Guide to Cost-Benefit Analysis and the Economic Appraisal Vademecum

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Structure of the workshop

SECTION I: Legal Basis for the Programming Period 2021-27
SECTION II: Introduction and Overview of Cost-Benefit Analysis
SECTION III: Option and Feasibility Analysis
SECTION IV: Financial Analysis and the Rationale of the EU Co-Funding
SECTION V: Economic Analysis
SECTION VI: Risk Assessment
SECTION VII: An introduction to evaluation methodologies proposed by the Economic Appraisal Vademecum

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Section I: Legal Basis 2021-2027

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REGULATION (EU) 2021/1060 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

Art. 73.2, CPR

In selecting operations, the managing authority shall: ...

(c) ensure that selected operations present the best relationship between the amount of support, the activities undertaken and the achievement of objectives;

(d) verify that the beneficiary has the necessary financial resources and mechanisms to cover operation and maintenance costs for operations comprising investment in infrastructure or productive investment, so as to ensure their financial sustainability;

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Sectors of Investment and Evaluation Methodologies

Area	Investment area	Project type	
		Small projects	Large/strategic projects
Water and wastewater	Water and wastewater infrastructure (efficiency driven) ([23])	LCA/CEA	CBA
	Water and wastewater infrastructure (exclusively compliance driven)	LCA/CEA	LCA/CEA
	Flood prevention	Simplified CBA	CBA
Transport	Transport infrastructure (all modes)	(Simplified) CBA	CBA
	Transport infrastructure: compliance-driven project (all modes)	CEA/MCA	CEA/MCA
	New technology in transport	CEA/MCA	CBA/CEA/MCA
Healthcare	Disease prevention / treatment programmes / new technology	CEA	CEA
	Healthcare infrastructure	Simplified CBA	CBA
Research, development and innovation	Research infrastructure	Simplified CBA	CBA
	Innovative manufacturing	Simplified CBA/CEA	CBA
	Tertiary education	Simplified CBA	CBA
Renewable energy	Electricity generation	CEA with integration of externalities	CBA
	Heat generation	CEA with integration of externalities	CBA
Energy efficiency	Energy efficiency in buildings and plants	CEA with integration of externalities	CBA
	District heating	CEA with integration of externalities	CBA
Digital economy	Broadband infrastructure	Simplified CBA	CBA
	ICT services (data centres, e-services, etc.)	CEA	Depending on the area of application
Municipal waste management	Collection, transport, recovery, recycling, treatment and disposal of solid waste	CEA	CBA
Sustainable urban development	Integrated territorial investment schemes or community-led local development schemes, programmes in cluster development and urban regeneration programmes	MCA (including simplified CBA/CEA for individual large projects in given sectors)	MCA (including detailed CBA/CEA for individual large projects in given sectors)

Guidance but not obligatory to be followed as no method has been indicated in the regulatory framework

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Section II: Introduction and Overview of CBA

Definition and Objectives of CBA

DEFINITION: Cost-benefit analysis is to provide a consistent methodology for evaluating decisions in terms of their consequences. In practice it is used to assess public investment projects.

OBJECTIVES: CBA is aiming at identifying
- the best feasible alternative;
- the financial resources needed to realise the project;
- the project impacts on the area where it will be implemented;
- project risks and their financial and economic implications.

In the Cohesion Policy, CBA has been aiming at: (1) assessing if major projects are worth to be co-funded in terms of their economic impacts; and (2) in the affirmative case, if they need to be co-financed, how much the level of EU co-funding should be.

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Structure of CBA

Option and Feasibility Analysis: Which are the key data needed to evaluate a project? How we can achieve an objective? Which are the feasible alternatives? Which among these alternatives is the best?

Financial Analysis : How much financial resources are necessary to realise the option selected? What is the EU co-funding rate?

Economic Analysis : What is the impact on the area where the project will be implemented?

Risk Assessment: How can we make forecasts over the project time horizon? Is it possible to make the project more financial robust and economically desirable?

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Section III: Option and Feasibility Analysis

OPTION AND FEASIBILITY ANALYSIS
Which are key data needed to evaluate a project? Can an objective be achieved by different options? Is there any constraint which may jeopardise the project implementation? What is the project best feasible option?

1st Step: Macroeconomic and Sector Context

2nd Step: Option Identification

3rd Step: Feasibility Analysis

4th Step: Option Selection

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1 step: Macroeconomic and Sector Context Overview

It is aiming at identifying the scenario within which the project is going to be implemented. In particular, this analysis is pointed at collecting the information needed to forecast the demand for the project goods by focussing on

Demand for the *Group* of Goods and Services to which project outputs belong

- Main Agglomeration
- Main Productive Activities and Trends
- Population, Age Structure, and Trends
- Average Income and Income Distribution and Trends
- Elasticity Estimates of Project Goods and Services Related to Relevant Prices and Income

Supply of the *Group* of Goods and Services to which project outputs belong

- Current and foreseeable state of the goods and services to be supplied;
- Current and foreseeable prices for the same goods and services;

Demand for *Project* Goods and Services

2nd STEP: OPTION IDENTIFICATION

Objective: It is aiming at identifying investment alternatives along with their key features. A crucial information of this identification is the demand induced by each alternative.

Structure: At <u>least</u> two options should always be considered

Do-Minimum Option

Do-Something Option

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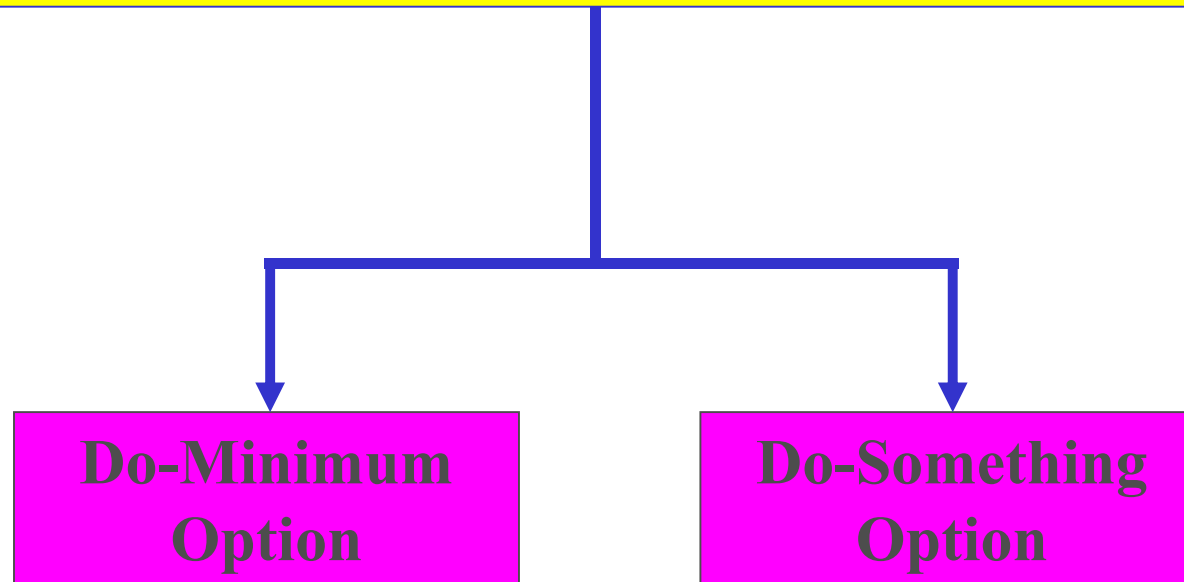
Do-Something Option
Variables

In order to identify project do-something options, the consultant should consider the most important project variables. Often they are

Technology

Location

Size & Timing

Option Description

for each option, the following elements should be described

Input → e.g. capital, labour

Output → e.g. number of passenger and freight travels; amount of treated water and its final load of pollutants

Demand

Timing → when the different parts will be implemented

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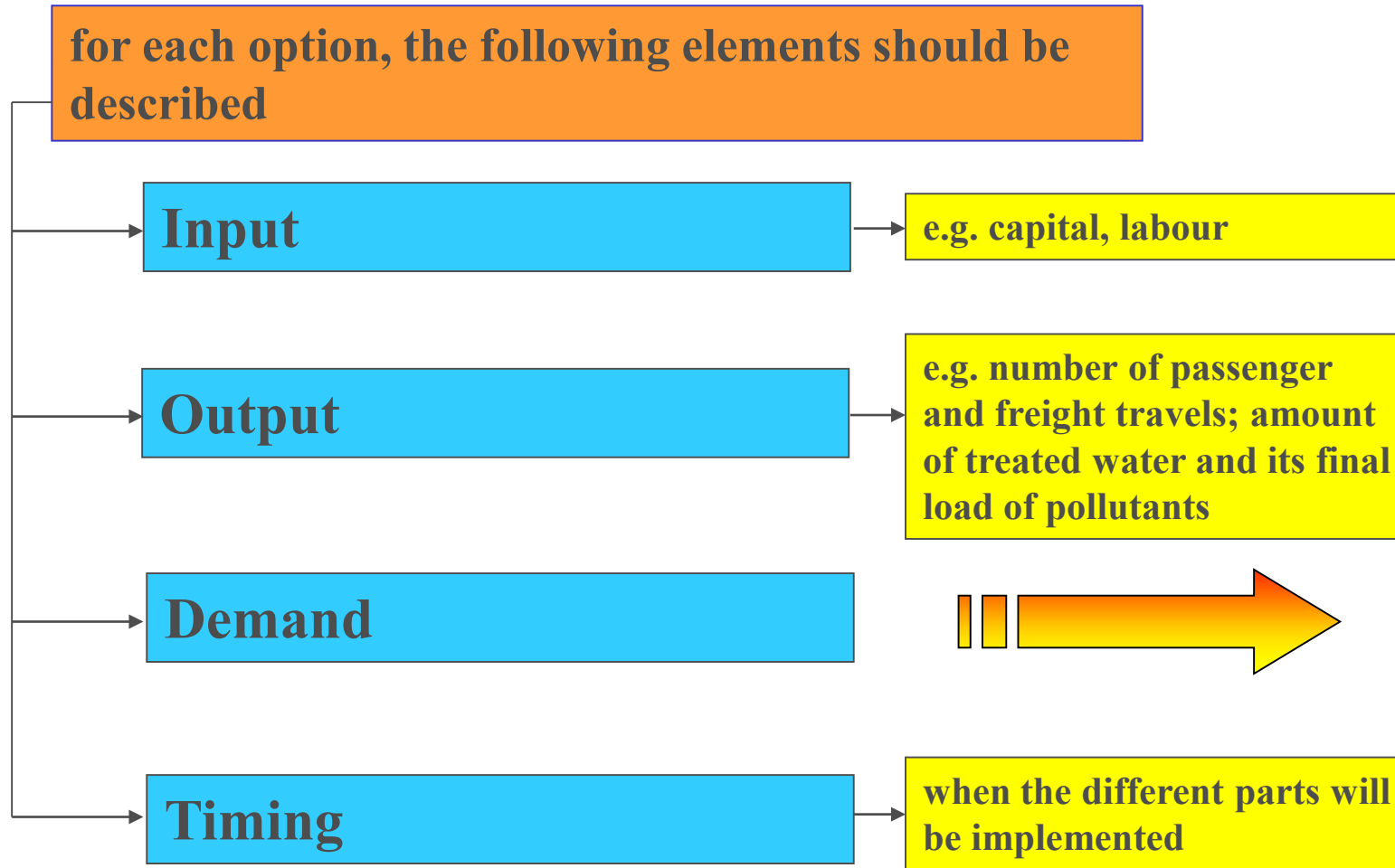
Demand Analysis:
identifies the need for an investment by assessing

Study Area

by using models and actual data

from macroeconomic and sector forecasts and elasticity estimates of demand to relevant prices and income

depends on the option chosen

Current Demand

Forecasted Demand

Induced Demand

for

group of services (e.g. passengers and freight; urban and industrial waste water)

the most important sections (projects)

project time horizon

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3rd Step: FEASIBILITY ANALYSIS
identifies project potential constraints and related solutions.

Constraints

Economic

CAPITAL: from project financial analysis, identify costs estimates and forecasted revenues.

LABOUR: unskilled and skilled labour demand and supply

Technology: verify if the technology for the most interesting options is available

Regulatory

Requirements from prescriptions of law

Management

Different interests in investing on specific projects

Solutions

Economic

CAPITAL: contribution from public bodies; credit market interest loans; private equity.

LABOUR: recruitment and training policies

Technology: possible new investments

Regulatory

Project Technology

Management

Planning Working Team

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4th Step: OPTION SELECTION

Economic Analysis*

Risk Assessment on Economic Indexes*

* To be discussed in the following sections

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Section IV: Financial Analysis and the Rationale of the EU-Co-Funding

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1. Financial Analysis

➢How much resources are necessary to realise the project?
➢What will be the EU contribution and the eventual loans needed to realise the project?

The answers to these questions are given by the analysis of the project

FINANCIAL VIABILITY

FINANCIAL PROFITABILITY

FINANCIAL SUSTAINABILITY

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EU CO-FUNDING RATES FOR REVENUE GENERATING PROJECTS

There are three possibilities (Art. 60-61, Regulation (EU) No 1303/2013 of the European Parliament and of the Council):
- Calculation of discounted net revenues
- Flat rate net revenue percentages
- Decreasing co-funding rate for a chosen priority axis

Profitability of the Investment
it relates to the capacity of the project to generate additional financial resources compared to those invested

	1	2	3	4	5	6	7	8	9	10
Revenues	0	1501	5701	7501	7501	8501	8501	8501	8501	0
Residual value	0	0	0	0	0	0	0	0	0	1500
Total Revenues	0	1501	5701	7501	7501	8501	8501	8501	8501	1500
Operating Costs	0	1400	4500	7445	7445	7445	7445	7445	7445	0
Investment Costs	2372	2092	1889	700	500	0	0	0	0	0
Total Costs	2372	3492	6389	8145	7945	7445	7445	7445	7445	0
Net Cash Flow	-2372	-1991	-688	-644	-444	1056	1056	1056	1056	1500
FRR/C	-1%									
FNPV/C	- € 1.484,69									

CASH-FLOW TABLE

The key indexes are:
▤ **The Financial Net Present Value (FNPV/C) which expresses the additional (discounted) resources generated by the investment;**
▤ **The Financial Rate of Return (FRR/C) which expresses the additional (undiscounted) resources in percentage terms generated by the investment.**

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The Rationale of the EU Co-Funding

The rationale of the EU co-funding based on the funding gap is aiming at guaranteeing a specific level of project financial profitability.

FNPV/C <0	→	EU and National Grant	→	FNPV/C=0

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Example: Calculation of the Funding Gap

	1	2	3	4	5	6	7	8	9	10
Revenues	0	1501	5701	7501	7501	8501	8501	8501	8501	0
Residual value	0	0	0	0	0	0	0	0	0	1500
Total Revenues	0	1501	5701	7501	7501	8501	8501	8501	8501	1500
Operating Costs	0	1400	4500	7445	7445	7445	7445	7445	7445	0
Investment Costs	2372	2092	1889	700	500	0	0	0	0	0
Total Costs	2372	3492	6389	8145	7945	7445	7445	7445	7445	0
Net Cash Flow	-2372	-1991	-688	-644	-444	1056	1056	1056	1056	1500
FRR/C	-1%									
FNPV/C	**-1.484,69 €**									
DIC	€ 6.903,58									
DNR	€ 5.418,89									
Funding Gap	€ 1.484,69									
Funding Gap Rate	22%									
Grant	€ 1.484,69									

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Financial Sustainability Table

Year	1	2	3	4	5	6	7	8	9	10
Public Contribution	400	200	100	0	0	0	0	0	0	0
Grant	1.544,08									
Private Equity	100	200	100	0	0	0	0	0	0	0
Operating Revenues	0	1.501	5.701	7.501	7.501	8.501	8.501	8.501	8.501	0
Residual Value	0	0	0	0	0	0	0	0	0	1.500
Total Inflow	2.044,08	1.901	5.901	7.501	7.501	8.501	8.501	8.501	8.501	
Operating Costs	0	1.400	4.500	7.445	7.445	7.445	7.445	7.445	7.445	0
Investment Costs	2372	2.092	1.889	700	500	0	0	0		0
Total Outflow	2.372	3.492	6.389	8.145	7.945	7.445	7.445	7.445	7.445	0
Net Cash-Flow	- € 327,92	- €1.591,00	- € 488,00	- € 644,00	- € 444,00	€ 1.056,00	€ 1.056,00	€ 1.05 ,00	€ 1.056,00	€ 1.500,00
Cumulated Net Cash-Flow	-€ 327,92	-€ 1.918,92	-€ 2.406,92	-€ 3.050,92	-€ 3.494,92	-€ 2.438,92	-€ 1.382,92	- €326,92	€ 729,08	€ 2.229,08

There is a problem here. Although the project is profitable it is not sustainable!

it is verified through an analysis whose scope is to assess if there is enough cash for each year of the project time horizon.

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From financial analysis to the financing plan

From financial analysis

Discounted Investment Costs €6903,58

Discounted Net Revenues €5418,89

Funding Gap €1484,69

Financing Plan

Discounted National Capital €1028,39

Discounted Grant €1484,69

Discounted Capital Needed €4390,50

?

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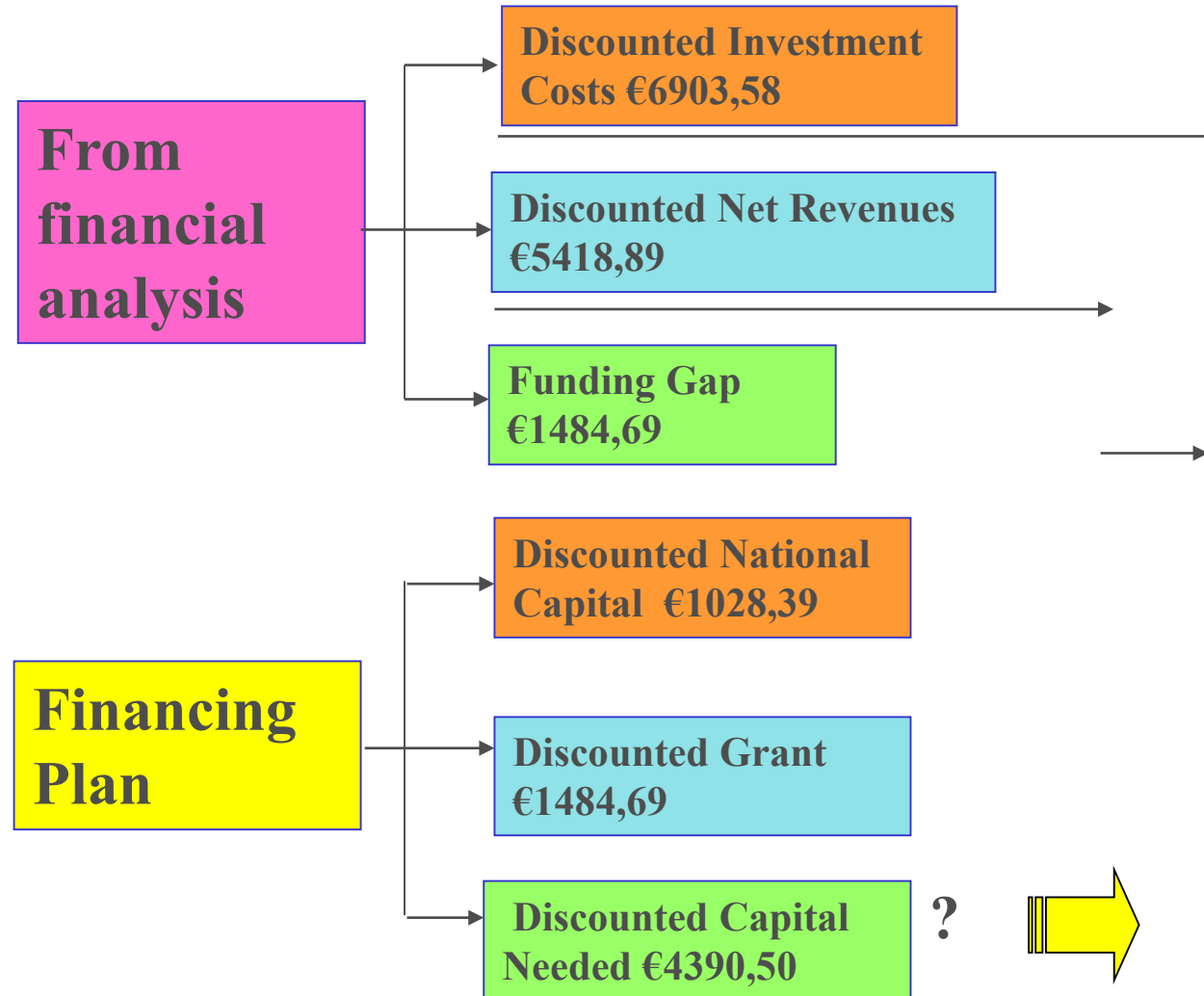
Recall that the rationale of the EU co-funding is to guarantee the project financial profitability, that is, the FNPV should be approximately equal to zero

This implies that if the financial discount rate is equal to 4% (real terms), the EU grants result in an FRR (or FRR/C) equal to 4%

This in turn means that the maximum sustainable cost of borrowing money (i.e. the interest rates charged on loans) is equal to 4%

There is a need to consider in the financial analysis also the possibility of loans

Financing Plan

Loan Interest Rates equal to 4%	Loan Interest Rates less than 4%
National Capital €1028,39	National Capital €1028,39
Grant €1484,69	Grant <€1484,69
Loan €4390,50	Loan < €4390,50

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Profitability of the National Capital

It is aiming at assessing the profitability on the national capital (K);

it takes into account how the project is financed which means that in the cash-flow table:

investment costs are reduced by amount equal to the EU and National Grant;

include eventual loans reimbursemnts and related interest rate.

The FRR/K METHOD
(case of loans with interest rates equal to 4%)

	1	2	3	4	5	6	7	8	9	10
Operating Revenues	0	1501	5701	7501	7501	8501	8501	8501	8501	0
Residual Value	0	0	0	0	0	0	0	0	0	1500
Total Revenues	0	1501	5701	7501	7501	8501	8501	8501	8501	1500
Operating Costs	0	1400	4500	7445	7445	7445	7445	7445	7445	0
Loan Reimbursement	0	0	0	0	979.80	979.80	979.80	979.80	979.80	979.80
Private Equity	100	200	100	0	0	0	0	0	0	0
Public Contribution	400	200	100	0	0	0	0	0	0	0
Total Expenditure	500	1800	4700	7445	8424,8	8424,8	8424,8	8424,8	8424,8	979,8
Net Cash Flow	- € 500	- € 299.00	€ 1.001,00	€ 56,00	- € 923,80	€ 76,20	€ 76,20	€ 76,20 €	€ 76,20 €	€ 520,20
FNPV/K	0.0 €									
FRR/K	4.00%									

Financial Sustainability Table

Year	1	2	3	4	5	6	7	8	9	10
Public Contribution	400	200	100	0	0	0	0	0	0	0
Grant	1.544,08									
Private Equity	100	200	100	0	0	0	0	0	0	0
Operating Revenues	0	1.501	5.701	7.501	7.501	8.501	8.501	8.501	8.501	0
Residual Value	0	0	0	0	0	0	0	0	0	1.500
Loan	4566.12									
Total Inflow	**6610.02**	**1.901**	**5.901**	**7.501**	**7.501**	**8.501**	**8.501**	**8.501**	**8.501**	**1.500**
Operating Costs	0	1.400	4.500	7.445	7.445	7.445	7.445	7.445	7.445	0
Investment Costs	2372	2.092	1.889	700	500	0	0	0	0	0
Loan Reimbursements	0	0	0	0	979,80	979,80	979,80	979,80	979,80	979,80
Total Outflow	**€ 2.372.00**	**€3.492,00**	**€6.389,00**	**€8.145,00**	**€ 8.924,80**	**€ 8.424,80**	**€ 8.424,80**	**€ 8.424,80**	**€ 8.424,80**	**€ 979,80**
Net Cash-Flow	**€ 4.238,20**	**-€1.591,00**	**-€ 488,00**	**-€ 644,00**	**-€ 1.423,80**	**€ 76,20**	**€ 76,20**	**€ 76,20**	**€ 76,20**	**€ 520,20**
Cumulated Net Cash-Flow	**€ 4.238,20**	**€ 2.647,20**	**€ 2.159,20**	**€ 1.515,20**	**€ 91,40**	**€ 167,59**	**€ 243,79**	**€ 319,99**	**€ 396,18**	**€ 916,38**

Now the project sustainable

Section V: Economic Analysis

Economic Analysis: What is the impact on the area where the project will be implemented?
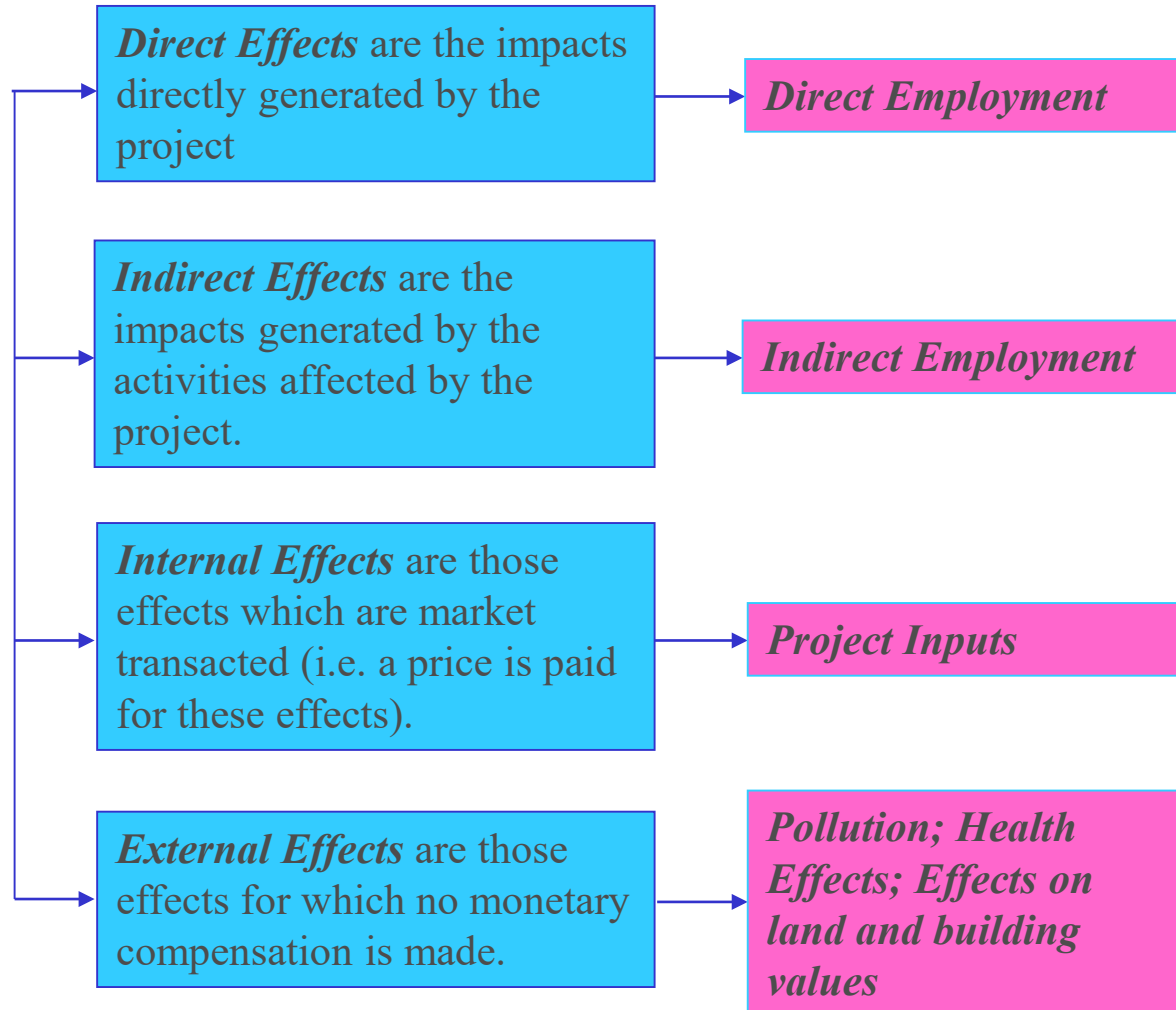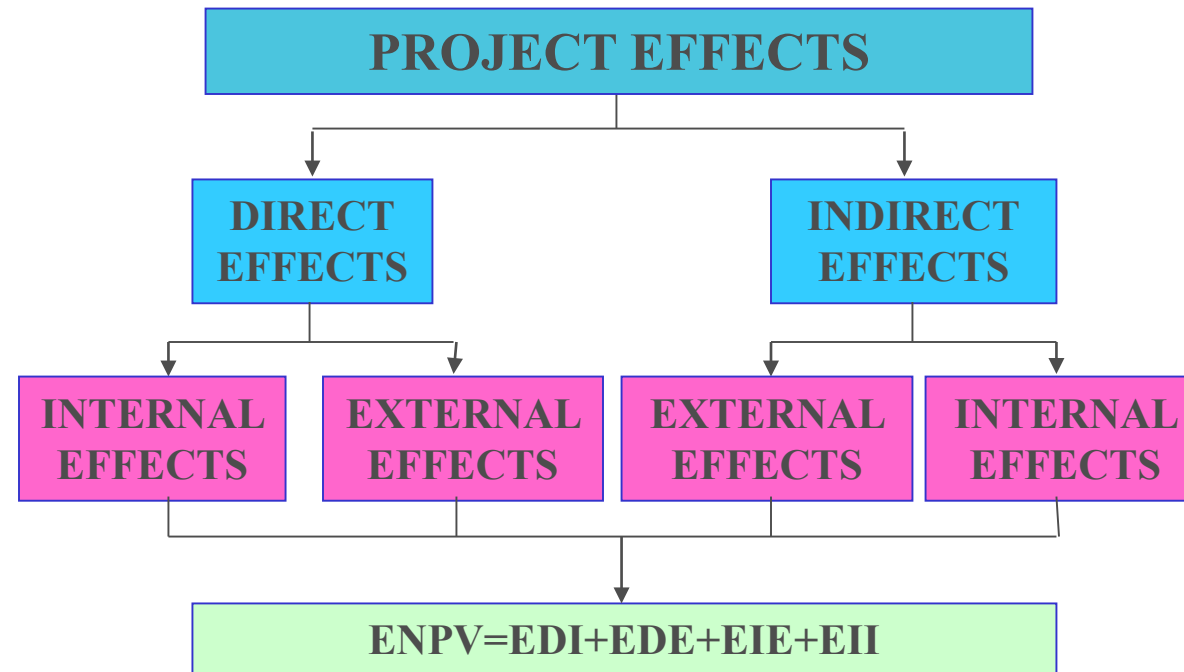
To this end we need to
⇨ IDENTIFY
⇨ QUANTIFY
⇨ ASSESS
the project impacts on the overall society

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IDENTIFICATION AND QUANTIFICATION
KIND OF EFFECTS

Direct Effects are the impacts directly generated by the project → *Direct Employment*

Indirect Effects are the impacts generated by the activities affected by the project. → *Indirect Employment*

Internal Effects are those effects which are market transacted (i.e. a price is paid for these effects). → *Project Inputs*

External Effects are those effects for which no monetary compensation is made. → *Pollution; Health Effects; Effects on land and building values*

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Identification and Quantification

ASSESSMENT
DIRECT AND INTERNAL EFFECTS

from Financial Costs and Revenues

Fiscal Corrections

Corrections for Other Distortions

DIRECT ECONOMIC COSTS AND BENEFITS
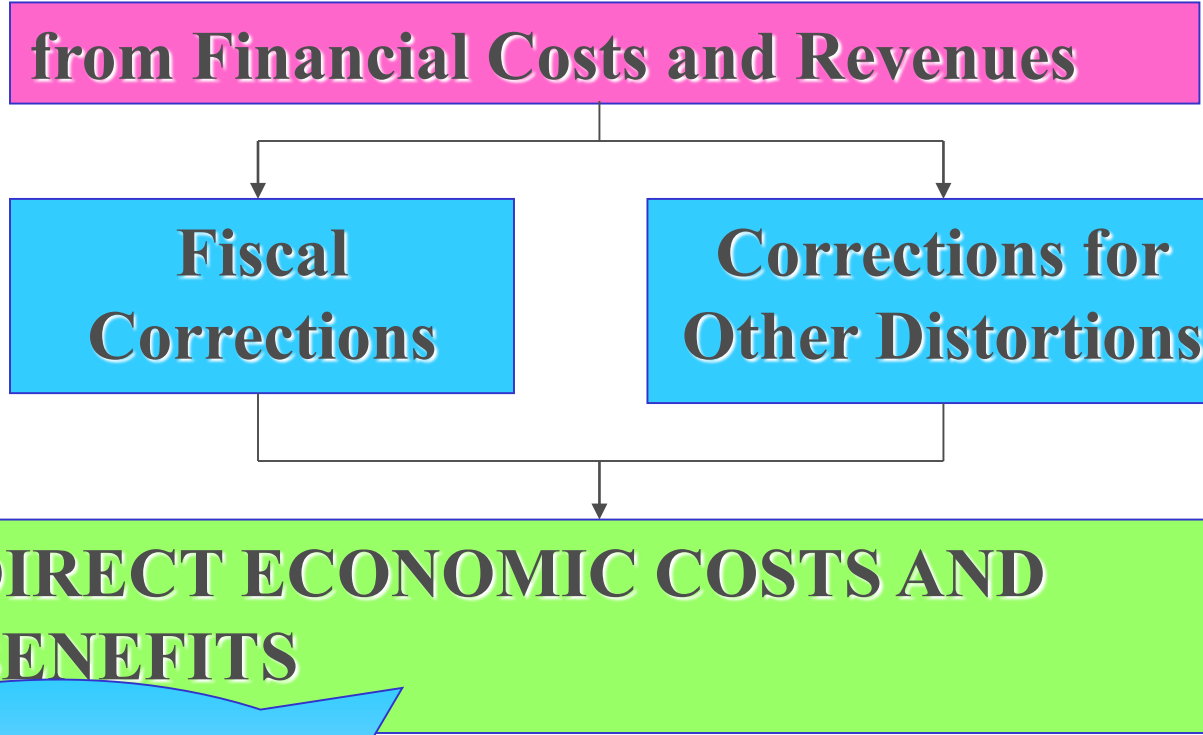
Conversion Factors are ratios between economic and financial values

ASSESSMENT
EXTERNAL EFFECTS

TWO MAIN APPROACHES

REVEALED PREFERENCES METHODS

STATED PREFERENCES METHODS

Hedonic Approach; Travel Cost Method.

Contingent Valuation Methods based on WTP and WTA estimates

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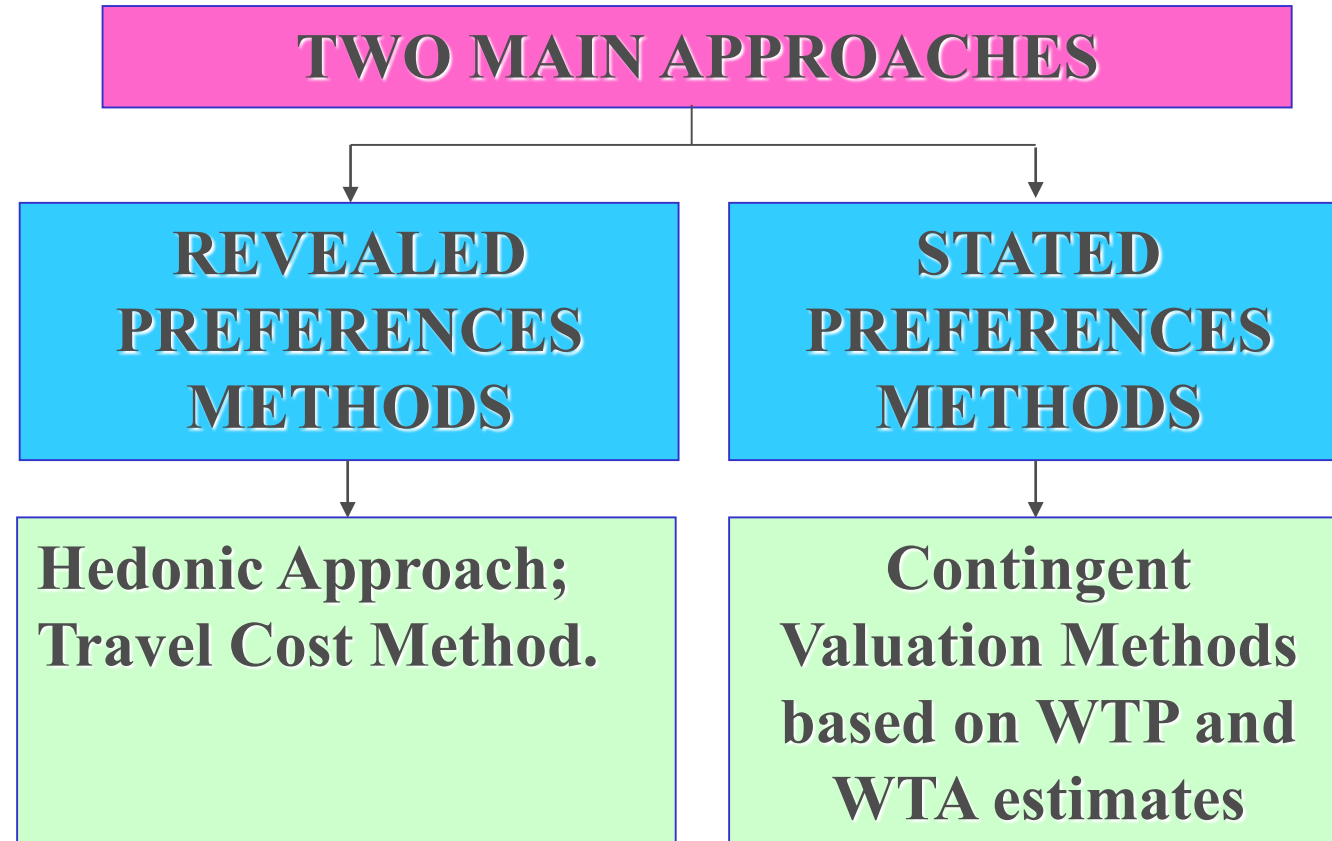
ASSESSMENT
INDIRECT AND INTERNAL EFFECTS

Economic models should be chosen consistent with the economy of the assisted areas

…but BE CAREFUL with double counting!! Indirect effects can already be included in direct effects unless there are clear distortions in the economy.

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Summary

Economic Analysis may be carried out through three main steps

Fiscal Corrections

Corrections for Distortions

Inclusion of Externalities

Conversion Factors

Monetisation of the Main Externalities
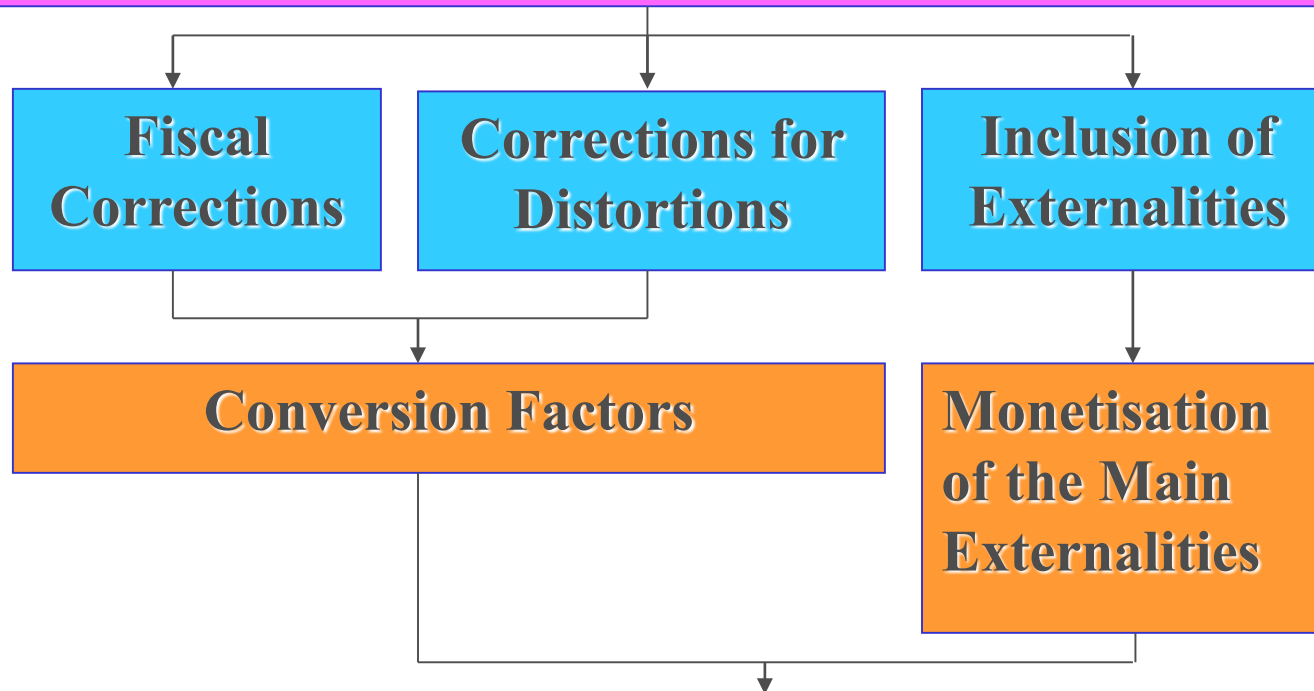
Economic Analysis may be facilitated by National Guidelines on Conversion Factors and Monetisation of Externalities to be used by project promoters

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Economic Desirability Table

	CFFD	CFOD	OCF	1	2	3	4	5	6	7	8	9	10
Revenues	0	0	0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Residual value	0,9	1	0,9	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	1350,0
Total Revenues			0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	1350,0
Operating Costs	0,9	0,4	0,36	0,0	504,0	1620,0	2680,2	2680,2	2680,2	2680,2	2680,2	2680,2	0,0
Investment Costs	0,9	0,5	0,45	1067,4	941,4	850,1	315,0	225,0	0,0	0,0	0,0	0,0	0,0
Total Costs				1067,4	1445	2470,1	2995,2	2905,2	2680,2	2680,2	2680,2	2680	0
Time Savings				0	0	1000	2000	3500	4500	5000	5100	5200	5500
Vehicle Operating Costs				0	0	0	-100	-150	-175	-185	-195	-200	-210
Accidents and Injuries				0	0	0	-200	-350	-400	-450	-550	-600	-700
Environmental Externalities				0	0	0	-100	-150	-200	-215	-250	-275	-300
Total Externalities				0	0	1000	1600	2850	3725	4150	4105	4125	4290
Net Benefits				-1067,4	-1445,4	-1470,1	-1395,2	-55,2	1044,8	1469,8	1424,8	1444,8	5640,0
ERR				12%									
ENPV				1938,46									

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Section VI: Risk Assessment

RISK ASSESSMENT
Which are the likely financial and economic results?
Can they be improved?

Rationale

In the future we do not know exactly which values the variables will assume.

This risk may deal with a **qualitative approach** including the following elements: a matrix of risks variables (e.g contractor delays); the causes (low contractor capacity); the probability, the severity, and the risk level expressed in scales aiming at identifying prevention and mitigation measures, and then the residual risk.

Where risk exposure is assessed significant a **quantitative approach** can be used to tackle uncertainty by attaching probabilities to each value: by doing this, uncertainty is transformed into risk and the analysis is called **risk analysis** The sum of the values weighed by their own probability (P) is called expected values (EV). Expected values are, in other words, values resulting from a weighed average where the weights are the probabilities. EXAMPLE: EV=€3*0.2+€5*0.5+€6*0.3=€4.9. Risk assessment is aiming at, similar to the qualitative approach, to identify prevention and mitigation measures to achieve specific targets of the residual risk.

Given the most complexity, next we focus on the key steps of risk analysis in the case of discrete probability distribution.

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Key Steps of Risk Analysis

Identify the Critical Variables
(Sensitivity Analysis)

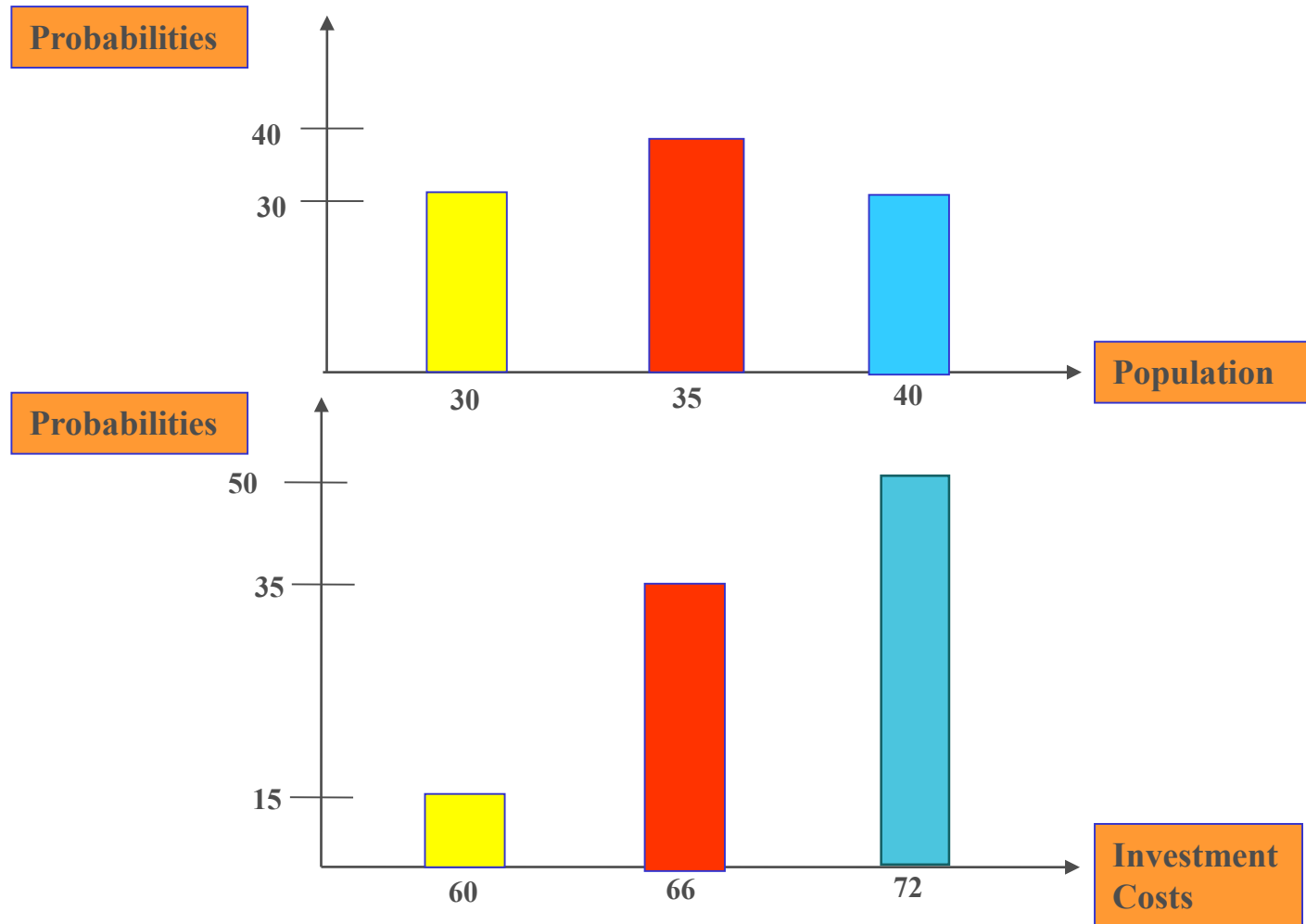Identify the Probability Distributions

Identify the Expected Values
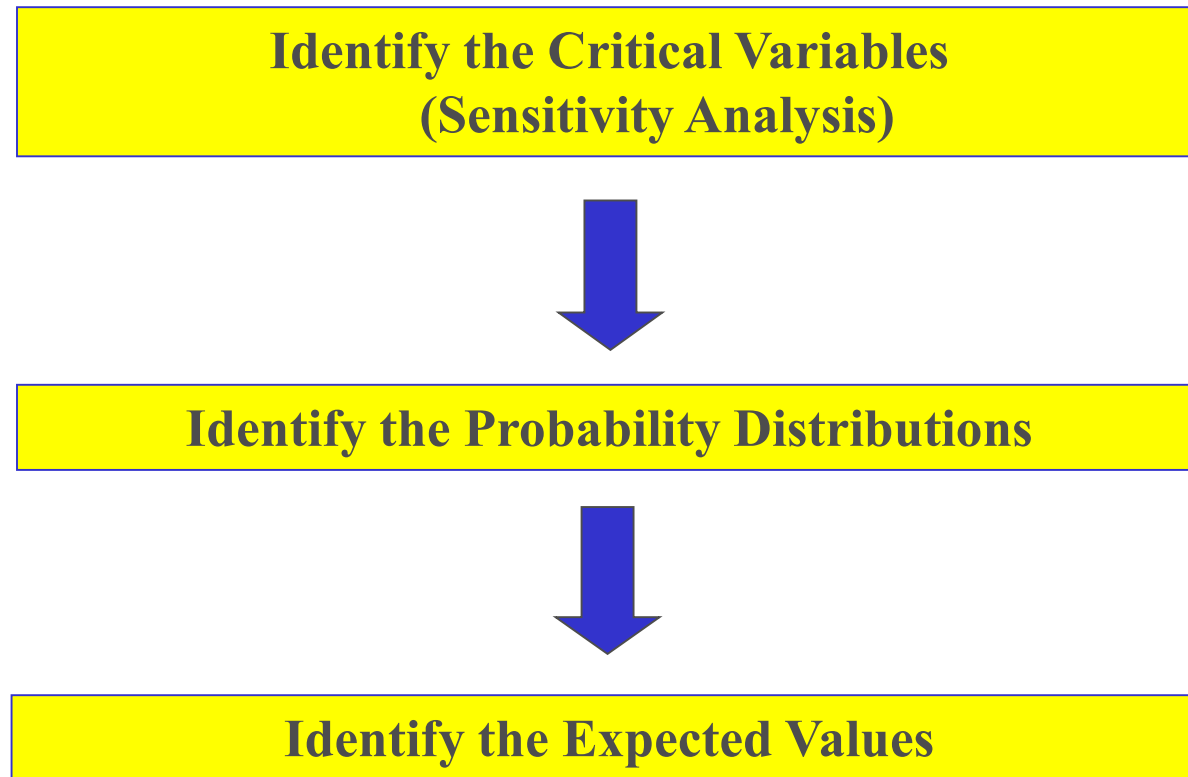
1 Step: Sensitivity Analysis

▪It is made through sensitivity analysis whose scope is to identify the critical variables, that is, those variables whose changes result in significant changes in the financial and economic indexes.

▪A possible rule of the thumb is to consider a variable critical when a 1% variation results in

  ▪1% of the IRR;

  ▪ 5% of the NPV.

▪the guide adopted by the Evaluation suggests the main critical variables to consider per sector of investment.

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2nd Step: Probability Distributions

Objectives
derived from historical data

Subjective
derived on the basis of experts' opinions

Discrete
probabilities defined over ranges of values of critical variables

Continuous
probabilities defined for each value of critical variables
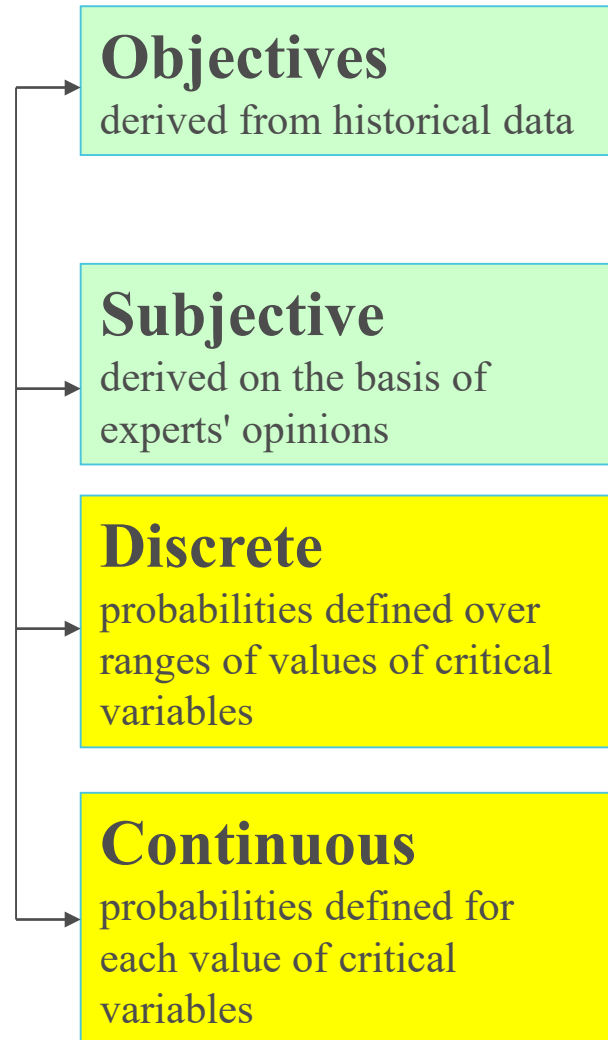
Discrete Probability Distributions

Example⇨ The critical variables are population and investment costs

3rd Step: Calculation of Expected Values

Population and Investment Costs and Probabilities	30 (0,30)	35 (0,40)	40 (0,30)
Case of Discrete Probability Distributions			
M€ 60 (0,15)	M€20 (4,5%)	M€14 (6%)	M€ 12 (4,5%)
M€66 (0,35)	M€26 (10,5%)	M€21 (14%)	M€18 (10,5%)
M€72 (0,50)	M€30 (15%)	M€24 (20%)	M€19 (15%)

ENPV=20*0.045+14*0.06+12*0.045+26*0.105+21*0.14+18*0.105 +30*0.15-24*0.2+19*0.15 =M€21,99

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Section VII:Other evaluation methodologies proposed by the Economic Appraisal Vademecum

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Cost-Benefit Analysis is a methodology aiming at assessing different inputs and outputs using the money metrics, that is, costs and benefits.

The ECONOMIC APPRAISAL VADEMECUM INCLUDES ALSO:

Simplified Cost-Benefit Analysis based indicative cost estimates, possibly avoiding the use of conversion factors and of externalities (where they are not relevant in the incremental analysis).

Cost-effectiveness analysis is applied when all options have the same output but with different intensity/volumes and we choose the option whose life-cycle cost/output ratio (e.g. cost per patient, cost per student, cost per km) is the lowest or life-cycle output/cost ratio is the highest. The output is not monetized. Used in waste water, waste, healthcare.

Least-Cost Analysis is applied when all options have the same output with the same intensity/volume,the option chosen is the one with the lowest life-cycle cost. The output is not monetized.

Multi-Criteria Analysis is used when programmes or projects' options are assessed by different metrics. A weighting system relating to the different metrics is then necessary to compare options.

Coming back then to Table 2 of the Economic Appraisal Vademecum →

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Sectors of Investments and Evaluation Methodologies: which one to choose?

Area	Investment area	Project type	
		Small projects	Large/strategic projects
Water and wastewater	Water and wastewater infrastructure (efficiency driven) ([23])	LCA/CEA	CBA
	Water and wastewater infrastructure (exclusively compliance driven)	LCA/CEA	LCA/CEA
	Flood prevention	Simplified CBA	CBA
Transport	Transport infrastructure (all modes)	(Simplified) CBA	CBA
	Transport infrastructure: compliance-driven project (all modes)	CEA/MCA	CEA/MCA
	New technology in transport	CEA/MCA	CBA/CEA/MCA
Healthcare	Disease prevention / treatment programmes / new technology	CEA	CEA
	Healthcare infrastructure	Simplified CBA	CBA
Research, development and innovation	Research infrastructure	Simplified CBA	CBA
	Innovative manufacturing	Simplified CBA/CEA	CBA
	Tertiary education	Simplified CBA	CBA
Renewable energy	Electricity generation	CEA with integration of externalities	CBA
	Heat generation	CEA with integration of externalities	CBA
Energy efficiency	Energy efficiency in buildings and plants	CEA with integration of externalities	CBA
	District heating	CEA with integration of externalities	CBA
Digital economy	Broadband infrastructure	Simplified CBA	CBA
	ICT services (data centres, e-services, etc.)	CEA	Depending on the area of application
Municipal waste management	Collection, transport, recovery, recycling, treatment and disposal of solid waste	CEA	CBA
Sustainable urban development	Integrated territorial investment schemes or community-led local development schemes, programmes in cluster development and urban regeneration programmes	MCA (including simplified CBA/CEA for individual large projects in given sectors)	MCA (including detailed CBA/CEA for individual large projects in given sectors)

Guidance but not obligatory to be followed as no method has been indicated in the regulatory framework

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Differences between 2014-2020 and 2021-2027

	2014–2020	2021–2027
	Major projects	Projects
Legal basis for EA	**According to Article 101(e) of Regulation No 1303/2013, a CBA – including an economic and a financial analysis, and a risk assessment – is mandatory in order to get approval for the co-financing of major projects**	The use of EA will be left to the discretion of the managing authority and of the monitoring committee that will set up a framework for project appraisal and selection that is compliant with the requirements of Article 73.2 of the CPR. EA tools can be used and adapted to the size and complexity of EU-funded projects
EA tool	**CBA is mandatory for major projects in any sector**	A more flexible and proportional framework will be implemented; other tools such as CEA and MCA – in addition to CBA – are proposed for voluntary use, based on sector and/or project type and scale
Results of EA	**As set out in Article 101 of Regulation No 1303/2013, an economic analysis must be included in the CBA to compute the project's economic performance. The calculation of economic net present value and ERR indicators is requested to verify that the project is worth co-financing**	It is good practice to use the results of EA as one of the criteria in assessing and selecting project proposals in order to verify that the selected project is good value for money (as requested by Article 73(c) of the CPR)
Option analysis	**According to Annex III to Regulation No 2015/207, for major projects, the option analysis should be carried out in two steps. The first step looks at basic strategic options and is based on MCA. Once the strategic option is identified, the second step consists of a comparison of the specific technological solutions based on quantitative methods (simplified CBA or CEA). A fully fledged CBA is then carried out on the selected technical option**	A simplified EA (CBA, CEA or MCA) is an established good practice for screening and ranking options. When the project is limited in size, this is normally sufficient to identify a preferred option and justify approval for its co-financing. When the project is large/strategic, or when the results of the simplified EA are inconclusive, a fully fledged EA should be carried out at subsequent stages of development of the proposal
Analysis of financial performance	**As set out in Article 101 of Regulation No 1303/2013, a financial analysis must be included in the CBA to compute the project's financial profitability. The calculation of financial rate of return of the investment and financial rate of return of national capital indicators is requested (by Annex III to Regulation 2015/207) to verify that the project is in need of co-financing**	No provisions are made in the CPR to assess the project's financial performance. Member States are free to set up their methods and criteria to verify that the project is in need of co-financing. For most cases, State aid rules will apply

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Differences between 2014-2020 and 2021-2027

	2014-2020	2021–2027
	Major projects	**Projects**
Analysis of financial sustainability	Annex III to Regulation No 2015/207 requires an analysis of financial sustainability based on undiscounted cash flow	Article 73(d) of the CPR gives a requirement to 'verify that the beneficiary has the necessary financial resources and mechanisms to cover operation and maintenance costs for operations comprising investment in infrastructure or productive investment, so as to ensure their financial sustainability'
Financial discount rate	According to Article 19 of Regulation No 480/2014, a 4 % discount rate will be used as the single reference parameter for all sectors in all Member States, except for projects falling under State aid rules	If a financial analysis with a calculation of performance indicators is carried out, Member States are free to assess their own country- and/or sector-specific financial discount rate(s). In the absence of national guidelines, adherence to State aid rules is recommended
Determination of the appropriate EU support	In accordance with Article 61 of Regulation No 1303/2013, Annex V to Regulation No 1303/2013 and Section III of Regulation No 480/2014, the outcomes of the financial analysis in the CBA are used to calculate the funding gap rate and, in turn, the intensity/level of EU support (unless State aid rules prevail)	According to Article 73(c) of the CPR, the managing authority need to 'ensure that selected operations present the best relationship between the amount of support, the activities undertaken and the achievement of objectives'. This implies, amongst other, that self-financing and/or the bankability potential of an operation should be taken into account where relevant
Reference period of the analysis	Annex I to Regulation No 480/2014 provides a list of mandatory reference periods to be used per sector	There will be no mandatory fixed parameters. An indication of typical reference periods per sector is provided as indicative guidance, but project promoters/managing authorities can adjust them in accordance with the project's economically useful life
Social discount rate	According to Annex III to Regulation No 2015/207, a social discount rate of 5 % will be used for major projects in cohesion countries and 3 % for the other Member States	Member States are free to establish and use their own country-specific social discount rate; 3 % can be used in the absence of a national approach
Type of benefits	Annex III to Regulation No 2015/207 provides a list of the minimum main economic benefits per sector to be considered in the economic analysis	There will be no mandatory list of benefits. Recommendations for typical benefits per sector are provided as indicative based on good practices
Compliance-driven projects	In a major project, CBA is mandatory	CEA is deemed to be sufficient to assess the economic viability of the project, regardless of its scale
National methodological frameworks	Member States are encouraged to establish their own national methodological frameworks for EA	Member States are encouraged to follow or establish their own national methodological frameworks for EA. As a complementary instrument to the EAV (whose use is voluntary), a spreadsheet template has been made available to the Member States. The template provides project promoters with practical guidance on the format of the content of CBA (or other EA tools). At the same time, it can be used by evaluators to assess projects

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Along with the Guide to CBA and EAV, DG REGIO also provides an Excel tool which can be downloaded at

https://ec.europa.eu/regional_policy/sources/guides/vademecum_2127/eav_spreadsheet.xlsm

For any comments and questions send them to: **Regio-CBA-FORUM@ec.europa.eu**

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Thank you

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