

THE BUSINESS CASE OF BwN IN THE DELTA - TERMINOLOGY AND CONCEPTS

This note explains what the term business case means, and introduces terms and concepts used in conjuncture with business cases. This note is meant primarily for those working with or interested in BwN that have a more technical background and want to 1) increase understanding of the 'business case' of BwN and 2) align communication with terms used by the public and private sector.

The term business case can mean different things to different people. Where investors use this term daily in the context of a range of inputs they require to determine whether or not a project or company fits their investment criteria, such as return on investment and payback periods and risk, those unfamiliar with business development and investment might view the development of a projects' business case as a mystical number-crunching formal activity for money-minded people. To complicate matters, the content and form of a business case differs across public and private sectors and throughout the project cycle. Much like with the concept of sustainability, confusion around what is meant by the term 'business case' can be a cause for miscommunication when thinking about implementation and scaling up building with nature concepts and increasing the investability of BwN. In this explanatory note, we:

- Explain and clarify definitions and key concepts related to business cases (section 1)
- Shortly discuss key tools commonly used to support or develop a business case (section 2)
- Highlight how a business case for BwN project may be developed and an overview of potential funding sources (Section 3)

1 WHAT IS A BUSINESS CASE?

Background

In the Ecoshape workshop on business cases in 2019 it was evident that within the Ecoshape community, consisting of e.g. engineers, business developers and researchers, there was no shared understanding of what a business case is. In the Interreg North Sea Region BwN business case guidance document (Groenendijk et al., 2020) developed by Ecoshape between 2016-2020, a business case is defined as '*a decision support framework that gives insight in the answers to: 1) Whether the project provides increased welfare for society, and 2) Whether sources for funding and mechanisms for financing can be identified. Key elements are a good outline of the scope of the project and physical and socio-economic system context, a substantiation of selection of proposed measures, a design optimization and outline of key implementation factors such as financial arrangements and contracting*'.

However, this definition differs from how the concept is typically defined. Building on definitions used in literature (see appendix 5), a business case is generally defined as:

'A presentation of arguments that outline the rationale for doing a project from the perspective of the entity or entities doing an investment'

As such, a business case typically includes a description of the background of the project, the rationale for investment and a financial overview including expected costs, revenues and risks for the entity or entities that will be investing.

Depending on whether this entity is a public actor or private investor, the required arguments that provide the rationale for investment may be different, focusing on e.g. financial, strategic or commercial arguments. The business case for a public project addresses the impact of the project for all relevant stakeholders, as well as a practical overview of the cash flow for the public investor; expenditure, revenues, risks and opportunities. Private investors are likely to focus on the cash flow; financial, commercial and manageability aspects. Other arguments like license to operate or corporate social responsibility may also play a role.

Public v.s. private investor

The character of a business case changes depends on whether the project has a public or private investor. Figure 1.1 shows the playing field: when financial revenues are higher than investment costs (the horizontal axis), there is a rationale for private investment in a project (e.g. port development or expansion).

When the cost-benefit analysis of a project has a benefit-cost ratio of higher than one (the vertical axis), net benefits for society are higher than costs and there is a theoretical rationale for public investment. Of course, investment does not always occur as public budgets are limited and have to compete with a wide range of potential public investments; the political climate plays a role in prioritization. In the case of BwN it is also possible that a public project does not have a positive financial case as a whole (revenues are lower than costs), but a private revenue stream is or can be generated for part of the project. In this case public-private co-investment might be possible.

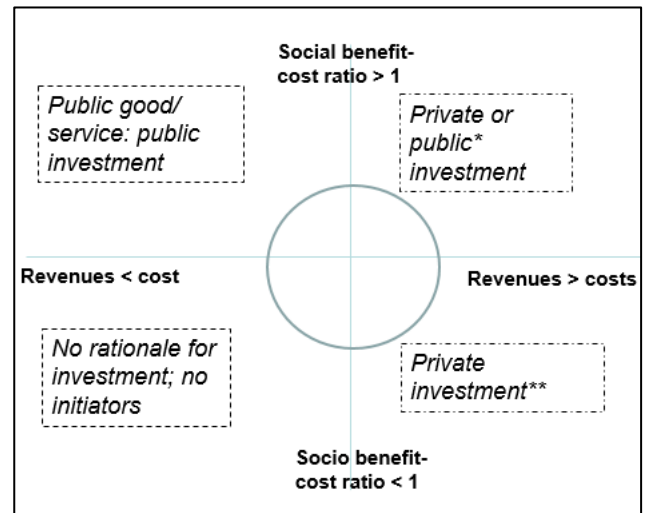


FIGURE 1.1 THIS FIGURE SHOWS IN WHICH SITUATION PUBLIC OR PRIVATE ACTORS HAVE A RATIONALE FOR INVESTMENT * ONLY PUBLIC INVESTMENT IN CASE OF MARKET FAILURE (REASONS PRIVATE INVESTOR IS UNWILLING TO TAKE ON PROJECT) ** IN THEORY PROJECT HAS NEGATIVE IMPACT ON SOCIETY (EXTERNALITIES) AND REGULATION SHOULD PREVENT PROJECT.

In the context of typical projects where EcoShape is active in developing BwN projects, there may be both public or private investors. Flood defenses/ coastal protection and ecological restoration are typically public goods; and sustainable port development and/ or maintenance is often private.

The role of finance

Both for public and private investors in a project, finance may be needed to cover initial expenses of the project¹. Finance is capital provided to an organization to pay for e.g. upfront investment costs of a project, with the requirement to pay it back over a pre-defined period with interest.

Finance is typically provided by financial institutions. These institutions have their own specialization in relation to the type of projects or entities they provide finance to, and also need a business case for providing finance: higher revenues than costs, factoring in e.g. risk and interest rates. In turn, the cost of capital (how much interest has to be paid for a loan) affects the business case of the entity willing to invest in a project (the cost of capital).

¹ Funding: money provided by organization or government based on an agreement, usually free of charge, and no need to pay the money back.
Financing: amount of capital provided to an organization with requirement to pay money back with interest, usually provided by financial institutions.
Investment: more general concept of allocating money in expectation of a benefit in the future

2 TOOLS TO SUPPORT THE BUSINESS CASE

To develop the business case and support the investment rationale as described above, different tools or supporting analyses can be used, depending on the character and requirements of the investing entity. If the project is funded through a public budget, this demonstration likely includes a substantiation of the socio-economic rationale (2.2), and an analysis of cash flows (2.1) and (financial) risks that might arise and how to deal with them. Below we shortly highlight some of the key tools used to support a business case for a project.

2.1 CASH FLOW

To assess the financial feasibility and attractiveness of a project a cash flow analysis is used. Revenues and capital and operational expenditures (CAPEX and OPEX) are analyzed over the lifetime of an investment. The purpose of this exercise is to understand how much money is needed by when – and the ability of projected revenue streams and cash flows to cover your future financial obligations under various funding structures. This is also key information in determining the type of financing required (EIB, 2018). CAPEX and OPEX are also input for the cost-benefit analysis.

Key concepts related to cash flow analysis

- **Cost analysis:** A cost analysis includes setting out expected expenditures on the project over its lifetime. Regulations on what costs should be included in the analysis are often available depending on the investor² and type of project. A whole lifecycle cost analysis typically includes both capital expenditures (initial investment; CAPEX) and operational expenditures (OPEX) during the projected lifetime of the investment, including decommissioning costs if relevant. Additionally, procurement and design costs, monitoring costs may be included.
- **Cash flow/ cash profile:** overview of incoming and outgoing cash over time. This provides insight in whether a company or project is financially sound and whether additional finance is needed to bridge gaps between revenues and costs over time.
- **Internal rate of return (IRR):** a metric often used as indication of the profitability of investment. The IRR is the discount rate that makes the net present value of all cash flows (income and expenditures) equal to zero; it can be seen as the average annual rate of return earned on an investment. The higher the IRR, the more profitable a project in the short term. Many investors have a minimum requirement on the IRR of a project before investing.
- **Payback period:** the period it takes until a loan is reimbursed.

2.2 SOCIO-ECONOMIC RATIONALE / STRATEGIC CASE

Particularly in public or impact investors, demonstrating the strategic rationale for investment from the perspective of welfare may be required, e.g. based on cost-effectiveness analysis and multi-criteria analysis. Particularly in the case of public investment, a substantiation on the added value of the public investment to society and/ or the problem that is addressed is required.

Key concepts related to socio-economic rationale

- **Cost-benefit analysis:** The costs of the project are compared to the welfare effects/ benefits. These are determined in relation to a reference situation that includes autonomous development. If possible, all effects (including e.g. co-benefits in the form of ecosystem services in the case of BwN) are expressed in monetary terms to ensure comparability.

² E.g. [see here](#) for guideline for cost estimation in coastal protection in UK.

- **MCA:** Semi-quantitative analysis in which the performance of measures is scored on multiple criteria based on expert/ stakeholders' opinions (e.g. natural habitat creation; flood risk reduction; costs; cultural heritage preservation).
- **Cost-effectiveness analysis:** In a cost effectiveness analysis various alternative options for a project (e.g. conventional engineered designs versus nature-based designs) are compared in terms of investment costs and effectiveness: the extent to which they solve the problem or contribute to a pre-defined goal. This approach is only applicable if there is one single, clear primary goal for the project and the financially most attractive alternative must be identified, either based on only initial investment costs or lifecycle costs. Additional benefits of a measure are not taken into account.
- **EIRR:** economic investment rate of return is a metric on the 'profitability' of a project in terms of socio-economic impact
- **Net present value** magnitude of the (net) socio-economic impact of an investment (economic benefits – investment costs)

3 THE BUSINESS CASE FOR A BWN PROJECT

3.1 IDENTIFYING FUNDING SOURCES FOR BWN PROJECT

Figure 3.1 shows a flowchart for the decision-making process on whether to invest in a building with nature or a conventional grey engineering solution for a project goal. What the substantiation of the rationale is depends on the source or sources of funding for the project: depending on who are willing to co-invest, the business case of the project must provide the rationale for each investing entity.

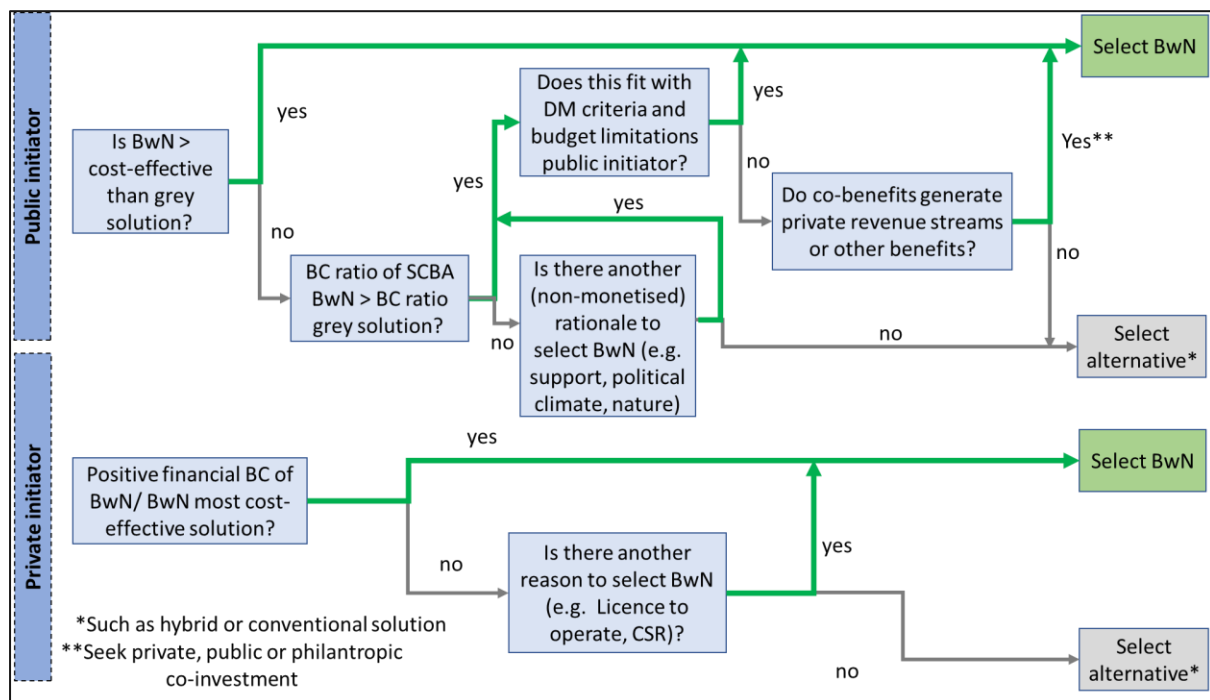


FIGURE 3.1 FLOWCHART FOR SETTING UP THE BUSINESS CASE FOR BWN PROJECT. * CAN BE ANY KIND OF ALTERNATIVE PROJECT; HYBRID OR GREY, OR POSSIBLY NON-STRUCTURAL. ABBREVIATIONS: BC RATIO= BENEFIT- COST RATIO; BWN: BUILDING WITH NATURE; CSR = CORPORATE SOCIAL RESPONSIBILITY; DM CRITERIA = DECISION-MAKING CRITERIA.

In the case of a public project initiator in a situation where project alternatives are compared, a common prerequisite for investment is a cost-effectiveness or cost-benefit analysis. If the results for the BwN alternative fit within the decision-making criteria and budget limitations of the public initiator, there are no further requirements to support the 'business case' for the BwN solution.

If this is not the case, it may be possible to identify entities or funds willing to co-invest; these may be philanthropic (grants), public (budgets for other goals, other public entities) or private in nature. When these potential funding sources have been identified, further demonstration of the projects' rationale in relation to their investment criteria may be required.

Alternatively, if this is not feasible or the initial public initiator does not want to cooperate or attract co-funding from other sources, a different type of project may be more attractive (e.g. hybrid or grey, or another type of solution).

In case of a private initiator of a project – e.g. a port authority responsible for maintenance of wet infrastructure – the first question is whether there is either a positive business case (revenues > costs), or if it is the most cost-effective solution to a specific task/ goal. If this is not the case, there may be other reasons the private entity is willing to invest in a BwN solution – e.g. co-benefits that do make the projects' financial case attractive, or strongly contribute to the Ports CSR goals.

Key elements in demonstrating business case for BwN

As BwN is often an innovative approach, additional knowledge or new ways to demonstrate a BwN project meets key eligibility criteria may be required. This relates for example to uncertainties in terms of performance (cost-effectiveness analyses), construction risk, safety and environmental impacts; how to correctly estimate (lifecycle) costs (Rijke and Altamirano, 2020) and; how to demonstrate BwN benefits in a CBA. If the project does not provide a rationale for investment on regular decision-making grounds, it may be valuable to seek and substantiate new avenues: new arguments for investment or find private or public actors willing to co-invest. This includes venturing into new partner constellations and accessing and/ or developing new financial instruments. For more information and inspiration on this, please see the guidance material for business developers and links for additional information on the website.

3.2 Overview of sources for funding and finance

If investment costs of a project are limited, a private or public initiator may have sufficient internal capital to finance the project. Larger projects most likely require external financing. There is a large array of funds that may be used to invest in BwN, from public, philanthropic and private sector sources. **Error! Reference source not found.** shows what kinds of funding and finance is available for 'natural infrastructure'³ and under which kind of conditions.

³ There are various terms in use that relate to the same or similar concepts as building with nature: nature-based solutions; natural infrastructure; eco-based disaster risk reduction.

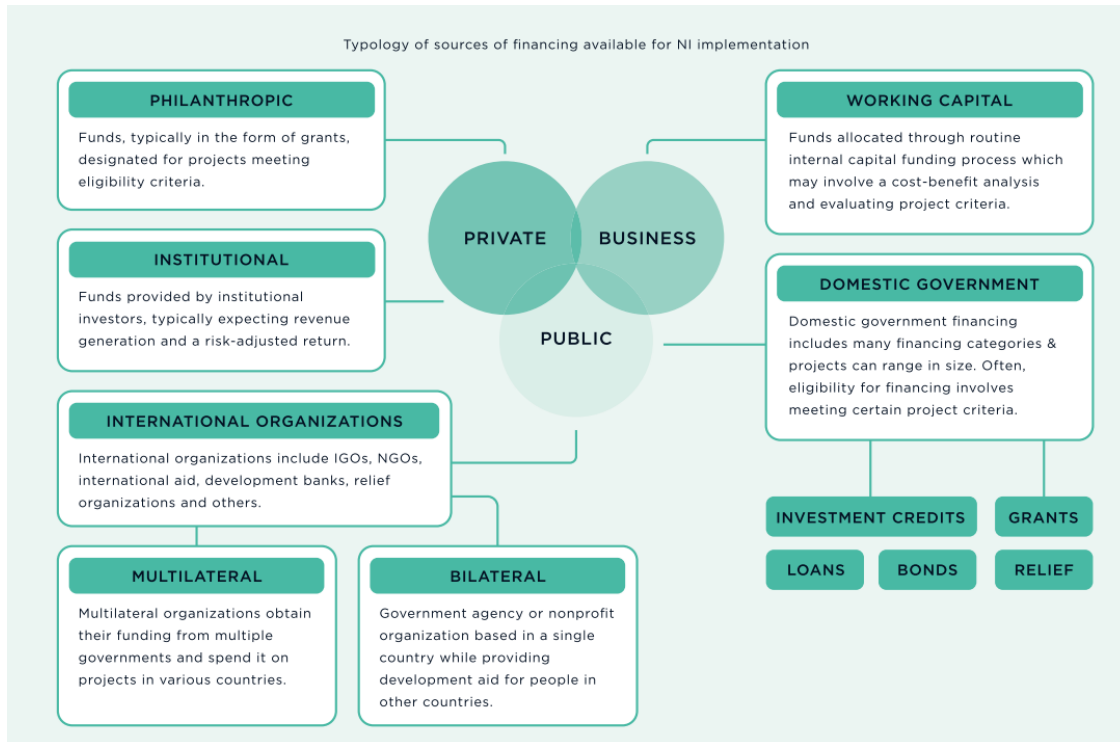


FIGURE 3.2 FROM SOMARAKIS ET AL., (2019)

4 REFERENCES

- EIB, 2018. Investing in Nature: Financing conservation and nature-based solutions. A practical guide for Europe.
- Groenendijk, F., Leeuwis, M., Bergsma, J., Kok, S., Husken, L., Ottow, B., IJff, S., 2020. Making a (business) case for Building with Nature Guidance and lessons from the Interreg North Sea Region project.
- Rijke, H. de, Altamirano, M., 2020. Operationalising insurance value of ecosystems Costs of infrastructures : elements of method for their estimation.
- Somarakis, G., Stagakis, S., Chrysoulakis, N., 2019. Thinknature: Nature Based Solutions Handbook. <https://doi.org/10.26225/jerv-w202>

5 APPENDIX: DEFINITIONS FROM LITERATURE

[Dutch guideline public business case](#)

‘A public business case **sets out the financial consequences** of a projects for the government, including expenditure (cost), revenues (income) and risks. In this sense, it is not essentially different than a private sector business case, apart from the fact that many public projects are typically not profitable financially but have another (e.g. political, societal) rationale for investment. This compared to an economic assessment like A cost-benefit analysis might be used to demonstrate this rationale from a broader welfare perspective (economic, health, environment, social, safety, etc), where a public business case focuses on financial consequences **for the public authority.** ‘

[UK guideline for assessing public sector business cases](#)

“The business case is a **management tool** and is developed over time as a living document as the proposal develops. The Business Case **keeps together and summarizes the results of all the necessary research and analysis needed to support decision making** in a transparent way. In its final form it becomes the key document of **record for the proposal**, also summarizing objectives, the key features of implementation management and arrangements for post implementation evaluation. Business cases can cover a wide range of types and levels of spending. Each case will be developed to reflect the type of proposal being considered. The effort departments expend on developing the proposal should be proportionate to the likely costs and benefits. The Business Case can be broken down and structured into 5 different aspects which are interconnected but distinct, in short making sure that that proposals for investment:

- Are supported by a robust Case for Change – the Strategic Case;
- Optimise Value for Money – the Economic Case;
- Are commercially viable – the Commercial Case;
- Are financially affordable – the Financial Case; and,
- Can be delivered successfully – the Management Case.

All of these aspects are important; however, their size will vary from proposal to proposal depending upon its nature and complexity. Some less complex business cases particularly those not involving significant new procurement, new systems or new building construction may need little or nothing by way of a commercial case and require a less complex management case. ”

[Interreg BwN business case guidance document \(in development\)](#)

‘A business case is a **decision support framework** that gives insight in the answers to: 1) Whether the project provides increased welfare for society, and 2) Whether sources for funding and mechanisms for financing can be identified. Key elements are a good outline of the scope of the project and physical and socio-economic system context, a substantiation of selection of proposed measures, a design optimization and outline of key implementation factors such as financial arrangements and contracting. ‘. This definition is by experts considered to be an economic assessment. A business case is always from an (public or private) entity perspective and an economic perspective is more from a national perspective, which is usually taken by the gov. Financing is used when looking from the perspective of the financier.