activities (investment costs (CAPEX) or operating costs (OPEX)) are provided for in the project budget and evaluated in the analysis of options for the implementation of the investment project.  Guidance for the assessment process is provided in the EC Technical Guidance on Climate Proofing of Infrastructure 2021-2027 (2021/C 373/01)[[12]](#footnote-13). |   The information shall be summarised in a tabular form according to the given example (see Table 3.2), also indicating the minimum target changes of output level.  **Table 3.3** Example of project problem, causes, potential activities and minimum results | | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Problem** | **Main causes** | **Strategic (service) level activities** | **Possible options of operating and technical level** | **Minimum results sought** | | Worsening results of the state school certificate examinations (SCE) | Uneven quality of education | Improvement of content and methods | Updating education content  Modern teaching methods | -At least 99 % of Grade 12 students who took the SCE  -At least 50% of graduates have the Lithuanian language SCE score above 70  -At least 45% of graduates have the maths SCE score above 70 | | Teacher qualifications and motivation | Teacher exchanges, internships  Improving teacher training  Attracting teachers to the regions  Review of teachers' wages and workload | | Modern and adapted environment | New infrastructure  Adapting schools  Mobile laboratories  Shared infrastructure | | Motivating pupils | Psychological climate  Traineeship programme | | Insufficient access to education service | Number of training places | New infrastructure  Adaptation of buildings  Rent of buildings  Optimising the use of assets | | Availability of training | Reimbursement of expenses  Acquisition of vehicles  Cooperation  Hybrid/ distance learning | | Social inclusion | Integration of foreign language speakers  Inclusion of pupils and teachers with disabilities | | | | |
| Developing options | | | |
| From the identified potential activities, the activities that best meet the project goal shall be selected and options (sets of activities) shall be developed for benchmarking calculations. Activities that cannot be implemented due to technical, economic, social, legal, market constraints, restrictions on possessed property or other reasons shall not be further considered.  If the project covers several problem causes, a separate activity (a separate set of activities) can be developed for each problem cause, as an independent object of analysis (see the example in Table 3.2 - for each cause of the problem 2-3 sets of activities can be formed and benchmarked against each other making calculations in the IP calculator). Similarly, other parts of the project may also be objects of independent analysis, for which the search for the most useful or efficient solutions is analysed (e.g., *individual hospitals for which individual sets of service improvement activities are developed may be analysed under a municipal primary health care service improvement project)*.  After eliminating activities that will not allow achieving the goals or the implementation of which will not be possible, and strategically selecting the activity or a combination of activities, it is recommended to develop 3 options to achieve the project goals (minimum two options should be analysed**[[13]](#footnote-14)**). The project implementation options shall be described in the IP, giving a reasoned justification for the choice of the specific activities and identifying the essential differences between the options.  As the need for IP is driven by the formulated problem, doing nothing is not considered as a project implementation option.    Figure 3.1. Chart for development and selection of options  GOALS AND OBJECTIVES; ACTIVITIES; Identify the need; Implement the criteria; Define; SELECT OPTION; Allow to achieve; Identify criteria; Impact; RESULTS; PROJECT IMPACT; PROJECT ACHIEVEMENTS  Table 3.4. Example of project implementation options   |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  | | --- | --- | --- | --- | | **Problem and causes** | **Sets of activities** | | | | **Option I** | **Option II** | **Option III** | | **Problem**:  Worsening results of school-leaving certificate examinations (SCE)  **Removing the causes**:  Uneven quality of education  Insufficient access to education service | Updating education content  Teacher exchanges, internships  Review of teachers' wages and workload  Adapting schools  Mobile laboratories  Psychological climate  Acquisition of vehicles  Reimbursement of expenses  Integration of foreign language speakers  Inclusion of pupils and teachers with disabilities | Updating education content  Improving teacher training  Attracting teachers to the regions  Shared infrastructure, cooperation  Mobile laboratories  Psychological climate  Integration of foreign language speakers  Inclusion of pupils and teachers with disabilities | Updating education content  Modern teaching methods  Review of teachers' wages and workload  New infrastructure, rent  Psychological climate  Traineeship programme  Hybrid/ distance learning  Integration of foreign language speakers  Inclusion of pupils and teachers with disabilities | |   Where it can be objectively justified that there are no suitable option solutions, a single set of activities may be analysed by means of calculations.  Cases where a single set of activities can be analysed through calculations:   * Where the project includes activities to control emergency and force majeure conditions; * When the specific way of implementing a project is determined by EU directives, regulations, international commitments, laws, or the RLG programme; * When it can be objectively justified that there is only one solution to implement the project (there are legal, physical, financing source availability, market constraints that prevent other solutions from being implemented); * Where possible options have already been assessed in accordance with the requirements of the Methodology when preparing the higher level planning documents, the specific solution is justified and the underlying assumptions of the analysis (technical feasibility, level of prices, economic environment, relevance, etc.) have not changed; * Where the amount of financing available for project investments does not exceed EUR 1 million (excluding VAT).   Where out of all the potential activities assessed, it remains rational to consider only one set of activities, this must be justified in the descriptive part of the IP, explaining the constraints or the results of the analysis already carried out.  In all cases, it is recommended that the IP assesses as many possible solutions as possible and evaluates alternative ways of achieving the project goals (benchmarking several combinations of activities with each other) and chooses the one that is most beneficial, efficient or effective for the society. | | | |
| Selecting analysis method | | | |
| Cost-benefit analysis (CBA) or cost-effectiveness analysis (CEA) methods shall be used to compare options and select the attractive option. Comparison of the project implementation options is normally carried out using the CBA method, i.e. the usefulness of the investment is assessed by comparing the costs of implementing the project with the socio-economic benefits generated by the investment. In contrast, when the CBA method is used, the net costs per unit of the change of output level of the project implementation options being assessed shall be compared.  The applicable method (CBA or CEA) of assessment of the project implementation options depends on the size and nature of the investments (the change sought). It must be taken into account whether the investment is planned to ensure the continuity of existing service, to maintain quality without increasing its volume, or, on the contrary, to extend the service, to make a substantial qualitative change or to provide a new service.  The CEA method can be used to assess options when the following general conditions are met:   1. The continuity of the provision of the service must be ensured according to the same qualitative and quantitative requirements, in compliance with the applicable legal acts, and therefore there is no need to assess whether the implementation of the project is beneficial to the public and/or will generate additional socio-economic benefits and/or external impact. Irrespective of whether additional socio-economic benefits and/or external impact are generated, the benefits or external impact generated are broadly similar for all project options, and the overall benefits and impact (whether assessed in advance or, in the case of a given situation, evident without a detailed assessment) are greater than the costs. 2. The project implementation will not have a direct impact on the content, form, scope, cost and number of users of the existing service, i.e. the project is planned to maintain the current service at a stable level (no increase/decrease), without creating any additional services and without changing the current service form. The number of users of the service allows for an attractive use of infrastructure capacity and the trends do not call into question the need to maintain the existing infrastructure (if it is necessary for the provision of the service), i.e. there are no plans to create more or less infrastructure capacity compared with the existing one. 3. The existing service and/or assets used for ensuring its provision do not comply with the requirements established by legal acts: hygiene standards, service standards, etc., which must be met by the provided service and/or by assets used for its provision according to the legal acts applicable in Lithuania.   The CEA approach also requires specific conditions to be met in terms of the identified assets needed to provide the service or ensure its continuity:   1. Where the assets needed to provide the existing service are engineering networks, installations and/or vehicles:  * Replacement with new ones of existing obsolete engineering networks, vehicles and equipment, or parts thereof, which have reached the end of their useful life.  1. Where the assets needed to ensure the provision of the existing service are buildings / premises:  * the planned intervention in the existing building / premises where the service is currently provided involves internal repairs to the premises and/or the replacement of obsolete engineering system or elements thereof; * the planned intervention in the existing building / premises where the service is currently provided includes the renovation (modernisation) of the building, which restores or improves the physical and energy performance of the building and/or its engineering systems and/or ensures the use of energy from renewable sources[[14]](#footnote-15).   In exceptional cases, it may be rational to apply the CEA method to the below specified projects which do not meet the general and special conditions for the application of CEA:   1. Projects providing for enhancing the internal and/or external security of the state (e.g., *by strengthening defence capabilities or internal security through border protection)*, as Lithuania is implementing NATO and/or Schengen requirements and is obliged to provide certain measures and infrastructure to meet the requirements. A Member State cannot default on its commitments, therefore, when planning the projects of this type it is not considered whether additional socio-economic benefits and/or external impact will be generated, but rather the most cost-effective way of meeting the requirements is sought. 2. Projects implementing provisions of EU directives (the project is designed to directly implement the specific requirements of the EU directives), which Lithuania has committed to implement. Development of the infrastructure or assets may be part of meeting certain mandatory and specific requirements of the Directives. As an EU Member State, Lithuania is obliged to comply with these requirements, as their benefits have been assessed at the EU level through the adoption of directives, and it is just a matter of finding the most efficient way of implementing the requirements (optimum costs). 3. If options of the approved progress measure (or regional planning documents) according to which the respective project may be funded are compared using the CBA method (jointly demonstrated benefits) and at least 70 % of the measure's resources are allocated to homogeneous projects, it is sufficient to compare the options using the CEA method for homogeneous projects (for non-homogeneous projects of such measure, the method shall be selected according to provisions of the Methodology). 4. If options of the approved progress measure (or regional planning documents) according to which the respective project may be funded are compared using the CEA method (because the measure fulfilled the criteria for the application of the CEA), it is sufficient for projects to compare the options using the CEA approach (see diagram on the impact of the chosen analysis method of the measure on the analysis of projects in Annex 4).   Table 3.5. Applying calculation principles to the development of options   |  |  | | --- | --- | |  | For both the CEA and CBA methods, in order to ensure that the options are similar in scope and comparable one of the calculation principles shall be applied to the options: in all cases, the IP author should aim to maintain either the same amount of financing from the public and private sources **(principle of efficiency**) or the desired service change outcome **(principle of effectiveness**).  Applying the **principle of efficiency**, the target change of output level (PPR) (in numerical value in real terms) of options shall not differ by more than 3 % from the target change of output level (PPR) (in numerical value in real terms) provided for in any of the options, i.e. all the options should focus on a similar result.  Applying the **principle effectiveness**, the sum of the public and private financing (in real terms) of the options cannot differ by more than 3% from the sum of financing from the public and private sources (in real terms) calculated in any option, i.e. the maximum result is sought with a similar amount of financing.  There may be cases where, in the analysis of options according to the efficiency principle, the target result differs between the different project implementation options due to the specificities of their implementation or different implementation solutions, while in the case of the effectiveness principle, the same amount of funds from public and private sources may be used not in all options. In such cases, the IP author may apply may use minor differences between the amount of financing from public and private sources or the target result in the calculation of the individual options in the context of the analysis principle, but it shall be necessary to provide a reasoned explanation. | | | | |
| When selecting the analysis method in Worksheet 1 of the IP calculator, it shall also be necessary to select of two calculation principles.  For the purpose of applying the **efficiency principle** a common (the same or similar) target change of output level (PPR) shall be set for all options to be considered, which may differ in terms of both implementation solutions and costs.  For the purpose of applying the **effectiveness principle** a common (equal or similar) amount of financing from public and private sources shall be set for all options to be considered, but with different implementation solutions and target change of output level (PPR).  Investment projects should consider options similar in scope, but where an investment project clearly identifies the goal of maximum benefit per unit of money (e.g., energy efficiency projects), the investment project may also consider options that differ in scope by more than 3 %. In that case, the message of limit checking seen on Worksheet 3 of the IP calculator may be ignored entering the explanation in the IP descriptive part. | | | |
| If the project deals with several groups of activities that could be subject to different analysis methods (e.g., *provision of infrastructure extending the scope of services currently provided and the introduction of service provision standards required by existing directives*), the method of assessing options may be selected and applied separately for each group of activities (independent object of analysis), in which case two separate IP calculators may be filled in: for the CBA and CEA methods, depending on the investment objective and other criteria discussed in the Methodology above.  Where the IP covers several independent objects of analysis, the target PPR for each of these objects, or the total PPR is broken down in proportion to the number of objects.  Irrespective of the purpose of the investment and possible exceptions, the IP author may choose to apply the CBA method to the entire scope of the IP if, in the IP author’s opinion, this is expedient helps find the most rational solution.  Table 3.6. Selecting a method of analysis   |  |  | | --- | --- | |  | **BEST PRACTICES**   * The municipality has taken the decision to replace part of its old, obsolete vehicle fleet with new, eco-friendly vehicles (the old vehicles are replaced with new ones, so the beneficiaries are the same people who have already used the service, but transport service quality that complies with legal acts will be ensured for them). The content, form, scope and number of users of the existing service will remain unchanged after the implementation of the IP and the new vehicles will meet requirements established for delivery of the service (adapted for the disabled, eco-friendly), thus allowing the application of the CEA method. * - Currently, the service is delivered in a building where the premises do not meet the applicable hygiene standards (services are provided in smaller rooms than those required, and the moisture in the premises leads to the formation of mould), i.e. the premises are hazardous to health of employees of this institution and people visiting it. Having analysed the requirements for the service, its form, user tendencies and service volume changes were not identified. The plan is to carry out the works of interior repairs in the building, providing quality conditions for both the users of the service and employees, without changing the content, form and volume of the service. In this case, the CEA method may be applied.   **BAD PRACTICES**   * In addressing the problem of quality and accessibility of pre-school education, the municipality decided to repair and reconstruct the premises of the kindergarten (repair the existing premises by replacing the obsolete engineering ventilation systems and reconstructing part of the premises – increasing their area by building an additional one-storey superstructure). The project will improve the quality of pre-school education for 200 children (who were previously attending this institution) and increase access for 50 children (who previously did not receive the aforementioned services). The CEA method is selected. Given the general conditions and the recalculation requirements for the CEA method the latter may not be applied, because for ensuring the provision of services the asset reconstruction operations are planned and the amount of service users changes; accordingly, the CBA method should be applied. * In preparing the progress measure, the Ministry carried out the analysis of options using the CBA method, therefore, the IP author decided to apply the CEA method for the analysis of options in preparing the IP. Given that the measure consists of a set of non-homogeneous projects with different goals, intended results and scope, the CBA method should also be applied to the assessment of IP options. | | | | |
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| In the IP Calculator’s Worksheet (Worksheet 1) of general assumptions, firstly, the method of analysis (CBA or CEA) and the calculation principle (efficiency or effectiveness) is selected. The object of analysis and the sector of economic activity shall be indicated on the form for the selection of the object of analysis and the sector of economic activity (the object of analysis (A) and, if necessary, up to three additional objects must be indicated – this is relevant for the project consisting of several meaningful parts (independent objects of analysis), for which the alternative sets of activities are to be analysed). The calculator allows for up to 4 independent objects of analysis (e.g., *in the case of* *an education sector project where solutions to multiple causes of a problem are analysed, the analysed independent objects of analysis could be the ensuring of qualifications of teaching staff and quality of teaching content, accessibility of the service; if an education sector project deals with improving services of several schools, individual educational institutions, etc., might be selected as independent objects of analysis*).  Irrespective of the method of analysis, in this form, the economic activity sector (EAS), the type of EAS projects shall also be selected, also choosing the EAS projects’ type to which it is attributed (the main EAS project type (I), and additional EAS project types (II–IV)). The choice shall be confirmed by pressing the green button.  The change of output level (PPR) of the service shall be entered in the respective box. A different PPR may be indicated for each of the analysis objects by specifying it next to each object of analysis. If it makes more sense to apply the same PPR in the project, its name may be repeated in the analysis objects B–D by pressing the orange “Copy” button.  Once the above steps are completed, click on the “Confirm” button in the investment object and economic activity sector selection form. During this process, the data is entered into the IP calculator. If “Reject” button is pressed, the data will not be saved.  To continue working with the IP Calculator, press the “Start” button in the bottom right corner of the general assumptions’ Worksheet. After the specified action has been performed, the IP Calculator will display an action selection form containing the following actions:   1. Return to the general assumptions Worksheet; 2. Select the investment project’s options and indicate cash flows of the option; 3. Choose the attractive option according to the calculated indicators; 4. Review the general table of investment data; 5. Perform the assessment of risk and sensitivity.   After completing the general assumptions’ Worksheet and pressing the “Start” button, proceed to the next step: in the action selection form, press the button “Select investment project options and indicate cash flows of the option”.  You can find the action selection form in each Worksheet of the IP calculator in the top left corner of the window, marked as:    In order not to miss all actions that need to be performed in the IP calculator, we suggest using this button, as pressing it the sequence of actions can be viewed at any time.  By pressing the button “Select investment project options and indicate cash flows of the option”, the IP calculator provides the form for selecting the desktop for the option. According to the specifics of each IP, the names of options should be indicated in the IP calculator for the number of options which you plan to benchmark against each other in the calculations.  Options’ Worksheets are created and prepared for completion by pressing the button “Complete” in the desktop selection form of the option. The sequence order of options is not important.  A detailed description of options shall be provided in the text part of the IP and their financial and economic details (investments, residual value of investments, operating revenues, operating costs, charges, financing and socio-economic benefits and costs) – in the IP calculator (calculations should not be entered in the text part, as the completed IP calculator in MS Excel format is an integral part of the IP being prepared). After assessing the formulated options of the IP implementation, they shall be benchmarked against the financial and economic analysis results according to the procedure set out in Section 4 and Section 5. The decision taken regarding the selected option should be explained and substantiated. | | | |
| Following the analysis of the feasibility and options of the project, a brief description of the results of the analysis should be prepared, which should include a list of potential activities, a list of selected activities with justification, and a description of the options considered. The description shall be included in the executive summary of the project summary according to the procedure set out in Section 7.6. | | | |
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| 4. Financial analysis |
| The financial analysis deals with cash flows of the project implementation options. The cash flow method shall be used: in calculating financial indicators, the project costs (investments, operating costs, taxes, etc.) are treated as negative cash flows and project revenues (operating revenues, financing, etc.) – as positive cash flows.  When applying the CEA method for the purpose of calculating the cost efficiency / effectiveness analysis indicator (SEVR) the net costs less the residual value of the investment are estimated. In this case, cash flows of investments, reinvestments and operating costs are treated as cash flows with a plus sign, while cash flows of operating revenues and residual value – as cash flows that directly reduce investments and operating costs and, at the same time, the resources necessary to implement the project and ensure its continuity.  Given that in the case of each option cash flows are incurred differently over time and planned resources have opportunity costs, the cash flows for the entire time horizon are discounted for the purpose of calculating the financial indicators. Discounting is a method of calculating the present value of future cash flows. The effect of time on the value of cash flows is determined by using a discount factor (see *Formula 4.1*). | |
| Formula 4.1. Discount factor | |
| **,**  where *i –* the discount rate, *t* – the year. | |
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| The financial analysis of a project is carried out in the following order:  1. Selecting the time horizon of the project.  2. Indicating the financial discount rate (FDR).  3. Indicating the project’s cash flows (investments, residual value of investments, operating revenues, operating costs, taxes and financing).  4. Calculating financial indicators and formulating a conclusion on the viability of the project. | |
| All additional calculations made in the financial analysis, as well as assumptions that are not defined in the general assumptions’ Worksheet (Worksheet 1) of the IP calculator should be specifies in the dedicated IP calculator’s Worksheet entitled “Assumptions”. If necessary, more additional Worksheets may be created. The number of additional Worksheets is not limited.  Data in the assumptions’ Worksheets may not be provided as references to other documents (e.g., to *another MS Excel file, etc.).* Data in the options’ Worksheets should be provided as references to the assumptions’ Worksheet. | |
| 4.1. Time horizon of the project The project’s time horizon is the period of anticipated impact in terms of the problem solution. It includes the number of years for which projections of investments, residual value of investments, operating revenues, operating costs, taxes, financing and socio-economic benefits (costs) of the project are provided. In the case of investments in fixed assets, this number of years shall be determined taking into account the economically reasonable lifetime of the fixed asset to be created by the project (the economic useful life of the infrastructure) and should capture the period during which it is more advantageous to use the infrastructure in order to maintain its usable characteristics (maintenance, repairs, etc.) than to create the necessary infrastructure anew. Project costs (including support and maintenance costs) and socio-economic benefits and/or costs are incurred during the time horizon. | |
| In one project, investments can be made in the infrastructure with different periods of its useful life. In that case, the duration of the project's time horizon is determined:  - having estimated of the useful life of the asset on which the majority of investments is expected to be spent; or  - applying the principle of weighted average useful lives of investment objects.  In order to make the projections realistic and reasonable, the IP time horizon should not exceed 30 years. However, for major long-term infrastructure projects (e.g., bridges, dams), a longer time horizon may be used, if the need for an assessment of the relevant time period is duly justified in the descriptive part of the IP.   |  |  | | --- | --- | |  | Please note that where the project implementation is envisaged through a public-private partnership (PPP), the maximum time horizon for the project is 25 years[[15]](#footnote-16). |   The recommended maximum financial analysis periods for each sector are presented below. | |
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| Table 4.1. Recommended maximum periods of financial analysis | |
| |  |  | | --- | --- | | **Sector** | **Maximum analysis period (years)** | | Environmental protection (water and waste management) | 30 | | Energy | 25 | | Broadband internet | 20 | | Research and innovation | 25 | | Transport (railways, roads, urban transport) | 30 | | Transport (ports and airports) | 25 | | Other sectors | 15 | | |
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| The assumptions used to determine the project's time horizon (e.g., *the useful life of an asset is 8 years, the relevant time horizon determined*) shall be described in the IP.  The project's time horizon shall be calculated in years from the start of the activities and the time horizon applied shall allow projections for at least the same number of full project years (e.g., *if a project starts on 4 September 2024 and has a socio-economic benefit period of 10 years, the time horizon will be until 2034 (costs shall be planned until August 2034*). The project’s time horizon covers both the period of investments of the project (for the development of infrastructure) and the period of operations (for the modernised infrastructure). | |
| The start date of implementation of the project activities, which should be specified in the general assumptions Worksheet of the IP calculator is the planned date of the contract for carrying out the first project activity (e.g., *contract works, design works, purchase of furniture, etc.)***.** If part of the project costs were incurred before the start of the preparation of the IP (completion of the calculator), the start date of implementation of the project activities to be indicated shall not be earlier than the date of completion of the IP calculator, and the project costs incurred (if any) shall be entered in the options’ Worksheets in the “zero” year.  The services of preparing an IP, an application, etc., shall not be considered project activities as such activities are started already before the project, i.e. to ascertain whether the project is needed, can be financed, etc. If such costs are incurred earlier than the start date of the project activities indicated in the IP calculator and are included in the project budget, they should be shown in the IP options’ Worksheets in the “zero” year.  If the start and end of the project's time horizon does not corresponding to the calendar year, the project's cash flows shall be respectively allocated proportionately to all years of the calendar period (e.g., *if the project starts in July 2024 (projecting cash flows of 6-months’ costs in 2024) and its time horizon is 10 years, in such case the proportional 6-months’ cash flows (operating revenues, costs, financing, etc.) should be projected for the last period of the project's time horizon in 2034*). | |
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| Table 4.2. Selecting the start date of the IP time horizon |
| **BEST PRACTICES**   * The contract for IP preparation services was signed on 3 January 2019 and the investment project is under preparation. The planned start date for the implementation of activities is 1 September 2019. All project-related costs incurred up to that date (costs of IP preparation services) are indicated in the options’ Worksheets of the IP calculator in the relevant project budget lines in “zero” year, while the costs planned from 1 September 2019 to 31 December 2019 – in the first year (2019) of the time horizon. * The contract of the technical design preparation services was signed on 3 January 2021, the payment was made in May and start of contract works is scheduled for September 2022. The calculator is completed on 3 June 2022, the start date for the implementation of the project activities will not be earlier than the date of completion of the IP calculator. Costs for design services and all other costs incurred before the start of the project are shown in the options’ Worksheets of the IP Calculator in the relevant project budget lines in “zero” year, and future costs for contract works – starting from 2022, the first year of the time horizon. |
| **BAD PRACTICES**   * Payment for IP activities is planned to start in February 2023 and the contract with suppliers was signed on 31 August 2019. The IP author indicates in the IP calculator 1 February 2023 as the start date of activities, although the start date for the implementation of activities is 31 August 2019 and the date of completing the calculator should be indicated. * The IP is prepared in February 2019 and the signing of agreement for the financing from the EU funds is planned in October 2019, but the first IP activities were started already on 31 August 2018. The IP author indicates in the IP calculator 31 August 2018 as the start date of the activities, although the date not earlier than the date of completing the calculator should be indicated. |

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| Table 4.3. Selecting time horizon of the project | |
| **BEST PRACTICES**   * The first year of the time horizon of the project planned in the energy sector for investing in the construction of wind turbines with a long useful life is 1 March 2020 and the last year – 2045. * The first year of the project implementation – the first year of making investments. | |
| **BAD PRACTICES**   * The project’s time horizon starts from the 4th year of the project implementation, although investment costs were incurred in the first three years and are analysed without going beyond the limits of the project. * The years of the investment period are separated from the remaining years of the project’s time horizon. | |
| Financial discount rate In order to maintain continuity of assessment of the progress resources and taking into account the socio-economic environment of Lithuania, a 4 % FDR should be applied[[16]](#footnote-17).   |  |  | | --- | --- | |  | For projects financed with the State aid, the FDR established for Lithuania by the European Commission shall be applied[[17]](#footnote-18). |   When applying the established FDR, the analysis shall be carried out with real prices, i.e. the projected cash flows shall not be adjusted for inflation. If part of the investment has already been made at the time of planning the IP, these costs should be indicated in “zero” year and shall not be discounted. | |
| In the IP calculator, the cash flows of project investments, residual value of investments, operating revenues, operating costs, taxes and financing shall be indicated in real prices. | |
| 4.3 Cash flows of the project For the purpose of financial analysis, the project's cash flows shall be indicated:   1. Investments. 2. Residual value of investments. 3. Operating revenues. 4. Operating costs. 5. Taxes. 6. Financing.   Table 4.4. VAT applied to cash flows of the project   |  |  | | --- | --- | |  | In order to ensure correct presentation of the IP cash flows and calculation of indicators for the financial analysis, when planning the project's investments and other cash flows related to the performance of activities it is necessary to take into account the nature and the specificity of the project and to assess whether the results generated by the project will be used for the economic activities subject to VAT or not. This determines whether when completing the IP calculator the cash flows shall be shown with or without VAT.  The cash flows in the IP calculator shall be indicated **with VAT** when:   * the project promoter, including the project partner, if any, or the entity to which the results generated by the project are to be transferred (hereinafter – the Project Promoter / Partner) does not carry out an economic activity subject to VAT and is not eligible for deduction of VAT, and the results generated by the project are not, and will not be, used for the purpose of carrying out an economic activity subject to VAT. * the activities carried out by the Project Promoter / Partner are exempted from VAT, i.e. cases where the economic activity carried out is exempted from VAT in accordance with provisions of the Law on VAT.   In the IP calculator, cash flows shall be indicated **without VAT** when:   * The Project Promoter / Partner, whether or not a VAT payer, but the results generated by the project will be used to carry out an economic activity subject to VAT (it is considered that the Project Promoter / Partner may, during the implementation phase or after the implementation of the project, for the purpose of carrying out an economic activity subject to VAT, register for VAT and thus be eligible to VAT deduction).   **IMPORTANT!** The project’s VAT eligibility is determined by provisions of the specific financing source from which the project will be financed; hence, in each case of financial analysis, financing conditions of the specific source should be assessed additionally. VAT eligibility assessment shall (may) be carried out at later stages when allocating individual financing for the project. | | |
| 4.3.1. Project investments – total costs required to implement the project activities expected to be incurred in producing the defined project results. This amount of costs shall not be broken down by financing sources (this shall be done when analysing the financing). It is important to assess the real need for investments and to plan a realistic course, shares and proportions of making the investments.  When planning the project investments, it is important to consider:   * The current state of the asset. If the existing asset is to be reconstructed, its current state should be critically assessed and presented in detail in the IP and in subsequent documents (procurement documents, etc.). * The investment experience in the project organisation. For proper investment planning, we recommend using the values of procurement of public services, works or goods carried out prior to the preparation of the IP, with an appropriate assessment of possible price changes at the start of the project's time horizon, in order to give a maximum realistic estimate of the required amount of costs. * The trends in the market for works, goods and services The planned investment values should be reviewed and adjusted to the specific situation in the relevant market segments, e.g., under conditions of a construction boom, contractors’ profitability expectations will be higher than in the period of stagnation, and the amount of investment costs should therefore be adjusted to take account of possible appreciation. Accordingly, if a shortage of certain goods or services is developing on the market, or if there is only one player in the market designing specific information systems, a price offer that exceeds the planned value of investments can be expected and should therefore be taken into account when planning the costs. **It is essential to assess the market price tendencies for a particular type of investments and, taking into account the gap between the date of pricing and the start of the investment, to plan the investment costs accordingly so that they corresponds as closely as possible to the expected market prices at the start of the time horizon**. * The possibility of international competition during the project procurement. As Lithuania participates in the international EU market, in the case of high value projects or procurement of special goods, services, works, it is likely that not only Lithuanian, but also international companies will compete for the implementation of IP activities in public procurement. Involvement of international companies often means the possibility of a lower price offer, which could be taken into account in determining the value of investments. * The time constraints (restrictions). It shall be assessed whether the planned duration of the project implementation is attractive for the type, size and complexity of the project. Where the project implementation plan is very tight and delays are not possible, it should be taken into account that contractors or providers of goods and services will expect higher profitability by taking on the risk of rapid performance of activities, which may result in a higher value of investments than planned over a longer period. * The seasonality. This factor is a constraint on the progress of works, as costs of construction operations in bad seasons are typically higher. When there is enough time and the contractor or service provider retain the rigt to plan the technological processes to suit the season, the likelihood of a lower cost increases accordingly.   The assumptions for determining the investment value should be described in detail in the IP, also indicating the final value of investments. One of the prerequisites is the length of the investment process. Depending on the duration of the investment process and the established investment value, having regard to the progress of the project activities, the investment value shall be spread over the investment period of the project.  Investments are normally reported net of VAT, but VAT shall be included in the cost of investments if this tax is not deductible and recoverable (see details in Section 4.3.5 and Annex No 2). | |
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| Table 4.5. Determining the investments | |
| **BEST PRACTICES**  - The investment size is based on the previous procurement results or after conducting a survey of potential suppliers, but given that the average appreciation of similar assets is 5 % per year (data supporting the price level evolution are provided), the size of investments is based on the assessment of the likely price increase at the start of the project time horizon.  - The amount of investments needed for the information system design is calculated by taking into account the need for hardware and the hours of work that the information system designer's technicians would spend developing the information system. The project investments include input VAT, which the project organisation records as the cost of investments in the accounting. | |
| **BAD PRACTICES**  - The input VAT is included in the project investments, which the project organisation can include in deductions and recover.  - The input VAT is included in the project investments, a part of which the project organisation carrying out mixed activities can include in deductions and recover.  - The project investments include overheads, the nature and composition of which are not presented and the amount is not justified. | |
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| In the IP calculator, the project investments shall be indicated in lines A of each option. All project investments should be expressed in a positive figure. The investment value indicated in the IP calculator should match the value in other documents (the descriptive part of the IP, the project implementation plan, the partnership questionnaire). | |
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| 4.3.2. Residual value of investments – the value of fixed assets at the end of the project's time horizon. The useful life of an asset defines the period of time over which the asset in which the investment was made, is depreciated. If the time horizon of the project corresponds to the useful life of the investment object, the residual value of the asset is zero.  Where the useful life of the asset is longer than the project's time horizon, the residual value of the asset shall be calculated and reported in the last year of the time horizon. The residual value shall be calculated only for those assets for acquisition or creation of which the project investments are projected.  Regardless of whether the project generates net income, it is recommended that the residual value of the asset be calculated using the **straight-line** depreciation method: the residual value is equal to the cost of creation of the asset less the depreciation value calculated by reference to the useful life of the asset (the asset depreciation rates if no useful life can be determined) accumulated over the time horizon of the project.  If the assets created by the project are intended to be sold after the end of the time horizon of the project and the future selling price can be reliably estimated, the **selling price** method may be used. In that case, the residual value shall be equivalent to the selling price of the asset, estimated as at the end of the project's time horizon, without taking into account the possible effect of inflation on the asset's price.  Regardless of the residual value method applied, the impact of **reinvestments** (the cost of restoring the asset to its current state) should be taken into account in all cases when calculating the residual value of investments. If, when forecasting reinvestment amounts, the reinvestment should take place at the end of the reference time horizon (up to 3 years before the end of the time horizon), one of the following assumptions may apply:   1. shortening the project's time horizon to take account of the timeframe when the repeated significant investments (reinvestments) should be made; 2. reinvestments are not made before the end of the time horizon, but additional operating costs are expected to be incurred to maintain and repair the equipment until the end of the time horizon from the year in which the reinvestments were due.   The residual value is calculated only for assets created / acquired during the lifetime of the project, including the reinvestment of the assets concerned.  Where the project implementation involves reconstruction or repair that increases the value of the asset being reconstructed or repaired and extends its useful life or the acquisition of new equipment or other assets, such asset value increase shall be treated as the asset created by the project and shall be taken into account in determining the asset's residual value. Reinvestment planning and residual value calculations in all cases shall be disclosed in detail in the assumptions’ Worksheet of the IP calculator and in the descriptive part of the IP.  In assessing the depreciation period to be applied to investments when calculating the residual value of the project investments at the end of the project's time horizon, the actual useful life of investments should be taken into account in all cases. This period shall be determined according to the manufacturer's warranties, the service life of machinery and materials and the expected reinvestment.  The practice of determining the residual value of investments in the case of reconstruction / modernisation of buildings or structures on the basis of the book value of the asset invested in, taking into account the depreciation rates for public sector tangible fixed assets is erroneous. These rates are not appropriate for accounting purposes and are used in projects to calculate the residual value of investments for the reconstruction / modernisation of buildings or structures. For investments in reconstruction and modernisation elements, their useful life is not determined by the residual book value of a building or structure, but by the useful life of materials used for the reconstruction / modernisation. Depending on the nature of works, the useful life of materials used for the reconstruction of buildings or structures may not exceed **20–25 years**, for interior works in buildings – **up to** **15** **years.** After this period, similar investments shall be required again to make these facilities fully functional and compliant with hygiene standards (in the case of buildings), so that in the case of modernisation or reconstruction, the application of a useful life longer than 25 years would not be justified.  In the case of the acquisition of not a newly constructed building (premises), the physical depreciation of the building (premises) should be taken into account in determining the useful life of the building (premises), based on the data from the Real Estate Register of the State Enterprise Centre of Registers.  The residual value can be calculated by applying depreciation rates to tangible fixed assets of the public sector only in those cases where the project involves the construction of a new building or the completion of construction in progress where the building has not been used before. In that case, significant periodic reinvestments and maintenance costs should be foreseen in order to keep the building fully functional and in compliance with hygiene standards throughout this period. Without maintenance investments, the building will be in a state of disrepair within 25 to 30 years.  If the project involves reconstruction or repair works on a cultural heritage property, the depreciation period is determined by reference to the normal depreciation period of 20–25 years for reconstruction works. The depreciation period may be determined by reference to the useful life of the group of works forming the main part, if different types of works with different useful lives are carried out (exterior or interior works, restoration of wood or stone, etc.), or the useful life may be calculated on the basis of a weighted average of the useful lives of different works. If the useful life of an asset created by a project is chosen to be shorter than the time horizon, reinvestments should be foreseen.  Table 4.6. Residual value of investments | |
| **BEST PRACTICES**  - In the case of the reconstruction / modernisation of buildings, the residual value of the investment in buildings shall be calculated taking into account the real useful life of investments (on average 25 years) determined according to the manufacturer's warranties, useful lives of machinery and materials.  - For a new building under construction, the residual value is calculated by applying depreciation rates for public sector tangible fixed assets (e.g., 70 years), providing in the IP for periodic reinvestments and maintenance costs to maintain the building's condition.  - In 2019, the municipality acquired not newly constructed residential premises (flats) with a construction completion year of 1959 according to the data of the Centre of Registers and physical depreciation of 60 % in 2019 (it is established that premises depreciate at a rate of 1 % per year from the time of completion of the construction and the start of operation, in which case, according to the data of the Centre of Registers, the acquired premises are subject to a 100-year physical useful life). The IP author, when calculating the residual value from the acquisition value of the premises, applies the useful life of 40 years, but accordingly provides for the premises repair costs and the costs for maintaining the condition of the asset during the period of its operation.  **BAD PRACTICES**  - In the case of the reconstruction / modernisation or new construction of buildings, no reinvestment and/or infrastructure maintenance costs are foreseen during the entire project time horizon.  - In the case of the reconstruction / modernisation of buildings, the depreciation rate for public sector tangible fixed assets (e.g., 80–100 years) is used to calculate the residual value.  - Providing for reinvestments in the IP, residual value is not calculated on them. | |
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| In the IP calculator, the residual value of investments shall be indicated only in the last year of the project's time horizon in line B of each option expressed in a positive figure number.  In the text part of the IP, the calculation of the residual value of the investment, assumptions used, etc., shall be described and in the assumptions’ Worksheet of the IP calculator, detailed residual value calculations shall be provided.  **IMPORTANT!** The IP calculator automatically calculates financial ratios (FIRR(I), FNPV(I), FIRR(K), FNPV(K), Financial viability, SEVR (using the CEA method)). | |
| Table 4.7. Project investments and residual value | |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | |  | | **Project time horizon** | | | | | | *0* | *1* | *2* | *...* | *N* | | A. | Option’s investments, total |  |  |  |  |  | | A.1. | Land |  |  |  |  |  | | A.2. | Real estate |  |  |  |  |  | | A.3. | Construction, reconstruction, repair and other works |  |  |  |  |  | | A.4. | Property, plant and equipment |  |  |  |  |  | | A.5. | Design, maintenance and other services related to investment in fixed assets (A.1.-A.4.) |  |  |  |  |  | | A.6. | Project administration and performance |  |  |  |  |  | | A.7. | Other services and costs |  |  |  |  |  | | A.8. | Reinvestments |  |  |  |  |  | | B. | Residual value of investments |  | | | |  | | |
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| 4.3.3. Project operating revenues – the revenues directly received from users for goods and/or services generated in implementing the project, for example: fees directly paid by users for the use of infrastructure, sale or lease of land or buildings, payments for services, etc.  The assumptions of revenues and their change over the project's entire time horizon should be disclosed and explained in the IP, taking into account:   1. the number of users of the public service and how this number might change; 2. how frequently the users need to use the public services, and how this might change; 3. factors that influence the price of the public service (if the service is paid) (household income, purchasing power of users, elasticity of demand to price changes, etc.). Prices shall be determined on the basis of the price level at the start of the project's time horizon; 4. the duration of provision of the public service; 5. planned changes of provision of the public service during the project's time horizon (if a change of the service, merging of services, etc., is planned); 6. other factors influencing the scope of provision of the public service.   The project’s operating revenues include income generated when using the assets being created during the project or that have already been created, i.e., the project’s operating revenues should include the change in revenues of an organisation, institution and/or enterprise attributable to the implementation of the project.  Inflows from public and private sources of funds that do not arise from tariffs, fees, charges, rents or other direct payments of users shall be indicated as sources of financing. Inflows from public sources, insurance funds (e.g., *compulsory health insurance fund, social insurance fund, etc.*) shall also be indicated as a source of financing. | |
| In the IP calculator, the project's operating revenues shall be indicated in line C for each option. All operating revenues of the project shall be expressed as a positive figure and the decrease in operating revenues - as a negative figure.  In the IP calculator, the projected real change in revenue flows due to the implementation of the project option shall be indicated, without adding to the result of subsequent years the expected amount of revenue growth, unless the projected revenue growth is due to the increase in the number of users or other objective reasons.  Detailed calculations of the expected revenues of the project options should be provided in the additional Worksheets of the IP calculator. | |
| 4.3.4. Project operating costs – the costs incurred in operating the assets created during the project for the provision of the service. The types, characteristics and amount of project activity costs depend on:   1. the specificities of operating the infrastructure modernised a result of the project (for buildings – energy, utility, repair costs; for equipment – operating costs, costs for operating tools and materials); 2. the needed for human resources to deliver the service; 3. the scope of provision of the service; 4. the intensity of provision of the service; 5. other factors.   Key principles for evaluating operating costs:   1. The operating costs shall be evaluated without going beyond the project boundaries, i.e. assessing the change in the project organisation's costs attributable to the implementation of the project (in most cases, the project covers only a part of the project organisation's activities). 2. The prices of operating costs shall be set taking account the price level at the beginning of the project's time horizon. 3. The impact of demand for services shall be evaluated not only on operating revenues but also on variable operating costs. 4. the need for recurrent costs designated only for replacing worn-out assets or parts of assets created during the project by the end of the project's time horizon should be assessed. Both **reinvestment** and **costs for maintaining the condition of infrastructure** are necessary to ensure the continuity of provision of the envisaged public services:    1. if investments or their individual components (e.g., *investments made in a new building and R&D equipment*) have a shorter economic lifetime than the project's time horizon, recurrent costs shall be planned for replacement of worn-out parts of the assets created during the project (e.g., in *the areas where people are walking most frequently – entryways, vestibule – the most worn-out parts of the flooring will have to be replaced within 15 years*). These costs are considered as infrastructure maintenance costs and should be indicated in line D.1.5 of the operating costs table of the IP calculator.    2. Reinvestments are defined as costs incurred for complete replacement of a fixed asset in which IP funds have been invested (e.g., the *project’s time horizon is 15 years, replacement of computer equipment is planned every 5 years, therefore, such costs are considered as reinvestments*). Reinvestments shall be indicated in line A.8 of the investment table. As the reinvestments are used for the complete replacement of fixed assets, the residual value of investments should be increased and the annual amount of depreciation of tangible assets (amortisation of intangible assets) recalculated. 5. Interest expenses on loans shall be indicated in line D.2 of the operating costs table. 6. Decreases (savings) in operating costs shall be indicated with a minus sign, thus increasing the project's net revenues. 7. If it is not possible to directly separate the project costs from the total costs of the project organisation, the following methods shall be used:  * *Benchmarking*. The project organisation’s revenues and/or costs of the option under consideration and the current situation shall be compared. Under this method, only the additional share of operating revenues and/or operating costs resulting from the implementation of the project shall be included in the project's operating costs. * *Pro rata*. This method applies to revenue-generating projects. The value of assets to be created and the residual value of the assets held by the project organisation prior to the implementation of the project shall be compared and the appropriate percentage of the total costs which is the ratio of the value of the newly created assets to the total assets of the organisation shall be attributed to the project's operating costs. * Other methods, if they are the most appropriate for the project in question. If any other method is applied, the reasons for its choice and the principles of its use shall be stated. | |
| In the IP calculator, the project’s operating costs shall be entered in lines D for each option. For each project option, the total operating costs shall be indicated as a positive figure, and the savings (reduction) in operating costs – as a negative figure.  In the IP calculator, the actual projected cost flow shall be indicated and the growth of costs, provided that such growth is planned due to an increase in the number of users, an increase in the volume of the service, a change in the materials used, a change in the number of employees or other similar reasons; however, without indexing the flow if the growth is triggered by the general growth of costs.  Detailed calculations of the expected revenues of the project options should be provided in the additional Worksheets of the IP calculator. | |
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| Table 4.8. Determining operating revenues and costs | |
| **BEST PRACTICES**   * Assumptions concerning operating revenues and costs for maintaining the results created during the project are described in detail. * The analysis is limited to the change in revenues and costs resulting solely from the implementation of the project, or to operating revenues and costs in absolute terms without going beyond the project boundaries. * The project revenues are planned taking account of the purchasing power of users of the public service. | |
| **BAD PRACTICES**   * Insufficient or no disclosure of assumptions concerning revenues and costs. * The analysis covers all newly generated revenues and incurred costs by the institution, rather than the change resulting from the implementation of the IP, or the operating revenues and costs in absolute terms within the project limits. * Financing from public sources (state budget funds, municipal budget funds and other sources of public funds) is included in the project revenues. * Depreciation of assets acquired from support funds is reflected as either the project promoter’s costs or as operating costs. * The project outcome is the developed information system and the operating costs assessed – an increase in utility costs. | |
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| If the implementation of an IP is planned the PPP and EU investment funds are to be used for the creation of the asset, a consolidated forecast of operating revenues and costs (of the user and owner of the infrastructure) shall be prepared to ensure that the inflow of net revenues reflects the total income from the asset for which EU investment funds have been used. | |
| Table 4.9. Examples of the dynamics of public sector operating revenues and costs in different IPs | |
| |  |  | | --- | --- | | **Operating revenues** | **Operating costs** | | *Research revenues* (for businesses, line ministries, etc.) – increase when the appropriate infrastructure is created.  *Rental revenues* (for offices, performance of activities, etc.) – increase when condition of the physical infrastructure is improved.  *Revenues from the provision of paid services* (broader in scope than the standard established for the public service) – upon extension of the service provision possibilities (acquisition of scanning, digitisation equipment); unless restricted by legal acts, certain public services may be provided on a wider scale, subject to a charge on users.  *Proceeds from sale of assets created and/or acquired during implementation* (sale of depreciated equipment, sale of a purchased vehicle, etc.) – if the project organisation plans to sell for any reason the created assets in any year of the time horizon, this should be taken into account. | *Wage costs* (including social insurance and other taxes) – usually saved due to increase in operating efficiency.  *Energy costs* (for lighting, operation of equipment and machinery, etc.) – are saved when lighting or heating system is reconstructed, but increase with additional equipment is acquired.  *Maintenance costs* (for ensuring operation of equipment, information system, etc.) – upon development of a new information system they increase, and when old street lighting equipment is replaced with new equipment – are saved.  *Office costs* (writing paper, binders, printing ink, powder, etc.) – the development of the information system leads to the electronic delivery of services, which reduces office costs of the provision of public services.  *Infrastructure maintenance costs* *(running repairs)* – typical of the operation of renovated or newly constructed buildings (repainting ceilings, replacing wall coverings, etc.). | | |
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| 4.3.5. Project fees – cash resulting from implementation of IP activities. In order to correctly assess the input VAT arising during the project, the chart provided in Annex 2 may be used. Generally, cash flows in the IP calculator are shown with VAT when the project promoter is not carrying out an economic activity subject to VAT and is not entitled to deduct VAT, and the results created by the project are not and will not be used to carry out an economic activity subject to VAT, and without VAT when the results created by the project will be used to carry out an economic activity subject to VAT. | |
| VAT rates proposed for each budget line are indicated in VAT selection form of the general assumptions’ Worksheet in the IP calculator.  If VAT cannot be recovered, it shall be included in the cost of the IP investments and in the cash flows of the operating costs and, accordingly, the special mark “Tick if VAT is not deductible and input VAT is not recoverable” shall be checked in the VAT selection form of the general assumptions’ Worksheet of the IP calculator.  If in the VAT selection form of the general assumptions Worksheet in the IP calculator it is indicated that VAT is not deductible and that input VAT is not recoverable, investments and operating and financial costs should be shown with VAT (if applicable).  There may be cases where different VAT rates should be applied to the project's cash flows (e.g., the majority of the project costs is subject to the standard VAT rate, while one or more categories of costs are subject to a reduced VAT rate. In that case, cash flows in the IP calculator shall be indicated in separate lines (investments, operating costs and/or revenues) and the appropriate VAT rate shall be selected in the general assumptions’ Worksheet of the calculator.  In the IP calculator, lines E.1 and E.2 shall be calculated automatically. In the IP calculator, other indirect project fees due shall be indicated in line E.3 of each option.  Excise, customs duties and other taxes should be indicated only if it is expected that the tax will be charged on the supply of services or goods.  All project fees shall be indicated as a positive number and their savings (reduction) – as a negative integer number. | |
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| Table 4.10. Operating revenues, costs and fees of the project | |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | |  | | **Project time horizon** | | | | | | *0* | *1* | *2* | *...* | *N* | | C. | Revenues, total |  |  |  |  |  | | C.1. | Revenues from the sale of goods |  |  |  |  |  | | C.2. | Revenues from the provision of services |  |  |  |  |  | | C.3. | Financing and investing activity revenues and other revenues |  |  |  |  |  | | D. | Total operating and financial costs |  |  |  |  |  | | D.1. | Operating costs |  |  |  |  |  | | D.1.1. | Raw materials |  |  |  |  |  | | D.1.2. | Wage costs |  |  |  |  |  | | D.1.3. | Electricity costs |  |  |  |  |  | | D.1.4. | Heating costs (excluding electricity) |  |  |  |  |  | | D.1.5. | Infrastructure maintenance costs |  |  |  |  |  | | D.1.6. | Other costs |  |  |  |  |  | | D.2. | Interest on loans received (G.3.1.) |  |  |  |  |  | | E. | Taxes (+ negative impact; - positive impact on the investment project’s cash flows ) |  |  |  |  |  | | E.1. | Total amount of import / input VAT |  |  |  |  |  | | E.2. | Total amount of output VAT |  |  |  |  |  | | E.3. | Total amount of other indirect taxes due |  |  |  |  |  | | F. | Net revenues (C.)-(A.8)-(D.1.) |  |  |  |  |  | | |
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| 4.3.6. Project financing shall be divided into the following groups:  - Financing under the EU investment programmes and other foundations, organisations and institutions providing non-refundable support. Information on these resources shall be provided by indicating the name of the particular source of support (fund, instrument). If co-financing from the state budget is foreseen, these funds shall be indicated in the line “RL co-financing resources”;  - Public contribution means public funds originating from state and/or municipal budgets and other sources of public funds specifically earmarked for project implementation. This share of public funds shall be planned both for the investment period of the project and for the entire time horizon of the project. In the case of public projects, the assessment shall be carried out from the perspective of the State as the project owner; therefore, cash flows of public origin shall be summed up with those from external financing sources. These funds shall be shown in the line “Public funds (state, municipal budget, other sources of public funds)”;  - Private contribution – private capital funds that may be provided for in the IP where the project organisation includes at least one private entity. These private funds should be targeted, designated for the implementation of the project. These funds shall be shown in the line “Private funds (own funds, other private funds)”. The analysis of financing sources shall be carried out from the perspective of the infrastructure owner, i.e. capturing all cash flows expected to be used to build and/or upgrade the infrastructure;  - Other sources: funds borrowed for the implementation of the project. Loans from the European Investment Bank and loans from other commercial banks shall be shown separately. Such funds shall be itemised in the lines “Loans”, “Loan repayments (excl. interest)” and “Other international financing”.  Funds of co-financing and special programmes intended to cover ineligible VAT shall be attributed to the public contribution; however, they shall be shown in line “Special programme funds to cover ineligible VAT”.  Financing sources shall also include revenues the origin of which is not based on tariffs, charges, taxes, rentals or other forms of direct taxation of users. | |
| In the IP calculator, the project financing shall be indicated in lines G for each option. The total project financing shall be indicated as a positive number. | |
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| Table 4.11. Project financing | |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | |  | | **Project time horizon** | | | | | | *0* | *1* | *2* | *...* | *N* | | G. | Financing, total |  |  |  |  |  | | G.1. | Requested resources |  |  |  |  |  | | G.1.1. | EU structural assistance funds |  |  |  |  |  | | G.1.2. | Co-financing from the EU |  |  |  |  |  | | G.1.3. | Other international financing |  |  |  |  |  | | G.1.4. | Special programme funds to cover ineligible VAT |  |  |  |  |  | | G.2. | Funds from public and private sources |  |  |  |  |  | | G.2.1. | Public funds (state, municipal budget, other sources of public funds) |  |  |  |  |  | | G.2.2. | Private funds (own, other private funds) |  |  |  |  |  | | G.3. | Loans |  |  |  |  |  | | G.3.1. | Loans |  |  |  |  |  | | G.3.2. | Loan repayments (excl. interest) |  |  |  |  |  | | |
| Public services are characterised by the fact that investing to improve the quality parameters of a public service leads to an increase in the need for public financing after expiry of the investment period of the project. The project organisation must anticipate the sources of financing that will be used to finance these increased costs. | |
| Once the project financing is specified, the IP calculator will calculate the need for public funds over the project's entire time horizon. The project owner’s capacity to finance the project and ensure its continuation shall be assessed. In the IP calculator, the information shall be presented in real terms, therefore, when assessing own financial capacity it shall be necessary to independently take into account the likely change in cash flows. | |
| 4.4. Financial indicators of the project Main results of the financial analysis:  1. Investment indicators (FNPV(I), FIRR) and FBCR, SEVR (using the CEA method)),  2. Conclusion on financial viability,  3. Capital ratios (FNPV(C) and FBCR(C)) and  4. Benchmarking of indicators.  According to the CBA method the main conclusions shall be presented on the basis of the FNPV(I) value or a combination of all the above indicators, while according to the CEA method the conclusions shall be presented on the basis of the cost effectiveness / efficiency analysis indicator (SEVR) value. For the purpose of calculating different indicators, the different cash flows presented in this Section shall be included. | |
| Figure 4.1. Calculation of financial indicators | |
| **FNPV (I), FIRR (I) and FBCR**  **Investments**  **FNPV(C) and FIRR(C)**  **Financial viability**  **SEVR**  **Residual value**  **Operating costs**  **and revenues**  **Sources of financing** | |
|  | |
| 4.4.1. Investment indicators  Financial net present value (FNPV) represents the financial benefits of a project expressed in present value of money. This indicator is calculated by assessing the discounted net cash flow, comprising investments, residual value, revenues and operating costs, over the project's time horizon. | |
|  | |
| Formula 4.2. Financial net present value | |
| **,**  where *PS0,1,...,t* – the cash flow in the relevant year, *i* – the discount rate, *t* – the relevant year. | |
|  | |
| In the IP calculator, the FNPV shall be calculated using the NPV function (Rate; Value 1, Value 2, ... Value N), where Rate is the discount rate and Value 1, Value 2,... Value N is the value of the net cash flows in each year of the time horizon. | |
|  | |
| FNPV(I) shall be calculated in order to assess financial benefits of the planned investment, i.e. it shows the financial benefits that the project investment will generate over the project's time horizon and how much it is worth today. If FNPV(I) < 0, the discounted cash flows of net revenues of the project do not cover the discounted investment and the project does not pay off during the time horizon, and no financial benefits will be generated from the project implementation. If FNPV(I) > 0, the discounted cash flows of net revenues cover the discounted investment and the project is financially attractive to investors. In other words, the investment will pay off and the financial benefits of the project will cover the funds invested. If FNPV(I) is negative for all project options considered, the preferred option is the one with a negative FNPV(I) closest to zero.  The financial internal rate of return (FIRR) is the discount rate at which the net present value of the cash flows of investments, the residual value of investments, operating revenues and operating costs is zero. This indicator is relevant when the project option includes revenue generation and/or significant savings in operating costs that can be compared to total costs. If the FNPV is higher than the financial discount rate applied to the IP, the project will generate a financial benefit higher than the financial return (represented by the discount rate) sought by the project promoter. | |
| Formula 4.3. Financial internal rate of return | |
| **,**  where *PS0,1,...,t* – the cash flow of the relevant year, *t* – the relevant year. | |
|  |  |
| In the IP calculator, the FIRR is calculated using the IRR function*(Value 1*:*Value N*), where *Value 1* – the value of the cash flow in the first year of the time horizon and *Value N –* the value of the cash flow in the last year of the time horizon.  FIRR(I) is assessed together with FNPV(I). If FNPV(I) has a very negative value, FIRR(I) is not calculated in the IP calculator.  In the IP calculator, the modified indicators FMIRR(I) and FMNPV(C) are calculated. FMIRR(I) (and, similarly, FMNPV(C)) is a modified internal rate of return (on investment and on capital (sources of financing), respectively), where the internal rate of return on the project's cash flows is calculated by considering the cost of investment of a specified amount and the return on re-investment – in the IP calculator, these are equated to the financial discount rate (FDR). | |
| If the project generates income, a financial benefit-cost ratio (FBCR) is calculated. | |
| Formula 4.4. Financial benefit-cost ratio | |
| where *VPPS0,1,...,t* - the net cash flow of operating revenues in the respective year,  *INPS0,1,...,t* - the net cash flow of investments in the respective year;  *LPSn* - the net cash flow of the last year's residual value;  *VIPS0,1,...,t* - the net cash flow of operating costs in the respective year. If the change in costs is negative, this variable is treated as inflows and should be moved to the numerator;  *t* - the respective year;  *n -* the last year of the project's time horizon;  *i* - the discount rate. | |
|  | |
| In the IP calculator, the investment indicators shall be calculated in the manner set out in this Section, by assessing the project options’ cash flows provided by you.  If you are preparing the PPP investment project, i.e. you have indicated in the IP calculator's base assumptions sheet that the IP is planned to be implemented through the PPP, the IP calculator, in the Worksheet 6.1 that opens in such case, will additionally automatically calculate for the financial analysis indicators’ investments the cash flow and the investment indicators that may be conveniently used for calculating the maximum commitments of the public sector. | |
| When options are analysed using the CEA method, the value of the cost-effectiveness / efficiency indicator (SEVR) shall be calculated. This indicator shall be calculated using the amount of net revenues, including the residual value (which corresponds to the FNPV(I) with an opposite sign) and the value of the target PPR at net present values.  Formula 4.5. Cost-effectiveness/efficiency indicator | |
| *where*  SEVR - cost-effectiveness/efficiency indicator;  NCA (NPV) – the amount of net costs including the residual value at net present value (or FNPV(I) with an opposite sign); (NPV) – the change of output level of the service at net present value. | |
| The SEVR value represents the most efficient solution in terms of costs, and more specifically in terms of financing needed to implement the IP and deliver the service, to achieve the result related to the provision with the service (where the principle of efficiency is applied) or the most effective solution, where a given amount of costs and more specifically the available financing is used to achieve the greatest change of output level (where the principle of effectiveness is applied).  The lowest SEVR value reflects the best solution to the problem in relation to the options considered. | |
| The IP calculator calculates the SEVR automatically according to the procedure described in this Section by evaluating the project cash flows provided by you. | |
|  | |
| Table 4.12. Financial indicators of investments | |
| |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | ***When the analysis is carried out using the CEA method:*** | | | **Project time horizon** | | | | | | | | *0* | *1* | *2* | | *...* | | *N* | | A. | Total investment costs | |  |  |  | |  | |  | | B. | Residual value of investments | |  | | | | | |  | | C. | Operating revenues, total | |  |  |  | |  | |  | | D.1. | Operating costs | |  |  |  | |  | |  | | *The following cash flow is used to calculate SEVR:*  *+(A.)-(B.)-(C.)+(D.1.)* | | |  |  |  | |  | |  | | |  |  | | --- | --- | | J. | The change of output level: | | | |  |  |  | |  | |  | | *SEVR is calculated using the following discounted cash flows:* | | |  | | | | | | | | ***When the analysis is carried out using the CBA method:*** | | **Project time horizon** | | | | | | | | | *0* | | *1* | | *2* | | *...* | *N* | | A. | Total investment costs |  | |  | |  | |  |  | | B. | Residual value of investments |  | | | | | | |  | | C. | Operating revenues, total |  | |  | |  | |  |  | | D.1. | Operating costs |  | |  | |  | |  |  | | *The following net cash flow is used to calculate the investment indicators*  *-(A.)+(B.)+(C.)-(D.1.)* | |  | |  | |  | |  |  | | FNPV(I) | |  | | | | | | | | | FIRR(I) | |  | | | | | | | | | FBCR  *The following discounted flows are used for the calculation:* | |  | | | | | | | | | |
| 4.4.2 Conclusion on financial viability The cash flows of the project should be planned in such a way that the implementation and operation of the project does not cease during any period due to lack of resources, i.e. the cumulative net cash flow is not negative in each year of the project's time horizon. The cumulative net cash flow of a project indicates whether the project's expected revenues during the time horizon will cover its costs during the respective period. The net cash flow in individual years may be negative, but the cumulative cash flow – may not.  As cash flows are accumulated, each year's net cash flow is carried forward to the following year. On the basis of the cumulative net cash flow it is determined whether the required cash flows can be ensured over the project's entire time horizon. The project organisation needs to assess the financing needs and identify the sources of financing to meet the requirement.  If the project organisation is not able to ensure the financial viability of the IP throughout the project time horizon, i.e. it is not able to allocate sufficient resources for the implementation of investments and performance of activities, the IP shall be respectively adjusted according to the needs:   * by changing investment solutions, or * by reducing target minimum results and changing investment solutions, or * by attracting additional sources of financing (grants or loans if the project generates net costs), or * by concluding that the project organisation cannot ensure the viability of the IP and, by continuing the preparation of the IP, but additionally assessing the possibilities of implementing the IP through the PPP, i.e. additionally developing the Partnership Questionnaire. | |
| The conclusion on financial viability in the IP calculator shall be presented by assessing the project cash flows provided by you in the manner set out in this Section.  The financial benefit-cost ratio in the IP calculator shall be calculated automatically after having discounted the cash flow for each year (lines A, B, C, D.1.). | |
|  | |
| Table 4.13. Financial viability | |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | |  | | **Project time horizon** | | | | | | *0* | *1* | *2* | *...* | *N* | | A. | Total investment costs |  |  |  |  |  | | C. | Operating revenues, total |  |  |  |  |  | | D. | Total operating and financial costs |  |  |  |  |  | | E. | Taxes |  |  |  |  |  | | G. | Financing, total |  |  |  |  |  | | *For calculating financial viability*  *net cash flow is applied*  *-(A.)+(C.)-(D.)-(E.)+(G.)* | |  |  |  |  |  | | *Cumulative net cash flow (NCF)*  *(current year’s NCF*  *+ previous year's cumulative NCF)* | |  |  |  |  |  | | |
| 4.4.3. Capital ratios The FNPV(C) discloses the financial benefits generated by the project owner's investment of capital during the project's time horizon. Where the IP is planned to be implemented in the public sector and the project organisation is a public sector entity, the project owner is the State of Lithuania, as the budget contributes to the implementation of the IP.  If FNPV(C) < 0, the project does not generate any financial benefit because cash flows do not cover the owner's contribution. If FNPV(C) > 0, the project's cash flows cover the capital invested in the project. | |
| FIRR(C) is assessed together with FNPV(C). The higher the FIRR(C) compared to the FDR, the higher the return on capital of the project.  Public funds and private funds are treated as the project implementation costs incurred by the State or the project owner used to calculate the net cash flow for the capital ratios. | |
| In the IP calculator, capital ratios are calculated automatically in the manner described in this Section taking into account the project cash flows provided by you. | |
|  | |
| Table 4.14. Capital financial ratios | |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | |  | | **Project time horizon** | | | | | | *0* | *1* | *2* | *...* | *N* | | B. | Residual value of investments |  | | | |  | | C. | Operating revenues, total |  |  |  |  |  | | D. | Total operating and financial costs |  |  |  |  |  | | G.1.2. | *Co-financing from the EU* |  |  |  |  |  | | G.2.1. | *Public funds* |  |  |  |  |  | | G.2.2. | *Private funds* |  |  |  |  |  | | *G.3.2.* | Loan repayments  (excluding interest) |  |  |  |  |  | | *Net cash flow is used to calculate capital ratios*  *(B.)+(C.)-(D.)-(G.1.2.)-(G.2.1.)-(G.2.2.)-(G.3.2.)* | |  |  |  |  |  | | FNPV(C) | |  | | | | | | FIRR(C) | |  | | | | | | |
| 4.4.4. Benchmarking of indicators After calculating the financial indicators for each option, the results shall be presented in the general table and a reasoned conclusion shall be drawn as to whether any of the IP implementation options can be distinguished as financially superior.  An IP implementation option shall be considered financially superior if it meets at least one of the following criteria:   1. if there is only one option with a positive FNPV(I); 2. if there is more than one option with a positive FNPV(I), those options with FNPV(I) by 10 % higher than the option with the lowest positive FNPV(I). In the absence of such options, all options with a positive FNPV(I) shall be considered superior. | |
| Table 4.15. Benchmarking the financial indicators of the project implementation options | |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | Financial analysis indicator | Project implementation option | | | | | *1* | *2* | *n* | *Conclusions* | | 1. | FNPV(I) |  |  |  | *Conclusions on financial indicators of the options* | | 2. | FIRR(I) |  |  |  | | 3. | FBCR |  |  |  | | 4. | Conclusion on financial viability |  |  |  | | 5. | FNPV(C) |  |  |  | | 6. | FIRR(C) |  |  |  | | |
|  |  |
| 4.5. Selecting the attractive option using the CEA method When comparing options using the CEA method, the main conclusions shall be made having regard to the cost effectiveness / efficiency analysis indicator (SEVR) value. This indicator shows which option is attractive after calculating the change in net costs minus residual value of the asset per target unit of change of output level (PPR) measured at net present value.  SEVR value of the attractive option shall be the lowest, also including negative values:   1. If the **efficiency** principle is chosen for the analysis, the selected option shall be the most efficient in relation to other options, and the solution of the intended result related to the performance of the service is attractive. 2. If the **effectiveness** principle is chosen for the analysis, with the amount of public and private financing identified, the selected option shall be most effective in relation to other options, as its implementation solution allows achieving the highest change of output level (PPR).   Table 4.16. Benchmarking the project implementation options using the CEA method | |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | Indicator / result | Project implementation option | | | | | *1* | *2* | *n* | *Conclusions* | | 1. | SEVR |  |  |  | *SEVR conclusions of options* | | 2. | FNPV(I) with an opposite sign |  |  |  | | 3. | Sum of public and private financing (real value) |  |  |  | | 4. | Sum of public and private financing (discounted value) |  |  |  | | 5. | PPR (real value) |  |  |  | | 6. | PPR (discounted value) |  |  |  | | |
|  | |
| Procedure of SEVR calculation in the IP calculator:   * 1. Selecting “Cost-effectiveness analysis” method in the general assumptions’ Worksheet;   2. Tick / select the principle for calculating indicators “Effectiveness” or “Efficiency”;   3. After completing the above steps, press “Continue” button in the analysis method selection form (during this step, the data is entered in the IP calculator, if “Close” button is pressed, the data will not be saved);   4. Specify the analysis object and select the economic activity sector (EAS), the EAS project type, and the type of ESA projects to which it is attributed (the main type of EAS projects (I), and additional EAS project types (II-IV)). To confirm the selection press the green button. Although socio-economic benefits are not assessed in the CEA analysis, this part should be completed in order to create the options’ Worksheets (the options’ Worksheets are created and prepared for completion pressing “Complete” button in the options’ desktop selection form);   5. For each object of analysis (which may be different if necessary), specify the name of the target PPR, which should reflect the extent of change in the existing service and the associated problem (quantified in the options’ Worksheets);   (6) Indicate in the options’ Worksheets for each project option being assessed:   * Cash flows provided for the implementation of the project activities over the entire time horizon. Aggregate cash flows in real and NPV terms shall be calculated by the IP calculator automatically; * PPR in numerical terms (line J). The aggregate PPR for each year of the time horizon in real and net present values shall be calculated by the IP calculator automatically;   7) The calculated SEVR (FNPV(I) with an opposite sign shall be divided by the PPR NPV. The IP calculator automatically calculates the value of this indicator.  The evaluation of options and the selection of the attractive option are carried out Worksheet 3 of the IP calculator. | |
| Following the assessment of IP options using the CEA method, the IP is further prepared according to provisions of Sections 6 and 7 of the Methodology.  The evaluation and comparison of the options analysed using the CBA method for the selection of the attractive project option shall be carried out in accordance with provisions set out in Section 5.  Following the financial analysis of the project, a brief description of the results of the analysis shall be prepared and included in the project’s executive summary according to the procedure set out in Section 7.6. The total discounted and undiscounted amounts of each of the main cash flows (investments, residual value of investments, operating revenues, operating costs, taxes and financing, values of the calculated financial ratios and the conclusion on the viability of the projects hall be indicated. | |

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| --- | --- |
| 5. Economic analysis | |
|  |  |
| *This Section shall be prepared for IPs where the analysis of options is carried out using the CBA method.*  The economic analysis assesses the contribution of the project to the economic well-being of the region or the country. The limits of the project impact assessment depend on the particular project: if the project aims to solve regional problems and the project activities are limited to regional target groups, the economic analysis should be limited to the regional impact assessment. The broadest limits of economic analysis are the whole population of Lithuania. However, national impact assessments tend not to assess the impact on the entire population of a country, but rather focus on a selected group of people identified by demographic and other relevant characteristics or criteria (e.g., age, education, area of residence, etc.). In other words, the project impact on the public being assessed is usually identified with its impact on the target groups of the project. The assessment of this socio-economic impact is the aspect that most clearly distinguishes the project’s financial analysis from its economic analysis: the financial analysis looks at changes in cash flows of the project organisation and the project's financial return, while the socio-economic analysis looks at the changes resulting from the implementation of the project and the benefits (costs) for the society.  If the comparison of the project implementation options on the basis of financial indicators does not result in any of them being identified as fully superior, a socio-economic impact assessment shall be carried out for all project implementation options, otherwise this analysis may be carried out only for the fully superior options.  If the financial analysis shows that only one option is appropriate, only the socio-economic assessment of this IP option shall be carried out in this Section.  The main result of the economic analysis – economic indicators of the project option: the economic net present value (ENPV), the economic internal rate of return (EIRR) and the economic benefit-cost ratio (EBCR), the calculation of which is described in Section 5.4.  The economic analysis of the project, which also incorporates cash flows from the financial analysis, is carried out in the following steps:  1. Converting market prices to economic prices.  2. Selecting social discount rate.  3. Assessing socio-economic benefits (costs).  4. Calculating economic indicators.  5. Selecting attractive option for project implementation. Converting market prices to economic prices The value of cash flows calculated in the financial analysis is generally affected by imperfect competitive and tax environments and other factors that cause the cash flows estimated in the financial analysis to be less than their fair economic value. The economic analysis therefore uses economic cash flows rather than financial cash flows, which are obtained by adjusting the cash flows from the financial analysis by appropriate conversion factors. This step is called conversion and it allows the calculation of the actual costs of the project, which is appropriate for assessing its socio-economic benefits.  Factors used for conversion shall be determined by taking into account the following aspects may affect the difference between financial and economic values of cash flows:   1. Distortions of cash flow amounts due to existence of an imperfect market: tariffs, quotas, other trade restrictions, monopoly power, lease of state assets at below-market prices, etc., lead to distortions in prices. 2. The fact that wage costs do not directly translate into the created value added: subsidies, payments from the labour exchange, job retention commitments, etc., means that wage costs do not correspond to the created value added. These wage deviations are also possible for the following reasons:    1. Employees of budgetary institutions, especially those with higher qualifications, tend to be paid less than employees of the private sector staff for similar work;    2. The minimum wage regulated by legal acts has an impact on the amount of the established wage. | |
| The conversion for cost flows uses the same financial cash flows that have already been used to calculate FNPV(I) and FIRR(I) as follows:   1. VAT is deducted if included in the cost of investments, goods and services, as well as customs duties, excise duties and operating subsidies; 2. Values of conversion factors are applied separately for each group of goods and services by sector of economic activity.   The application of conversion factors to socio-economic benefit estimates calculated on the basis of avoided costs is described in the Methodology for calculating conversion factors, estimates of socio-economic benefits (costs). | |
| When preparing the economic analysis part of the project, the information on the main and (if necessary) additional economic sectors of the object of analysis should be provided in the Analysis object and economic activity sector project type selection form in the general assumptions’ Worksheet of the IP calculator. Based on the information provided, the IP calculator shall select independently the respective conversion factors to be applied to convert individual cash flows into economic ones. The values of the conversion factors for each sector of economic activity are presented in Annex 5 and the methods for calculating the conversion factors for both the cost elements and the estimates of the economic benefit components calculated on the basis of avoided costs are presented in Methodology for calculating conversion factors, socio-economic benefits (costs). | |
| Social discount rate The social discount rate (SDR) is used to calculate the economic analysis indicators. The SDR reflects opinion of the society on future benefits and costs. It is the price that the society pays for postponing consumption today for consumption next year. On the other hand, it shows the benefits that the society expects to gain from moving away from consumption today and towards consumption in the future, i.e. the opportunity costs of the resources that the society allocates for the implementation of the change.  A high SDR means that the society is comparatively less inclined to invest significant resources (such as capital) that would create greater wealth for future generations, and more inclined to favour present consumption and short-term investments (projects). A low SDR – conversely, means that long-term investments are preferred.  In order to maintain continuity in the assessment of progress funds and to take into account the socio-economic environment in Lithuania, projects are subject to a 5 % SDR. | |
| Socio-economic benefits The assessment of the socio-economic benefits (costs) of a project (option), i.e. its benefits to society, national or regional well-being, should take into account all socio-economic circumstances of the impact of the project (option) that directly influence the project's target groups and the external environment.  Socio-economic benefits (costs) shall be expressed in monetary terms as follows:  1. Identifying the project’s components of socio-economic benefits and costs to be assessed.  2. Determining the extent and value in monetary terms of the benefits and costs the project will generate for the target group and the external environment. | |
| Benefit and costs components of socio-economic impact The relevant components of socio-economic benefits and costs to be assessed in a project are determined by taking into account the sector of economic activity, the nature and the specificity of the project impact. The impact can be manifested directly to the beneficiaries and externally, i.e. resulting from activities of seeking direct impact. The latter is usually manifested in terms of changes in pollution and/or impact on climate change and is relevant for assessment from the perspective of environmental performance assessment[[18]](#footnote-19) and the implementation of the European Green Deal[[19]](#footnote-20).  The Methodology for calculating conversion factors, estimates of socio-economic benefits (costs) explains in detail the components of socio-economic benefits (costs) identified in individual sectors, the calculation of their estimates and their application. While it also proposes sets of components to be used for distinguished separate types of economic activity projects, it is possible to use components from all sectors in a particular project, taking into account the impact of the project activities and ensuring that the impact assessment does not overlap. Annex 6 provides estimates of components of socio-economic benefits (costs) by sector of economic activity for the entire projection period.  In order to avoid overestimating benefits, economic analysis routinely replaces financial revenues with socio-economic impact benefits (H.1.) as a better comparative reflection of the project's benefits for the society, since these are measured using component estimates calculated using the willingness-to-pay principle, which cover a wider range of benefits than those measured in terms of revenues. However, where there is no overlap with economic benefits, such revenues may be included in the calculation of socio-economic benefits if they are considered as part of the economic benefits in the context of the project impact.  Table 5.1. Assessing financial revenues in economic analysis   |  |  | | --- | --- | |  | **BEST PRACTICES**  Cases where it may be appropriate and correct to assess the possibility of treating income as economic benefits:   * Revenues from charges for advertising spaces, e.g., in improving the quality of public transport and installing shelters at public transport stops, are decoupled from other economic benefits generated by the project, e.g., the reduction of greenhouse gases, harmful substances. Therefore, such revenues may be included in the measurement of economic benefits as not overlapping with other benefits; * Revenues generated from rent of commercial premises, e.g., catering services, beauty services, in most cases do not overlap with other economic benefits assessed in the project, and can therefore be included in the assessment of economic benefits. * Revenues from commercial services that are not classified as public services and/or administrative functions may also be eligible for assessment of economic benefits as the best measure of willingness to pay for these services, e.g., commercial revenues of a hotel from provision of accommodation services, which are being assessed in the project, may be treated as economic benefits and included in the assessment, if such benefits ares not included in the other components of benefits.   **BAD PRACTICES**  - When calculating the socio-economic benefits in terms of estimates of components of the tourism sector, revenues from ticket sales are included additionally ignoring the overestimation of benefits. |   As part of the assessment, it is also necessary to ascertain that the benefits generated by the project option are not assessed several times, thereby overestimating the project's impact (e.g., the assessment of savings of operating costs in cash flows does not have to be assessed again separately in the socio-economic benefits part of the assessment; when assessing the increase of attractiveness of the area for households / companies, while also including the benefits of the increase in the accessibility to potable water supply, would not be possible due to the over-estimation of the economic benefits). | |
| In the IP calculator, in lines H.1.1. to H.1.7 and H.2.1. to H.2.3 of sheets of options’ analysis, the socio-economic impact assessment components shall be selected that best represent the project's impact, which are suggested by the IP calculator according to the types of projects in the sectors of economic activity selected in the main assumptions’ sheet. If there is no possibility to select cost components in lines H.2, this means that there are no cost components in the types of projects in the economic activity sector selected in the IP calculator's main assumptions’ Worksheet (Worksheet 1).  Once selected, the components are used to assess the socio-economic benefits each year. They shall be calculated independently in accordance with the provisions of the Methodology for calculating conversion factors, estimates of socio-economic benefits (costs). The current values of component estimates are included in Annex 6 presented in .xlsx format and available at [www.ppplietuva.lt](http://www.ppplietuva.lt) and/or [www.cpva.lt.](http://www.cpva.lt) Instructions for calculating estimates for those components that need to be estimated individually, as well as for those components for which estimates have already been calculated, are given in the “Calculation methodology and calculated estimate value” parts of the latter methodology describing each component.  Given that the IP calculator does not include the revenue lines of Part C in the calculation of economic indicators, in cases where revenues are assessed as part of the socio-economic benefits, they should be identified separately in part H.1 of the economic benefit calculations of the IP calculator.  In the IP calculator, all additional calculations performed in the economic analysis, as well as the assumptions needed for the calculation of components of socio-economic benefits (costs) shall be entered in the special Worksheet entitled “Assumptions”. Data in the assumptions’ Worksheets may not be provided by way of references to other documents *(e.g., to another MS Excel file, etc.).* Data in the options’ Worksheets should be provided as links to the assumptions’ Worksheet. If necessary, more additional Worksheets may be created. The number of additional Worksheets is not limited. | |
| Extent and benefits (costs) of impact on the target group After identifying the project option’s components of benefits and costs that best reflect the socio-economic impact of the project, the extent of the impact on the target group and benefits (costs) in monetary terms are calculated. | |
| In the IP calculator, socio-economic benefits (costs) for each of the project implementation options shall be indicated in lines H.1 and H.2. Both the socio-economic benefits and the socio-economic costs should be expressed in a positive number.  Socio-economic (SE) benefits (costs) are calculated by multiplying the SE impact component estimate by the size of the target group / extent of impact. Detailed instructions for the calculation of each benefit and costs are provided in the “Application instructions” Sections describing each component in the sectoral parts of the Methodology for the calculation of conversion factors, estimates of socio-economic benefits (costs).  Please note that if a single component is used to assess socio-economic benefits (costs), but it consists of several estimates, the IP calculator selects the SE benefits (costs) component by sector and provides the total amount of the component's benefits (costs) calculated in a specific line.  Detailed calculations of socio-economic benefits (costs) should be provided in the additional Worksheets of the IP Calculator. | |
| Table 5.2. Socio-economic benefits (costs) of the project option | |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | |  | | **Project time horizon** | | | | | | *0* | *1* | *2* | *...* | *N* | | H.1. | Socio-economic (SE) benefits (in financial terms) |  |  |  |  |  | | *H.1.1.* | *E.g. statistical value of life years* |  |  |  |  |  | | *H.1.2.* | *E.g., the value of a working day lost due to illness* |  |  |  |  |  | | H.2. | Socio-economic (SE) damage (in financial terms) |  |  |  |  |  | | *H.2.1.* | *E.g., time losses due to increased traffic congestion* |  |  |  |  |  | | *H.2.2.* | *E.g., increase in air pollution due to increased traffic congestion* |  |  |  |  |  | | |
| Socio-economic impact indicators The main results of the socio-economic analysis are measured by the following indicators:  1. ENPV;  2. EIRR and  3. EBCR. | |
| 5.4.1. Economic net present value (ENPV) is the present value of the discounted cash flows of the economic costs of the project (option) investments less its residual value (A. - B.) and the economic costs of operation and maintenance (D.) and the socio-economic benefits (H.1 - H.2), measured over the project's entire time horizon. It shows the net socio-economic benefits, considering all benefits and costs measurable in monetary terms that would be generated by the implementation of the project, while also taking into account the opportunity costs, i.e. the economic return that society expects to receive from the funds allocated for the implementation of the change.  If ENPV < 0, the discounted benefits of the project option do not cover the discounted costs and its implementation is therefore justified from a socio-economic point of view. Conversely, if ENPV > 0, it means that the project option generates benefits for society and its implementation is therefore not justified from a socio-economic point of view. Accordingly, such an assessment of the whole project shall be carried out having regard to the results of implementation of its best option.  ENPV is calculated taking account of:   1. economic cash flows (calculated by converting cash flows as described in Section 5.1); and 2. socio-economic benefits generated by the project and its socio-economic costs (calculated as described in Section 5.2). | |
| In the IP calculator, the ENPV is calculated using the NPV function (Rate; Value 1, Value 2, ... Value N), where Rate is the social discount rate and Value 1, Value 2, ... Value N is the value of the net cash flows in each year of the time horizon. | |
|  | |
| 5.4.2. Economic internal rate of return (EIRR) – is used to assess the socio-economic payback and attractiveness of the project (options). EIRR is the discount rate at which EIRR is zero. The resulting EIRR is compared with the used to calculate ENPV. EIRR of the socio-economic benefits of the project option is higher than the applied SDR. Accordingly, EIRR lower than SDR indicates that the project option does not generate socio-economic benefits. | |
| In the IP calculator, FIRR is calculated using IRR function *(Value 1*:*Value N*), where *Value 1* is the value of the cash flow in the first year of the time horizon and *Value N* is the value of the cash flow in the last year of the time horizon. | |
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| 5.4.3. Economic benefit-cost ratio (EBCR) – shows the number of times the socio-economic benefits generated by a project (option) outweigh the costs of implementing it. EBCR is calculated by dividing the socio-economic benefits generated by the project (option) by its economic costs.  Economic costs are equal to the sum of the converted and discounted investments (A.) less converted and discounted residual value of investments (B.) and converted and discounted operating costs (D.1.). | |
| In the IP calculator, all economic indicators are calculated in the manner described in this Section on the basis of cash flows of the project (implementation options) provided by you. | |
| Table 5.3. Socio-economic indicators of the project | |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | |  | | **Project time horizon** | | | | | | *0* | *1* | *2* | *...* | *N* | | A. | Option investments, total |  |  |  |  |  | | B. | Residual value of investments |  | | | |  | | C. | Revenues, total |  |  |  |  |  | | D. | Total operating and financial costs |  |  |  |  |  | | D.1. | Operating costs |  |  |  |  |  | | *H.1.* | SE benefits (in financial terms) |  |  |  |  |  | | *H.2.* | SE costs (in financial terms) |  |  |  |  |  | | *This converted net cash flow (NCF) shall be used for the calculation of economic indicators*  *-(A.)+(B.)-(D.1.)+(H.1.)-(H.2.)* | |  |  |  |  |  | | ENPV | |  | | | | | | EIRR | |  | | | | | | EBCR  *The following converted and discounted flows shall be used for the calculation:* | |  | | | | | | |
|  | |
| Before calculating the economic indicators, the financial cash flows (lines A., B., and D.1.) shall be converted using a separate conversion factor indicated for each line. This operation shall be carried out automatically by the IP calculator. | |
| Selecting the attractive option according to the CBA method After calculating economic indicators for each option, the results are presented in a single table. The final conclusion on the most attractive (optimal) option is reached by comparing the analysed options, taking into account the indicators of the financial analysis (Section 4.4) and the indicators of the economic analysis (Section 5.4). Such benchmarking provides insight into the effectiveness of the project implementation options. The results of the best project implementation option allow judging about the socio-economic benefits of the project as a whole. | |
| Given that public sector projects financially often do not pay off and even do not generate revenues, economic analysis indicators are considered as the main criterion for the benchmarking of options. When benchmarking the options by economic indicators, the ENPV, EBCR and EIRR of the option are taken into account. | |
| Table 5.4. Benchmarking the economic indicators of project implementation options | |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | Socio-economic analysis indicator | Project implementation option | | | | | *1* | *2* | *n* | *Conclusions* | | 1. | ENPV |  |  |  | *Conclusions on economic indicators of the options* | | 2. | EIRR |  |  |  | | 3. | EBCR |  |  |  | | |
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| Worksheet 3 of the IP calculator provides financial and economic indicators for all options. Based on the ENPV data, the attractive option is proposed for each analysis object. To continue working with the IP calculator, the attractive option shall be selected in Worksheet 3.  The attractive option may also be selected on the basis of another economic analysis indicator (e.g., *EBCR*); in that case the selection of such assessment shall be explained in the descriptive part of the IP.  The aggregated data for the attractive options for all investment objects shall be presented in Worksheet 4 of the IP calculator. | |
| In order to be considered optimal, the project option should be financially viable (the cash flow accumulated during each year of the project’s time horizon may not be negative) and generate the highest socio-economic benefits. A project is considered to generate socio-economically benefits when ENPV of its attractive option is positive, EBCR is > 1 and EIRR is greater than SDR. ENPV is considered to be the key indicator in terms of the assessment of indicators, but for a rational comparison of options and correct interpretation of the results it is important that options are correctly formulated according to one of the principles of efficiency or effectiveness. For justification, e.g., when comparing different projects in terms of their economic payoff, or when exclusively looking for the solution with the highest socio-economic benefits per unit of money, EBCR or EIRR may also be considered as the main assessment indicators.  When assessing the economic indicators, it is advisable to note that values close to minimum values may indicate that the project is highly risky in terms of benefits. If the risks assessed in the IP materialise, the project may become socio-economically unviable, which in turn may raise questions about the rationality of its implementation. Accordingly, it is always appropriate to look for solutions that are more efficient and provide greater socio-economic benefits, and to take action to mitigate and manage risks.  Once the attractive project implementation option has been identified, the physical results of the project are defined as indicators to monitor the progress of the implementation and to establish the completion of the project. | |
| Table 5.5. Benchmarking the physical indicators of project implementation options | |
| BEST  PRACTICES | Physical results of the IP implementation were identified only after assessment of the options: 904 existing supports of lighting fittings and the same number of lighting fittings were replaced, 30 power cabinets were refurbished, 203 new lighting fittings’ supports and the same number of lighting fittings as well as 6 new power cabinets were installed, one remote control system was installed and 6 km of cabling were replaced – all these outcomes were presented after calculating and benchmarking economic indicators. |
| BAD  PRACTICES | The physical result of the IP implementation is the acquisition of one new electronic asset declaration system, but this result is set as a target indicator and presented before the analysis of options. |
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| Following the economic analysis of the project, a brief description of the results of the performed analysis shall be prepared and included in the executive summary of the project in accordance with the procedure set out in Section 7.6. The description should include the socio-economic benefits and costs assessed, SDR applied, values of calculated economic indicators and selected IP implementation option. | |

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| 6. Sensitivity and risks | |
| Projects are planned on the basis of the most probable figures for the main parameters that characterise the projects, so it is not just a matter of forming a subjective opinion about the project. Since project planning and preparation are activities aimed at projecting forward looking cash flows over a long period of time, often several decades, it is likely that forecasting errors and inaccuracies will occur. This is often due to lack of historical data that would provide insight into likely trends of factors, which is particularly characteristic of innovative, unprecedented projects. Moreover, what has been observed in the past does not necessarily mean that similar trends will develop in the future. Rapid technological developments, unexpected geopolitical changes, sudden outbreaks of diseases, unexpected market crashes and various macro-level crises can change the predicted scenario dramatically. Other subjective, unplanned and objectively unidentifiable factors, such as theft and corruption, may also occur during implementation of a project. All of these things, which can affect the future differently from what is predicted, are designated as risk factors.  The potential change in the intended result, whether positive or negative, due to the risk factor is understood as uncertainty. The likelihood that a particular event will adversely affect the project result to one degree or another is referred to as risk. It is the probability associated with the occurrence of a particular magnitude of adverse effect and the potential adverse effect leading to losses that are the essential elements for distinguishing risk from uncertainty and, by multiplying them, for calculating the value of risk. More generally, risk can be defined as any factor, event or impact that adversely affects the successful implementation of a project in a timely manner, incurring a predefined amount of costs and/or ensuring the required quality.  This part covers the analysis and assessment of risks that affect a project, the preparation of risk management plan, the identification or resources necessary for management of risks, and the assessment of the impact of the occurrence of risks on finances or target change of output level of the project.  Irrespective of applied analysis method, when analysing the options according to the **principle of effectiveness**, it would be reasonable to assess to what extent the increase in costs and/or unearned revenues (if applicable) due to the risk is likely to reduce the target change of output level (as there are no sources of financing available to cover additional costs due to occurrence of risk), whether it would be reasonable to implement the project at all given the respective confidence level (typically 70 %). In the analysis of options according to the **principle of efficiency**, it is reasonable to assess the extent to which potential risk could increase net costs of achieving the target change of output level.  Errors and uncertainties in the forecasting of project parameters and risks that affected them can be classified into different groups according to their causes and other distinguishing features. Importantly, the risk of the same group can manifest differently in different projects, for example in terms of likelihood, impact, timing, etc. However, some risk trends cannot be excluded, which can be identified by analysing the experience of similar projects. Therefore, in preparing this part of the IP, it is important to provide a systematic view of the potential risks in a given project and to assess their potential impact on the success and financial viability of the project.  The risk assessment shall be carried out in the following sequence:  1. Sensitivity analysis.  2. Scenario analysis.  3. Identification of probabilities of variables.  4. Risk assessment.  5. Calculation of risk-weighted indicators.  6. Evaluating risk acceptability.  7. Providing for risk management actions. | |
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| 6.1. Sensitivity analysis Sensitivity analysis reveals how a change in each individual factor (variable) affects the IP results that are being analysed.  The sensitivity analysis shall be carried out by changing the assumptions for each variable separately and observing how this change affects the financial (FNPV(I), FIRR(I)) and economic (ENPV, EBCR, EIRR) indicators if CBA method is chosen, the financial (FNPV(I) and SEVR) indicators if CEA method and the cost-efficiency measurement principle is chosen, and cost effectiveness / efficiency indicator (SEVR) if CEA method and the cost-effectiveness measurement principle is chosen. The value of only one variable shall be changed at a time. The result of the sensitivity analysis is a list of critical variables and their breakpoints. The list shall be compiled after sensitivity analysis of all variables.   |  |  | | --- | --- | |  | Critical variables are those for which the value change of 1 % leads to the change of value by more than 1 %of at least one of the project's relevant indicators: FNPV(I), FIRR(I), SEVR, EBCR or EIRR. After taking into account the specifics of the IP (e.g., *with a small number of variables*), a change of less than 1 % may be applied in order for the variables to be considered critical. |   The sensitivity analysis shall be carried out in the following sequence:  1. Identification of variables.  2. Elimination of interdependence between variables.  3. Performance of elasticity analysis.  4. Identification of critical variables and their breakpoints.  6.1.1. IP variables  Variables for each IP can be categorised as follows:   1. General – general assumptions of the financial model applied to the project (FDR, SDR, project time horizon); 2. Direct – investment flows of the project (A.1., A.2., A.3., A.4., A.5., A.6., A.7., A.8.), residual value of investments (B.), operating revenues (C.1., C.2., C.3..), operating and financial costs (D.1., D.2.), taxes (E.1., E.2., E.3.), financial expression of socio-economic impact (H.1.1., ..., H.1.7., H.2.1, ..., H.2.3 ); 3. Specific – variables related to the specific activity or implementation characteristics of the IP (e.g., the number of service users, revenue (service) rate, service price, average wage, number of persons employed, energy price, energy consumption, rental cost of construction equipment).   6.1.2. Eliminating interdependence between variables  Individual specific variables may be part of the same direct variable, which may distort the results of the sensitivity (scenario) analysis. Therefore, independent variables should be used. The interdependence of variables in individual financial and/or economic flows can be eliminated by choosing:   1. only specific variables that affect direct variables (e.g., *operating revenues is a direct variable, but the quantity and/or price of a service (good) are components of operating revenues, and each individually may be critical*); 2. only direct variables, i.e. the more significant composite variables that are influenced by specific variables.   6.1.3. Elasticity analysis  Elasticity analysis shows how a change in each individual variable affects the results of the project under analysis. The elasticity analysis shall be performed in the following order:   1. Qualitative elasticity analysis shall be performed, where appropriate (e.g., for a *large number of specific variables*). Its result – a list of variables that have a significant impact on financial and economic indicators. The variables used are those that have been expressed in financial terms in the previous steps. The aim of qualitative elasticity analysis is to reduce the number of variables considered in a computational elasticity analysis. 2. Quantitative elasticity analysis shall be performed by changing the value of each selected variable by a percentage chosen by the IP author and monitoring the impact of this change on the relevant financial (FNPV(I), FIRR(I), SEVR) and economic (ENPV, EIRR, EBCR) indicators, depending on the analysis method and the assessment principle used. Changes in indicators shall be recorded in absolute terms and as percentage. Note that the change curve for the indicators may ne not linear, so the calculations are performed by taking at least ten different values for each selected variable.   6.1.4. Critical variables and breakpoints  For the purpose of assessing the results of the elasticity analysis, critical variables are those variables which, after an increase (decrease) of 1 % lead to more than 1 % change in the value of at least one of the financial or economic indicators (in the case of CEA, economic indicators shall not be calculated). Critical variables usually have a direct impact on the main cash flows: investments, operating revenues, operating costs, etc. If the number of critical variables exceeds ten, it is advisable to identify the ten that have the greatest impact.  The results of the sensitivity analysis shall be presented graphically or in tabular form. The graphical results of a successful sensitivity analysis are curves and the table reflects percentage changes and coefficients showing the impact of critical variables on the relevant financial (FNPV(I), FIRR(I), SEVR) and economic (ENPV, EIRR, EBCR) indicators, depending on the method of analysis and the assessment principle used.  For critical variables, breakpoints for financial and economic analysis shall also be calculated (for CEA method economic indicators shall not be calculated). In the case of financial analysis, the breakpoint is the value of the critical variable at which FNPV(I) becomes zero, i.e. the net present value of revenues equals the net present value of costs. In the case of economic analysis, the breakpoint is the value of the critical variable at which ENPV becomes zero, EBCR becomes equal to 1, IRR becomes SDR, i.e. the socio-economic benefits generated by the project only minimally reach an acceptable value at which the net present value of the project costs equals the socio-economic benefits generated.  The critical variables’ breakpoint is designed to identify variables that trigger the highest risk, to assess the risk level of the project, and to provide more information in planning risk management measures. | |
| In the IP calculator, the elasticity analysis of all direct variables that are given a financial expression is carried out and the results of this analysis are presented when initiated by the user. As the IP calculator performs the above steps automatically, it is sufficient to evaluate and describe the results obtained by the IP calculator in the IP text Section.  The steps are carried out in Worksheet 5.2 of the IP calculator pressing buttons “Perform sensitivity analysis” and “Calculate breakpoints”. These buttons must be pressed every time when the data in the options’ Worksheets are changed. | |
| 6.2. Scenario analysis Scenario analysis is a special form of sensitivity analysis that allows the impact of relevant factors on indicators to be assessed through more complex benchmarking.  The standard sensitivity analysis examines the impact of each individual variable on the project's indicators. The scenario analysis assesses the combined impact of these critical variables on the relevant financial (FNPV(I), FIRR(I), SEVR) and economic (ENPV, EIRR, EBCR) indicators, depending on the analysis method chosen. The analysis is carried out for pessimistic and optimistic scenarios (three to five possible scenarios should be considered). Optimistic and pessimistic values, or rather combinations of them, allow to assess the project's indicators in the specific situations simulated, thus allowing to gather more information on the risk level of a specific project. Financial and economic indicators are calculated for each combination of values of the project's critical variables (scenario). | |
| The IP calculator analyses a total of five scenarios of evolution of events: 1) pessimistic; 2) less pessimistic; 3) realistic; 4) less optimistic; 5) optimistic. Once initiated, the IP calculator displays the input data window with scenario assumptions. The most likely value is equated to 100 %, while a value greater or less than 100% indicates a change in the direct variable to the upside or downside respectively for each scenario. If you disagree with the assumptions of scenarios, the assumptions may be adjusted, but in that case the justification of the need to adjust the assumptions must be provided in the IP.  Scenario assumptions should be provided in the “Assumptions for each individual scenario” form in Worksheet 5.3 of the IP calculator. If you agree with the assumptions, press “Continue” button on the form. If you change the data, the default scenario assumptions can be restored using “Restore” button.  To evaluate scenarios, press “5.3.2 Evaluate scenarios” button. | |
| Sensitivity and scenario analyses are not considered as an alternative to risk analysis, as they are only intermediate steps in the full IP risk assessment. | |
| 6.3. Probabilities of variables Sensitivity and scenario analyses do not take into account the likelihood that a variable may affect indicators of the project to a certain extent in reality, i.e. a change in the value of a variable by a relative percentage does not imply a probability of a change in the variable of that magnitude. For this reason, probability distributions are defined for each variable – a list of possible values of the variable and the probability of occurrence of each value (graph). The value of the variable in the selected project option is considered to be the most probable value of the variable.  The probability distribution for each variable can be constructed from different sources, such as experimental data, historical data from similar projects and expert advice. Clearly, if the process of testing probability distribution data is not robust, the risk assessment also becomes unsound and cannot be used for decision-making in line with the principle of evidence-based management. However, even in its simplest form (e.g., a triangular statistical distribution), this exercise reveals the strengths and weaknesses of the project, which are comparable to the baseline scenario and can provide a lot of additional relevant information on the project's risks.  However, in some cases (e.g., in *the absence of sufficient historical data on similar projects*) it may be quite difficult to make appropriate assumptions about the probability distributions of variables. In such cases, it is appropriate to use distributions and their theoretical assumptions that are most typical and consistent with trends in the factor that can logically be explained, e.g., normally project investment costs are more pronounced than savings, so that distributions with a larger proportion of values (a heavier tail) to the right of the most likely value (e.g., triangular, logistic, logistic) are more appropriate. Meanwhile, if revenues generated from visitors can vary fairly equally in either direction, distributions such as normal, Gaussian might be more appropriate. For each cash flow, it is important to consider all its essential features and practical convenience of its application when selecting a particular distribution.  In individual cases, where the project is highly specific, which would make assessment of probabilities particularly complicated or completely redundant, at least a qualitative risk assessment should be undertaken. | |
| The CPMA experts conducted research and identified the most likely probability distributions and their parameters for each variable, so that the IP calculator already has the most likely probability distribution and its parameter value selected by default for each direct variable.  If you disagree to use the default distributions and/or parameters offered by the IP Calculator, you can calculate the probabilities of risk variables independently in a separate MS Excel document, providing option probability distributions and/or parameters. If the use option distributions and/or parameters to calculate probabilities is chosen, the justification of reasons for which such decision was taken should be provided *(e.g., specific risk management actions selected, scientific (experimental) research (article), etc.*). Also, reasons for the choice of option distributions should be provided and distribution parameters being entered should be justified. The justification should be based on at least one of the following sources: research results, scientific articles, research reports, historical (empirical) data, results of survey of named experts.  If the sources of the justification cannot be freely made available online via a link, then the key aspects of the methodology and results of the study on which the choice of the distribution and its parameters are based should be made available in the IP. | |
| Risk assessment The risk assessment shall be carried out in the following order:   1. Determining risk estimate for each (direct) variable. 2. Assigning risk estimates to appropriate risk groups and summing up. 3. Attributing each value of risk group estimate according to the year of project's time horizon. | |
| 6.4.1. Risk estimates  The risk estimates for each critical (direct) variable are calculated by selecting the smallest value at which (according to the cumulative probability curve) the critical (direct) variable does not exceed 70 % of cases (confidence level).  The risk estimate (absolute number) of the critical (direct) variable is obtained by taking the selected value (if negative, taking the value without the minus sign) minus the budgeted value of the relevant critical (direct) variable.  Where specific variables are selected as critical in accordance with the procedure set out in Section 6.1, they shall be treated as risk factors for the risk assessment purposes and a risk estimate shall be established for the direct variable concerned:   1. if the direct variable is influenced by a single specific variable, the probability distribution of the specific variable shall be used for the direct variable and the smallest value shall be selected in accordance with the procedure set out in this Section; 2. if more than one specific variable influences the direct variable, the probability distribution (cumulative probability curve) of the values of the direct variable shall be obtained using the statistical modelling method (*Monte* *Carlo*)[[20]](#footnote-21), and the estimate of the risk of the direct variable shall be obtained in accordance with the procedure set out in this Section. This method takes (simulates) random values of specific variables from the interval (distribution) defined in Section 6.3 and calculates the values of the direct variable. | |
| The IP Calculator calculates risk estimates for each direct variable automatically, without any additional steps required on the part of the user. IP risk estimates are provided in Worksheet 5.1 of the IP Calculator.  In the event of preparation of the investment project through the PPP, i.e. indicating in the assumptions’ sheet of the IP Calculator that the IP is planned to be implemented through the PPP, the IP Calculator will, only in this case, additionally calculate additional risk estimates and financial discounted values of risks in the resulting Worksheet 6.2, which can be conveniently used to calculate maximum public sector asset liabilities and maximum payments from the public entity to the private entity. If the option described in Section 6.3 to submit distributions and/or parameters other than the default distributions is used, then risk estimates should be calculated independently in the same document for the calculation and submission of other distributions in accordance with the procedure described in this Section. | |
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| 6.4.2. Assigning risk estimates to risk groups Once risk estimates for direct variables have been identified, the risks that may occur in the project shall be assessed. There are 8 risk groups:   1. Design risk 2. Contract work risk 3. Risk of acquired (produced) plant, equipment and other fixed assets 4. Purchased services risk 5. Risk of access to finance 6. Risk of provided services 7. Market demand risk 8. Asset residual value risk | |
| For the purposes of risk assessment, risk estimates for the following direct variables shall be assigned to each risk group separately, based on the nature of manifestation of risk:   1. Design risk – direct variables: design, maintenance and other services related to investments in fixed assets, project administration and implementation. 2. The group of risks for contract works – direct variables: land, real estate, construction, reconstruction, overhaul and other works. 3. The group of risks related to the quality of acquired (produced) plant, equipment and other assets – direct variables: plant, equipment and other assets. 4. The group of risks for purchased services – direct variables: other services and costs incurred during the investment period. 5. The group of risks of access to finance – direct variables: interest rates on loans. 6. The group of risks of provided services – direct variables: operating costs (excluding interest on loans). 7. The group of risks of market demand – direct variables: income. 8. The group of risks of asset residual value – direct variables: residual value of investments, reinvestments.   After assigning risk estimates for the direct variables to each risk group, the risk estimates for each risk group are aggregated. This way the value of the risks that could occur in each risk group is calculated. | |
| The IP Calculator automatically assigns risk estimates to the relevant risk groups and calculates the value of the potential risk exposure in each risk group.  If the risk assessment steps are carried out in a separate document (e.g. for the option distributions and/or their parameters chosen for use), then the risk estimates shall be assigned to the relevant risks and the risk values calculated in accordance with the procedure set out in Sections 6.3 and 6.4, respectively. | |
| The sum of the value of probable risks (including VAT if included in the cost price) expressed in NPV and the NPV(I) including VAT is the amount of additional financial burden on the public sector resulting from implementation of the IP, expressed in NPV, at 70 % confidence level, i.e., taking into account the general trend of implementation of projects in the public sector, it can be assumed that for 70 of the 100 cases of such IPs, the amount of financing referred to above will be sufficient to cover the costs related to the risk during the entire project time horizon. For the remaining 30 out of 100 similar cases, it is statistically likely that more financing will be needed to cover the increased costs associated with the increased risk. 6.4.3. Risk distribution Each risk estimate is allocated by year of the project time horizon in proportion to the cash flow of the direct variable affected by that group of risks, both in terms of values and temporal distribution. The cost-effectiveness approach assumes that risk-related losses can be fully covered if sufficient resources are available at the time of the activities concerned. Where the cost-effectiveness approach is applied, i.e. there are no funds available to cover the costs associated with risk occurrence the risk directly affects the ability to achieve the PPR for the relevant period in which the costs are incurred. | |
| Risk-weighted indicators After analysing the risks, the values of the relevant financial and economic indicators with the assessed risk shall be calculated. Unlike cash flows which overlap (i.e. revenues increase and costs decrease the net cash flow) when estimating the net cash flow for the calculation of indicators, the values of risks, regardless of whether they are associated with increased costs or lost revenues, do not overlap and are all treated as an additional cost stream that worsens the indicators.  The calculated values of the indicators should be assessed at 70 % confidence level.  When calculating risk-weighted indicators, it is important to note which principle – efficiency or effectiveness – was used to shape the option. The effectiveness method assumes that changes of output level will be achieved anyway, but the net costs (reduced by residual value) of achieving this output level in the presence of risk is unknown. Sensitivity analysis is performed by assessing the potential impact of risk factors on changes in cash flows when the value of the PPR value remains the same. In this way, the risk-adjusted net costs (reduced by residual value) are divided by the PPR, with both values measuring at NPV, and calculated FNPV(I) and SEVR (or economic) indicators are benchmarked in percent with the most likely values, i.e. the ratios calculated without risk.  The principle of assessing effectiveness assumes that public and private resources allocated to the implementation of the IP and the provision of the service are fixed and will no longer be available to cover the associated losses in the event of a risk. Therefore, an increase in the net costs of implementing the project can only lead to a lower or no PRR, i.e. the unit cost of the PRR increases and these units can only be achieved to the extent of the available cash from public and private sources until it is fully utilised. The PRR affected by the risk reduces or, if the impact is particularly high, may lead to a situation where no PRR can be expected to be implemented at all with the amount of funds available from public and private sources.  In order to calculate the reduction in the PPR due to the occurrence of risk (in the case of CBA, this is also directly related to the value of the socio-economic benefits), it is important to assess the relationship between the value of the risk and the net budget costs over the entire time horizon of the project, and the positive or negative net budget costs. | |
| If net budget costs are positive, it means that the financial viability of the IP is supported by financial resources from public and private sources, i.e. the project activities themselves do not generate sufficient revenues (or are not expected to generate any revenues at all) to cover the increased costs due to manifestation of risk. In this case, the closer the ratio of the value-at-risk to the net budget costs is to one, the lower change of the output level can be achieved – the change of the output level shall be reduced by the calculated factor. When this ratio exceeds one, it means that the value-at-risk exceeds net budget costs, which raises the question of the rationality of implementing such IP in general as not achieving the planned goals. This can only be justified if risk management tools are available to manage the risks so that the IP remains useful for implementation.  When net budget costs are negative, it means that the project is generating more financial benefits from its activities than the sum of resources allocated for the financing from public and private sources, i.e. net budget revenues are earned that can be used to cover the increased costs due to the occurrence of risks. When this ratio (not counting the signs) is between zero and one, the change of output level of the service does not decrease, because there is money available from the project activity to cover the increased costs. When this ratio is between one and two, the PPR decreases steadily as there are insufficient funds to cover the increase in costs. When the ratio is higher than two, then again the rationality of such a project implementation in relation to the risks is at stake, which can only be justified if there is reasonable evidence of other assumptions for the occurrence and management of the risks that would give confidence in the successful achievement of the PPR in the face of risks. | |
| The IP Calculator automatically calculates on Worksheet 5.1 the values of risk-adjusted financial and economic indicators at the 70 % confidence level. | |
| Risk acceptability As a rule, the project's CBA and CEA indicators are calculated on the basis of the most likely estimate; however, it would also be reasonable to estimate additionally the most probable values of these indicators at the chosen confidence level, given that it can sometimes be quite difficult to estimate even near-future cash flows. In such cases, the calculation of values of the indicators is based on probability distributions of critical variables affecting them. This approach not only allows to prioritise projects with the best expected performance of their indicator (FNPV(I), ENPV, EBCR or SEVR), but also to gain a better understanding of the IP risk level and, accordingly, to benchmark the projects in the context of the potential risks that might occur.  When appraising projects using this method, it is important to assess the potential trade-off between risky projects that generate significant financial, socio-economic benefits and less risky projects that also generate lower financial, socio-economic benefits.  To assess risk acceptability:   1. the statistical modelling *(Monte Carlo)* method is used. This method takes (simulates) random values of the critical (direct) variables from the range (distribution) defined in Section 6.3 and Section 6.4.1 and calculates the values of the IP financial and economic indicators. After repeating this process about 1,000–5,000 times (a higher number of simulations increases the reliability of results), the results of the application of the statistical modelling approach (the expected distribution of FNPV(I), FIRR(I), SEVR, ENPV, EBCR, and EIRR indicator values) are presented in graphical (e.g., *a cumulative probability curve*) or numerical (e.g., *table of values*) format; 2. for each indicator the probability it being unacceptable (negative or less than the desired value) shall be specified; 3. it shall be considered whether the project organisation is comfortable with this probability of negative (or less than desirable) outcomes; and 4. the most likely values of financial and economic indicators shall be determined. | |
| The IP Calculator calculates the indicators used to assess the acceptability of risks automatically, after the user has initiated them (IP Calculator’s Worksheet 5.4). Results of the IP Calculator shall be described and evaluated in the text part of the IP accordingly. | |
| The assessment of risk acceptability also takes into account the potential burden on the budget of the project organisation, as calculated in Section 6.4.3. This part of the risk acceptability assessment is important for determining whether the project organisation will be financially able to implement the project and ensure continuity of operations throughout the project time horizon in the event of project risks. A project organisation should not implement a project if it cannot secure sufficient financing for the planned changes and activities. | |
|  | |
| Risk management actions Each risk group consists of risk factors (all risk groups and risk drivers (discussed further in Annex 7). A risk factor is defined as an event that has a negative impact on the successful implementation of a project within a defined timeframe, within a predefined amount of costs, and ensuring the required quality.  Project risk assessment needs to take into account and assess whether a particular risk factor has an impact on the project, how to minimise this impact and how to properly manage its occurrence. For each of the risk groups, measures to manage them shall be described (according to Table 6.1), taking into account the relevant risk factors. | |
| Table 6.17. Project risk management factors and measures to manage project risks (form to be completed) | |
| |  |  |  |  | | --- | --- | --- | --- | | ***No*** | **Risk group** | ***Explanation*** *(itemisation)*  *The risk group shall be itemised, describing its cause and its potential impact on the project, taking into account all relevant risk factors.* | ***Management tools***  *Measures to be taken to manage the relevant risk factors and the resources required for this purpose.* | | *1* | Design risk |  |  | | *2* | Contract work risk |  |  | | *3* | Risk of acquired (produced) plant, equipment and other fixed assets |  |  | | *4* | Purchased services risk |  |  | | *5* | Risk of access to finance |  |  | | *6* | Risk of provided services |  |  | | *7* | Market demand risk |  |  | | *8* | Asset residual value risk |  |  | | |
| The main risk management methods are:   1. *Risk avoidance* – risk cause(s) is (are) eliminated thus removing the probability of the risk event, 2. *Risk prevention* – risk probability is minimised or potential impact of risk on project results is mitigated through preventive activities or increased investment in infrastructure, 3. *Hedging* (financial transfer of risk to an insurer) – insurance against risks that can be covered is obtained (force majeure risk, construction risk, civil liability risk, etc.), 4. *Risk transfer* – risk management is transferred to the party that can manage it better (e.g., the project is implemented with a partner who has relevant risk management experience), 5. *Risk sharing* – the extent to which the positive/negative effects of a risk event will be shared is defined by the parties in advance, and 6. *Risk-taking* – a decision is made to manage the risk independently (forming an appropriate organisational structure, assigning responsibilities for all potential risks within the project organisation, etc.), carrying out only passive risk monitoring.   The most common error in risk assessment is optimistic bias, i.e. systematically exaggerated optimism when assessing direct variables. In order to minimise optimistic bias specific corrections are recommended. These corrections can be made by increasing cost values and reducing the project revenues or socio-economic benefits or assessing them later than planned. The corrections should be based on empirical (experience-based) data from previously implemented similar projects, as well as on expert advice if historical data on similar projects is not available.  Corrections of optimistic bias allow for a better assessment of the project in the early stages of its implementation. However, these corrections should not be seen as an alternative way of risk assessment, but only as a more accurate basis for risk analysis. The risk analysis should be used to develop a risk prevention strategy, identify specific risks, probabilities of their occurrence, their management methods and third parties to whom risks can be transferred (e.g., insurance companies). Risk management is a complex function that requires a high level of expertise and resources. It is recommended that this function be entrusted to risk management professionals.  In addition, the possibility of adjusting the probability distributions of the relevant direct variables and recalculating the risk estimates of the risk factors/direct variables shall be assessed, taking into account risk management measures selected and their influence on the impact and probability of risks (i.e. taking into account the reduced riskiness of the project). In other words, the appropriateness to repeat the steps set out in Section 6.3 and Section 6.4 shall be assessed. If risk management measures entail additional costs, these costs should be provided for in the respective project budget lines and all the steps outlined in Section 4, Section 5 and Section 6 shall be repeated, because the inclusion of risk management costs modifies the values of individual IP variables.  Following the sensitivity and risk analysis of the IP, a brief description of results of the analysis shall be prepared and subsequently included in the executive summary of the IP in accordance with the procedure set out in Section 7.6, which should include the critical variables and their breakpoints, the main results of scenario analysis, the estimates of critical variables / risk factors, the conclusions of risk acceptability analysis, and the selected principal actions for managing the risks. | |
|  | |

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| --- | --- |
| 7. Project implementation plan | |
| *Parts 7.1 to 7.5 of the IP shall be prepared if no other documents covering the relevant information are prepared. Part 7.6 shall be prepared in all cases.* | |
| In the formulation and presentation of project options in the previous Sections, the focus has been on revealing the essence of the option. The task of this Section is to present in detail the chosen option for implementing the IP, showing all the organisational details of its implementation, the activities to be carried out, as well as persons responsible for them.  In the case of a project implemented in the information society development sector and aimed at the development of public e-services, this Section must clearly identify the preparatory steps that will be carried out before starting to develop e-services, the number and type of e-services to be developed, technological solutions for their development, providing their functional schemes, also disclosing the e-services that will be modernised and the level and scope of upgrading. If the project purpose is the improvement of the information system, this part must clearly describe what is intended to be improved in the existing information system: providing an explicit analysis of the links to be improved or added to the information system, highlighting envisaged differences compared to the current existing services. This part shall also present the structure of the information system to be developed: describing the components, compatibility with registers and other information systems, regardless of who owns them (i.e. not limited to the internal organisation). It is important to show how each of the components (subsystems, modules) of the information system being developed relates to e-services. 7.1. Project duration and phases It describes the factors influencing the duration of the project and reveals whether the project organisation is ready to implement the project, what preparatory work it has already done, and whether it has sufficient knowledge of the market in which the project is planned to be implemented.  A graphical representation of the duration of the project shall be provided indicating the phases and describing the expected outcome of each phase.  When selecting the duration:   1. Sufficient time should be allowed for conducting public procurement. The duration of the procurement should be determined not only in observance limitations on the duration of the procedures provided for by legal acts *(e.g., the time limits needed for the procedure of advance coordination of the procurement documents envisaged by the CPMA*), but also taking account of the procurement experience of the project organisation; 2. Having started procurement before financing is awarded, the project organisation may carry out procurement procedures at its discretion, but may not enter into contracts for goods or services, or may sign such contracts at its own risk; 3. The period of incurring eligible costs specified in the Description of project financing conditions applicable to the project should be considered if the project is to be financed with the EU investment funds.   The implementation of project activities shall be described using specialised software for time and resource planning *(e.g., MS Project, OpenProj, Ace Project, etc.*). A project implementation plan developed using specialised softwareis a useful tool for managing project administration activities, assigning tasks and responsibilities, and assessing progress at each stage of the project. 7.2. Project location Information on the location of the project, where the furniture and/or equipment and other fixed assets acquired through the project will be used, a description of the local infrastructure, whether the location is suitable and convenient for the public service, how accessibility will be ensured, and the criteria for selecting a specific physical location. 7.3. Project team This part of the project shall contain a brief description of the readiness of the project organisation to carry out the project, demonstrate that the staff members have required qualifications and, if necessary, justify the need for external expertise. | |
| It shall be explained how the project will be administered and monitored:   1. the envisaged organisational structure for project management, 2. the expected project management team, 3. the expected roles and responsibilities of team members. | |
| 7.4. Project continuity The continuity of the project shall be described indicating:  1) how the results of the project will be used,  2) how the proper use and maintenance of the infrastructure created will be ensured,  3) how the organisation, institution or company will change as a result of the project. | |
| 7.5. Other conclusions Other conclusions shall be summarised in a concise manner:  1) how the problem will be solved,  2) presenting the selected project implementation option, disclosing organisational details of its implementation, activities, procurement to be carried out and the structure of justification of the project in accordance with Table 7.1 “Project justification” provided below,  3. results of financial and economic analysis,  4. other relevant information.  Table 7.18. Project justification | |
| |  |  | | --- | --- | | **Project goal:** | *Indicate the goal of the project* | | **Objective:** | **Project activities** | **Name and unit of measurement of the physical indicator** | **Target value for physical indicator** | | *The goal of the project shall be elaborated by describing the objectives.*  *The objective should answer the question of what needs to be done to achieve the goal. The goal may be broken down into one or more objectives.*  *Each objective shall be indicated in a separate line.* | *The project activities (e.g. financial instrument) that implement the specific objective of the project shall be indicated. Project activities have a specific timeframe and costs (budget).*  *Each activity shall be entered in a separate line.* | *The name of the physical indicator and the unit of measurement shall be indicated. Physical indicators – quantifiable direct result of the implemented project activity. A physical indicator indicates what will be achieved when a specific project activity is completed.*  *Several physical indicators can be specified for one activity, if necessary, creating new lines.* | *The numerical target value for the physical indicator shall be specified.* | | (...) | (...) | (...) | (...) | | |
| 7.6. Executive summary of the project This part of the IP shall be prepared after preparing all other parts of the IP. The executive summary of the project is the summary of the main features of the IP. For publicity activities during project implementation, the executive summary is usually used to present the main features of the project. Therefore, the executive summary should use informative statements that summarise factual information. At the end of each Section of the Methodology, the information to be included in the executive summary of the draft IP is specified.  The executive summary part of the IP shall be provided at the beginning of the IP being developed. | |
| In the executive summary of the project, the information provided in the overview of each stage of the IP preparation should be used:   1. **Project context**. Socio-economic environment of the project, legal environment, problems being addressed, existing needs. If part of the information in the IP is not covered because a detailed analysis has been carried out in the preparation of the progress measure (or regional planning documents), a brief summary of the information shall be provided in the IP, together with references to relevant documents. 2. **Project content**. The project's goal, links with other projects, description of the project limits, objectives, target groups, project organisation, intended results, as well as the description of the project's duration, phases, activities, assumptions and continuity. 3. **Project feasibility and options**. A brief description of the results of the analysis (analysis and comparison of potential activities, options). In addition, if part of the information in the IP is not covered because a detailed analysis has been carried out in the preparation of the progress measure (or regional planning documents) or feasibility studies have been carried out in support of the project, the full titles of these documents shall be indicated, if possible, enclosing the documents in annexes to the IP. 4. **Financial analysis**. A description of the results of the analysis carried out (project time horizon, FDR applied, total discounted and undiscounted amounts of each of the main financial cash flows (investments, residual value of investments, operating revenues, operating costs, taxes and financing), values of the financial ratios calculated and conclusion on the viability of the project). 5. **Economic analysis**. A description of results of the analysis (conversion actions carried out, elements of external impact, SDR applied, values of the economic indicators calculated and the option chosen to implement the IP. 6. **Sensitivities and risks**. A description of the results of the analysis (critical variables and their breakpoints, results of the scenario analysis, risk estimates for critical variables, risk factor estimates, description of risk acceptability and selected risk management actions). 7. **Implementation plan**. The project duration, phases, assumptions and continuity, and other formulated conclusions. | |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

Annex 1

**INVESTMENT PROJECT FORM**

Document “Annex 1. Investment Project Form” presented as a separate document in MS Word format. The current version of the document can be found on websites www.ppplietuva.lt and/or www.cpva.lt.

Annex 2

**VAT ASSESSMENT FOR IP**



Will the Project Promoter / Partner deduct input VAT?\*

YES NO

Cash flow is indicated without VAT

Is the Project Promoter / Partner eligible to deduct input VAT? \*\*

YES NO

Cash flow is indicated without VAT

Is the structure with VAT deduction possible? \*\*\*

YES NO

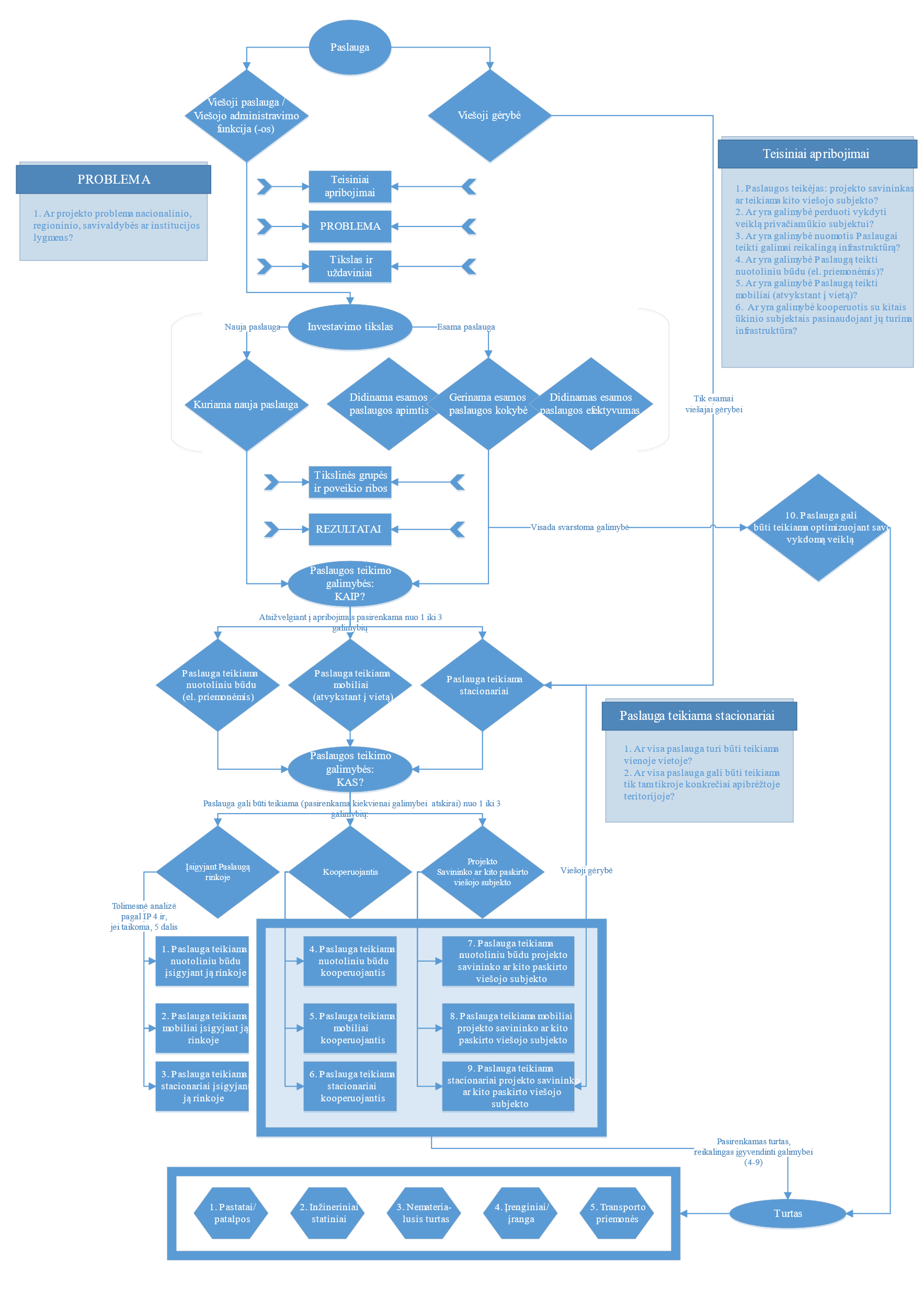
Cash flow is indicated without VAT Cash flow is indicated without VAT

\*It is assumed that the Project Promoter / Partner is eligible VAT deduction and exercises this right. Deduction of VAT here includes recovery of VAT from other EU countries.

\*\*Applies in cases where the Project Promoter / Partner has the right to choose to charge VAT on received income (e.g., in the case of lease of immovable property).

\*\*\*Relevant in those cases where the Project Promoter will receive financing for the creation of an asset (e.g., a building, infrastructure), but the activity will be outsourced to another economic operator. The building will belong by right of ownership to the Project Promoter who will not receive any income (will not carry out economic activity itself), but will transfer the building to the operator (the concessionaire) free of charge and allow it to carry out economic activity.

Annex 3

**ASSESSING AND SELECTING POTENTIAL ACTIVITIES**

**ASSESSMENT AND SELECTION OF POTENTIAL ACTIVITIES**

Service

Public service / public administration function(s); Public good

Problem

1. Is the project problem of national, regional, municipal or institutional level?

Legal constraints

Legal constraints

1. Service provider: project owner or another public entity?

2. Is it possible to outsource the activity to a private economic entity?

3. Is it possible to lease the infrastructure that may be needed to provide the service?

4. Is it possible to provide service in remote manner (by electronic means)?

5. Is it possible to provide service in mobile manner (i.e. upon arrival at the site)?

6. Is it possible to cooperate with other economic entities and use the infrastructure available to them?

PROBLEM

Goals and objectives

New service Investment goal Existing service

Developing a new service; Increasing volume of existing service; Improving quality of existing service; Enhancing efficiency of existing service;

Only in respect of the existing public good

Target groups and impact limits

RESULTS 10. Service may be provided through optimisation of own activities

Service provision options

HOW?

Taking account of constraints select 1–3 options

Service provided in remote manner (by electronic means)

Service provided in mobile manner (i.e. upon arrival at the site)

Service provided in stationary manner

Service provided in stationary manner

Does the whole service have to be provided in one place?

Does the whole service have to be provided in a specific defined area?

Service provision options

WHO?

Service may be provided (selected for each option separately) 1–3 options

Acquiring service on the market; Through cooperation; By the project owner or another designated public entity; Public good

Subsequent analysis according to Part 4 and, if applicable, Part 5 of the IP

1. Service provided in remote manner acquiring on the market.

2. Service provided in mobile manner acquiring on the market.

3. Service provided in stationary manner acquiring on the market.

4. Service provided in remote manner by way of cooperation.

5. Service provided in mobile manner by way of cooperation.

6. Service provided in stationary manner by way of cooperation.

7. Service provided in remote manner by the project owner or another designated public entity.

8. Service provided in mobile manner by the project owner or another designated public entity.

9. Service provided in stationary manner by the project owner or another designated public entity.

Selecting assets necessary for implementing the option (4-9)

1. Buildings / premises 2. Engineering structures 3. Intangible assets 4. Equipment / facilities 5. Vehicles Assets

Annex 4

**IMPACT OF SELECTION OF ANALYSIS METHOD OF THE MEASURE ON PROJECT ANALYSIS METHODS**

Was the benchmarking of options of the instrument carried out using CBA?

Yes

No

Will homogeneous projects account for more than 70 % of the budget of the instrument?

Was the CEA used to compare the options of the instrument?

No

Yes

Yes

No

The method appropriate for projects is selected according to the Methodology.

For homogeneous projects, the CEA may be applied (indicating the activities of the instrument for which the projects implemented are considered homogeneous); for non-homogeneous projects, the CBA or CEA based on the Methodology.

The method for projects is selected according to the Methodology.

The CEA may be applied to projects. the CEA.

Annex 5

**CONVERSION FACTORS**

Document “Annex 5. Values of conversion factors and estimates of components of socio-economic benefits (costs)” provided as a separate MS Excel document. The current version of the document can be found on websites www.ppplietuva.lt and/or www.cpva.lt. The document is updated and published on the first working day of December each year.

Annex 6

**COMPONENTS OF SOCIO-ECONOMIC BENEFITS (COSTS) AND THEIR ESTIMATES**

Document “Annex 6. Values of conversion factors and estimates of components of socio-economic benefits (costs)” provided as a separate MS Excel document. The current version of the document can be found on websites www.ppplietuva.lt and/or www.cpva.lt. The document is updated and published on the first working day of December each year.

Annex 7

**PROJECT RISK GROUPS, FACTORS AND RISK MANAGEMENT METHODS**

Document “Annex 7. Project risk groups, factors and risk management methods” provided as a separate MS Word document. The current version of the document can be found on websites www.ppplietuva.lt and/or www.cpva.lt.

Annex 8

**QUESTIONNAIRE FOR ASSESSING COMPLIANCE OF THE IP WITH THE METHODOLOGY FOR PREPARING INVESTMENT PROJECTS**

Document “Annex 8. Questionnaire for assessing compliance of investment projects with the Methodology for preparing investment projects” provided as a separate MS Word document. The current version of the document can be found on websites www.ppplietuva.lt and/or www.cpva.lt.

Annex 9

**IP CALCULATOR**

Document “Annex 9. IP Calculator” provided as MS Excel document. The current version of the document can be found on websites www.ppplietuva.lt and/or www.cpva.lt.

1. Approved 28 April 2021 No 292 [↑](#footnote-ref-2)
2. Approved by Resolution No 528 of the Government of the Republic of Lithuania of 4 June 2014 [↑](#footnote-ref-3)
3. For the purposes of the Methodology, the terms related to contract works and installations shall have the meanings assigned to them in the Republic of Lithuania Law on Construction, No I-1240. [↑](#footnote-ref-4)
4. The term “project owner” is broader than the term “project organisation”. Generally, the owner of public projects is the State of Lithuania. [↑](#footnote-ref-5)
5. As defined in the Republic of Lithuania Law on Construction, No I-1240 [↑](#footnote-ref-6)
6. As provided for in the Law of the Republic of Lithuania on Road Traffic Safety, No VIII-2043. [↑](#footnote-ref-7)
7. *Economic Appraisal Vademecum 2021-2027 General Principles and Sector Applications* [↑](#footnote-ref-8)
8. Approved by Resolution No 292 of the Government of the Republic of Lithuania of 24 April 2021 [↑](#footnote-ref-9)
9. Corresponds to the term provided for in the RL Law on Investments, No VIII-1312. [↑](#footnote-ref-10)
10. Necessary investments shall be understood as expenditures for carrying out the activities covered by the IP throughout the project's time horizon. In many cases, investment expenditure is therefore necessary: for example, if a public service requires an IT infrastructure with a lifetime of up to 7 years, it is necessary to foresee investment expenditure for its renewal at least once during the project’s 15-year time horizon. [↑](#footnote-ref-11)
11. See https://www.ppplietuva.lt/lt/leidiniai/valstybes-pagalbos-vertinimo-metodines-rekomendacijos [↑](#footnote-ref-12)
12. https://op.europa.eu/en/publication-detail/-/publication/23a24b21-16d0-11ec-b4fe-01aa75ed71a1/language-en [↑](#footnote-ref-13)
13. Unless otherwise specified in the documents setting out the conditions for the preparation of the IP. [↑](#footnote-ref-14)
14. In the case of energy efficiency measures for buildings, improving the technical performance of existing premises/buildings by aiming for the same energy class may be the best option in relation to the other project options, and the use of the CEA method to assess the project implementation options may be rational and acceptable. However, investments in buildings that are completely obsolete may be irrational and not socio-economically viable (in some cases it may be more efficient to choose another option for infrastructure provision than to repair a completely obsolete building), and to assess this, i.e. whether it is worth renovating the building at all, and to find the most efficient option to implement the project, the use of the CBA method would be more appropriate. [↑](#footnote-ref-15)
15. Republic of Lithuania Law on Investments, No VIII-1312. [↑](#footnote-ref-16)
16. If the Ministry of Finance decides to apply a different level of FDR, the specific level of FDR shall be selected in observance of the respective legal acts or procedures. [↑](#footnote-ref-17)
17. See https://competition-policy.ec.europa.eu/state-aid/legislation/reference-discount-rates-and-recovery-interest-rates/reference-and-discount-rates\_en [↑](#footnote-ref-18)
18. In observance of Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment. [↑](#footnote-ref-19)
19. In observance of conclusions of the European Council of 12 December 2019. [↑](#footnote-ref-20)
20. *Monte Carlo* method - method of simulation used in statistics, the essence of which is to simulate the possible outcomes of a process (algorithm). The method is applied in 3 steps: (1) variables are given a range of possible values; (2) random variables within the range are generated, and the indicators under evaluation are calculated with the selected variable values; (3) the results of the individual calculations are combined into a single aggregate. The combined results form a statistical distribution curve, which, in the case of risk analysis, reflects the probability curve of the impact of the risk being analysed. [↑](#footnote-ref-21)