Financial Analysis of Research Infrastructure Projects

Programming Period 2014-2020

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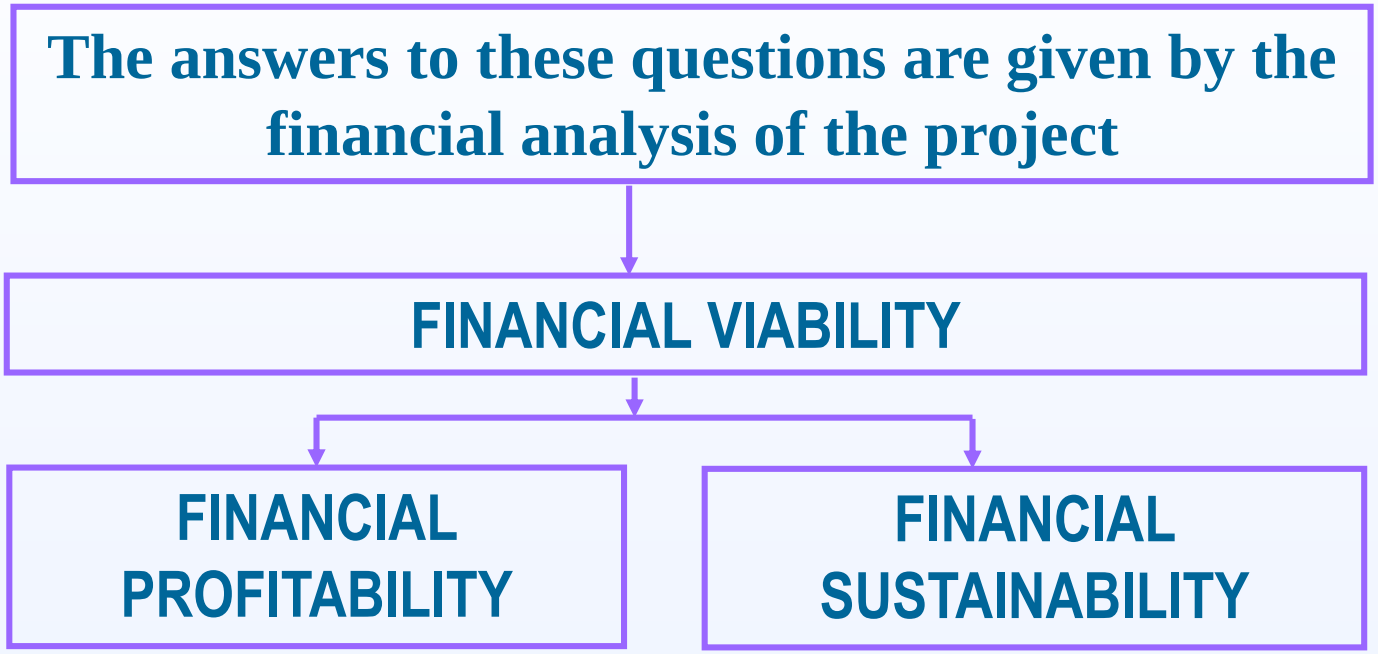
FINANCIAL ANALYSIS

What is the project financial profitability?

Will the project be financially sustainable?



METHODOLOGY

- CBA uses the **Discounted Cash Flow** (DCF) method:
  - Only cash flows are considered (i.e., no depreciation, contingency reserves, etc.) over a given reference period
  - Cash flows are discounted to present time using the **Financial Discount Rate**
- The analysis should be carried out in **constant prices** at (no inflation)
- The analysis should be carried out **net of VAT**, both on purchase (cost) and sales (revenues), if this is recoverable by the project promoter.

EC Reference periods

Sector	Time horizon (years)
Railways	30
Roads	25-30
Ports and airports	25
Water supply/sanitation	30
Waste management	15-30
Energy	15-25
Research and Innovation	**15-25**
Broadband	15-20

FINANCIAL DISCOUNT RATE

The FDR reflects the opportunity cost of capital

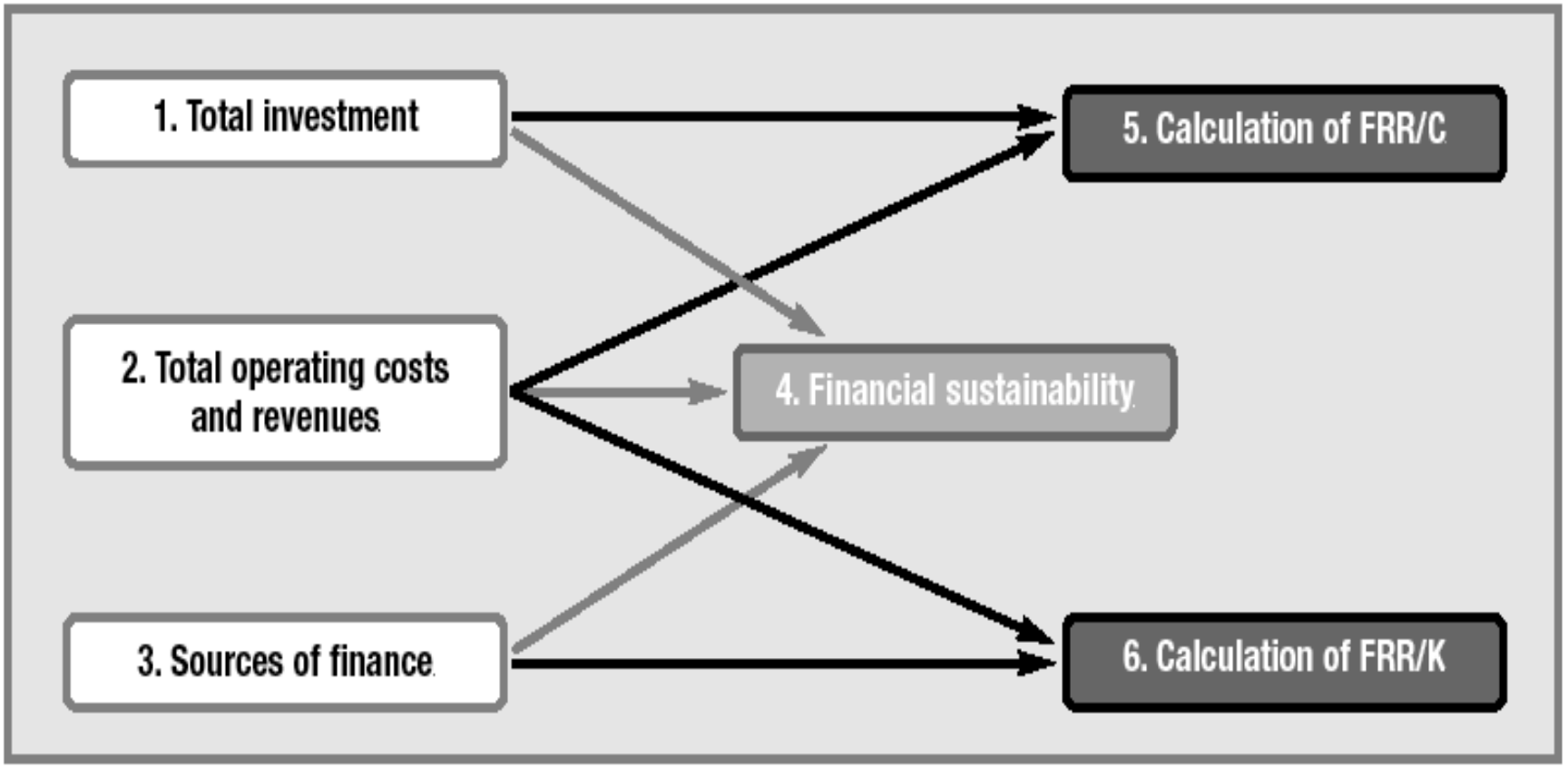
FINANCIAL DISCOUNT RATE: THE EC BENCHMARK

For the programming period 2014-2020, the European Commission recommends that a 4% real rate is considered as the reference parameter for the opportunity cost of capital in the long term.

Values differing from the 4% benchmark may, however, be justified on the grounds of international macroeconomic trends and conjunctures, the Member State's specific macroeconomic conditions, the nature of the investor and/or the sector concerned. To ensure consistency amongst the discount rates used for similar projects in the same country, the Commission encourages the Member States to provide their own benchmark for the financial discount rate in their guidance documents and then to apply it consistently in project appraisal at national level.

Source: EC (2013)

STRUCTURE OF FINANCIAL ANALYSIS



INVESTMENT COST

- ✓ **Initial investment**: fixed and non fixed assets.
- ✓ **Replacement costs**: costs occurring during the reference period to replace short-life machinery and/or equipment. **Particularly relevant in R&D**

It is preferable not to compute cash-flows for large replacements close to the end of the reference period!

RESIDUAL VALUE

- It must be included within the investment costs account for the end-year.
- The residual value reflects the **capacity of the remaining service potential** of fixed assets whose economic life is not yet completely exhausted.

Methodology:

- by computing the net present value of cash flows in the remaining life-years of the project;
- standard accounting depreciation formula (**most cases**).

OPERATING COSTS

Operating costs comprise all the data on the disbursements foreseen for the **purchase of goods and services**, which are not of an investment nature since they are consumed within each year.

REVENUES

- Projects may generate their own revenues from **the sale of goods and services**.

- The project revenues are defined in **Art. 61 of Reg.1303/2013** as: «cash in-flows directly paid by users for the goods or services provided by the operation, such as charges borne directly by users for the use of infrastructure, sale or rent of land or buildings, or payments for services […] Operating cost-savings generated by the operation shall be treated as net revenue».

TYPICAL COST ITMES

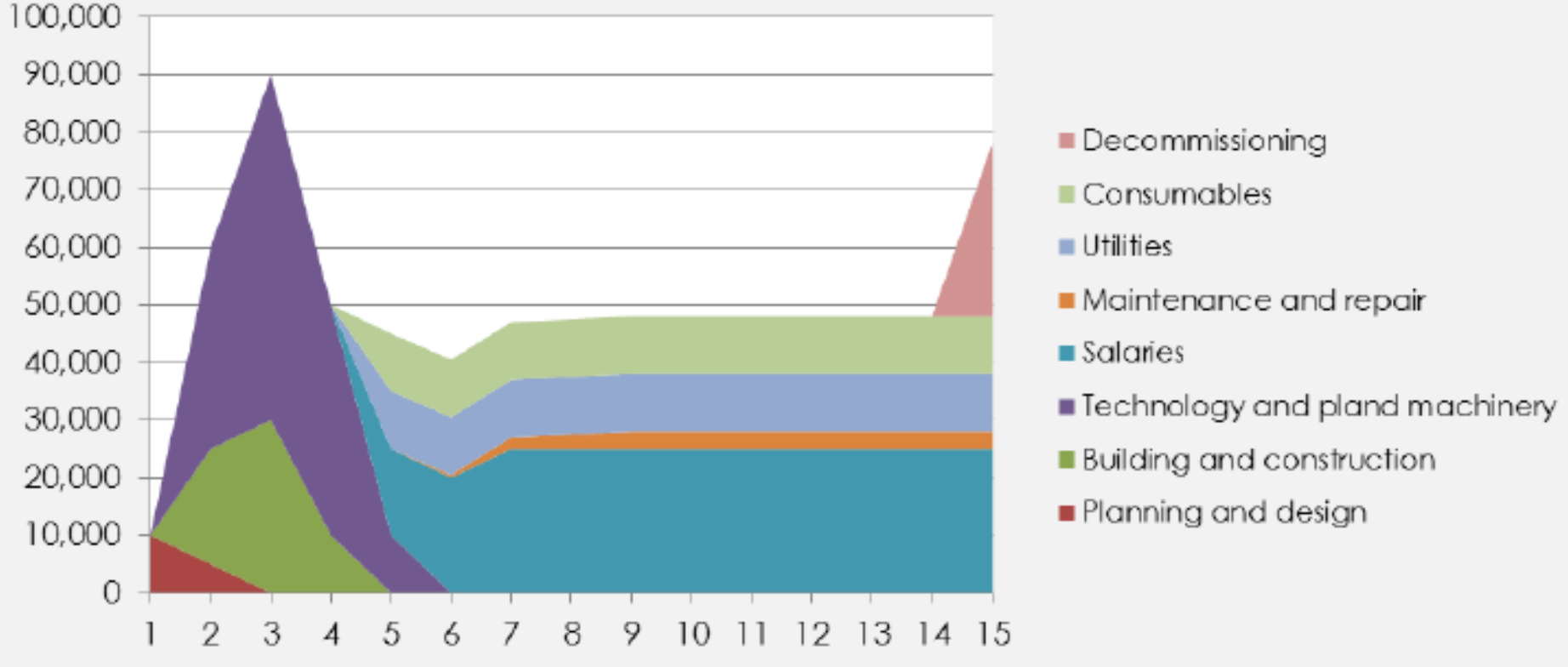
Investment cost

- Planning and design costs
- Land acquisition
- Construction costs, possibly disaggregated by civil works and installations, materials, labour, etc.
- Energy, waste disposal and other utilities consumed during the construction period
- RDI equipment, including information technologies (particularly for data storage or elaboration)
- Intellectual property purchase costs
- Road access
- Testing
- Start-up costs

O&M costs

- Materials and equipment
- Consulting services
- Cost of scientific personnel
- Cost of administrative and technical staff
- Cost of obtaining and maintaining patents
- Energy, waste disposal and other utilities
- Promotional campaigns and other outreach expenditure targeted to the general public
- Training courses connected to the infrastructure's operation and management
- Removal of potential pollutions / brownfield site treatment at the end of the life cycle of the infrastructure

ILLUSTRATIVE SPENDING PROFILE



Operating revenues

- Licence revenues gained from patents' commercialisation
- Sale of consultancy services
- Revenues from industrial research contracts and pre-commercial procurement contracts
- Entry fees to the laboratory and for the use of research equipment charged to researchers and businesses
- Student/master/PhD fees
- Spin-off equity realisations
- Revenues from the target population using the research outputs (e.g. patients receiving an innovative treatment)
- Revenues from outreach activities to the wider public (e.g. bookshops' sales, entry fees, etc.)
- Contributions granted from the public sector, **IF THEY ARE PAYMENTS AGAINST A SERVICE (TRANSFER OF RESEARCH OUTPUT)**

Financing sources during operations

- EU/National/regional funding schemes for RDI activities
- Ordinary public transfers
- Private sponsors
- Donations from charity bodies and philanthropic organisations.
- Public grants to research, e.g. under the Horizon 2020 framework

DON'T CONFUSE!

FINANCIAL RETURN ON INVESTMENT

- The indicators needed for testing the project's financial performance are:
  - the Financial Net Present Value of the investment: **FNPV(C)**
  - the Financial Rate of Return on investment: **FRR(C)**
- The calculation of the financial return on investment measures the **capability of the net revenues to remunerate the initial investment.**

FINANCIAL RETURN ON INVESTMENT

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
National public funding	0	0	0	0	487,200	487,200	487,200	511,560	511,560	511,560	537,138	537,138	537,138	563,995	563,995
international public funding	0	0	0	0	625,000	625,000	625,000	656,250	656,250	656,250	689,063	689,063	689,063	723,516	723,516
Research contract with compa	0	0	0	0	######	######	######	######	######	3,543,750	3,720,938	3,720,938	3,720,938	3,906,984	3,906,984
Open Access fee	0	0	0	0	461,030	461,030	461,030	484,082	484,082	484,082	508,286	508,286	508,286	533,700	533,700
Residual value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27,997,935
Total inflows	**0**	**0**	**0**	**0**	**#####**	**#####**	**#####**	**#####**	**#####**	**5,195,642**	**5,455,424**	**5,455,424**	**5,455,424**	**5,728,195**	**#######**
Labour cost (administrative)	0	0	0	0	576,000	576,000	576,000	576,000	576,000	576,000	576,000	576,000	576,000	576,000	576,000
Labour cost (scientists)	0	0	0	0	######	######	######	######	######	3,325,000	3,325,000	3,325,000	3,325,000	3,325,000	3,325,000
Maintenance costs	0	0	0	0	795,500	795,500	795,500	795,500	795,500	795,500	795,500	795,500	795,500	795,500	795,500
Project reinvestments	0	0	0	0	0	0	0	0	0	20,553,968	1,868,543	0	0	0	0
O&M of the Open Access area	0	0	0	0	461,030	461,030	461,030	484,082	484,082	484,082	508,286	508,286	508,286	533,700	533,700
Total operating costs	**0**	**0**	**0**	**0**	**#####**	**#####**	**#####**	**#####**	**#####**	**25,734,549**	**7,073,329**	**5,204,786**	**5,204,786**	**5,230,200**	**5,230,200**
Total investment costs	**18,110,767**	**#######**	**#######**	**######**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
NET CASH FLOW	**-18,110,767**	**#######**	**#######**	**######**	**840,700**	**840,700**	**315,700**	**15,060**	**15,060**	**#######**	**-1,617,905**	**250,638**	**250,638**	**497,995**	**#######**

Financial internal rate of return (FRR/C)	-15.0%
Net present value (FNPV/C) of investment	-€ 60,701,473

EXAMPLES OF FINANCIAL PERFORMANCE

Country	Field	FIRR	FNPV	Reference period
Germany	Innovation business Incubator centre	-63.0	-16,171,681	15
Poland	Materials and biomaterials	3.9	-2,800,501	15
Czech Republic	Laser infrastructure	-45.1	-171,530,005	22
Czech Republic	Biotechnology and biomedicine	-30.0	-124,941,750	15
Poland	Biological and chemical sciences	-3.9	-12,349,562	15
Lithuania	Physical and technological sciences	-12.5	-29,878,183	15
France	Advanced engineering materials	-33.0	-102,161,236	15

SUSTAINABILITY

- A project is financially sustainable when it does not incur the risk of running out of cash in the future. The crucial issue here is the timing of cash proceeds and payments.
- Project promoters should show how over the project time horizon, sources of financing (including revenues and any kind of cash transfers) will consistently match disbursements year-by-year.
- Sustainability occurs **if the net flow of cumulated generated cash flow is positive for all the years considered**.

SUSTAINABILITY

Financial sustainability	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
EU support	6,876,080	14,734,457	20,628,239	6,876,080	0	0	0	0	0	0	0	0
National funds	11,234,687	-2,076,650	9,115,492	2,775,694						20,553,968	1,868,543	
Total inflows	0	0	0	0	4,948,230	4,948,230	4,948,230	5,195,642	5,195,642	5,195,642	5,455,424	5,455,424
Total inflows	**18,110,767**	**12,657,807**	**29,743,732**	**9,651,774**	**4,948,230**	**4,948,230**	**4,948,230**	**5,195,642**	**5,195,642**	**25,749,609**	**7,323,967**	**5,455,424**
investment costs	18,110,767	12,657,807	29,743,732	9,651,774	0	0	0	0	0	0	0	0
Replacement cost										20,553,968	1,868,543	
Operating costs	0	0	0	0	4,107,530	4,107,530	4,632,530	5,180,582	5,180,582	5,180,582	5,204,786	5,204,786
Total outflows	**18,110,767**	**12,657,807**	**29,743,732**	**9,651,774**	**4,107,530**	**4,107,530**	**4,632,530**	**5,180,582**	**5,180,582**	**25,734,549**	**7,073,329**	**5,204,786**
Net cash flow	**0**	**0**	**0**	**0**	**840,700**	**840,700**	**315,700**	**15,060**	**15,060**	**15,060**	**250,638**	**250,638**
Cumulated net cash flow	**0**	**0**	**0**	**0**	**840,700**	**1,681,400**	**1,997,100**	**2,012,160**	**2,027,220**	**2,042,280**	**2,292,918**	**2,543,556**

The cumulated cash flow should be equal to zero during the construction phase

Financial sustainability is verified if the cumulated net cash flow row is greater than zero for all the years considered.

SUSTAINABILITY

Factors underpinning project's revenue generation potential:

- **Relevance** to its scientific community and complementarity with already existing research capacity
- **Governance model** and its responsiveness to needs and ambitions
- **Ongoing investments** to guarantee optimal operations
- **Quality of human capital**: talented researchers and critical mass

Source: EIROforum (2015)

Thank you!

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