In a nutshell: Sustainability assessment with TRAFIS.NB
Informal tool for finding solutions in early planning phases

TRAFIS.NB is an informal tool for the **sustainability assessment of innovative infrastructure solutions**. The tool activates locally available knowledge and identifies possible **strengths and weaknesses** of alternative solutions in the dimensions of security of supply, resource conservation, economic efficiency and user orientation. TRAFIS.NB can be used for the selection of the most appropriate alternative solution and the goal-oriented further development of variants. It **makes conflicts and uncertainties visible** and identifies needs for more in-depth investigations. The application of TRAFIS.NB structures the evaluation and discussion process, elaborates discussion needs, provides justifications for decisions and strengthens transparency and legitimacy of decisions.

Users of TRAFIS.NB are primarily operators and planners of infrastructure or public administrations, for example in the context of a feasibility study. The evaluation process is organized by a competent and locally accepted "**process moderation**". An **"evaluation group"** of local experts, which combines different professional perspectives, assesses potential impacts of a solution with the help of **sustainability criteria** that are specifically tailored to innovative infrastructure solutions.

The Excel-based **TRAFIS.NB tool** supports the evaluation process. It provides a recommended set of criteria and allows them to be adapted or supplemented on a case-by-case basis. The members of the evaluation group then assess the expected sustainability impacts. After the individual assessments have been transferred to the tool, the **results are automatically displayed** in form of tables, graphs and as a summary report - e.g. as input for coordination processes or for passing on to decision-makers.

Example

A city district is to be supplied with exhaust heat-based "cold" district heating in the future. There is a lack of (local) experience with this solution. Diverging goals, different opinions, limited knowledge and concerns make the development of the solution difficult.
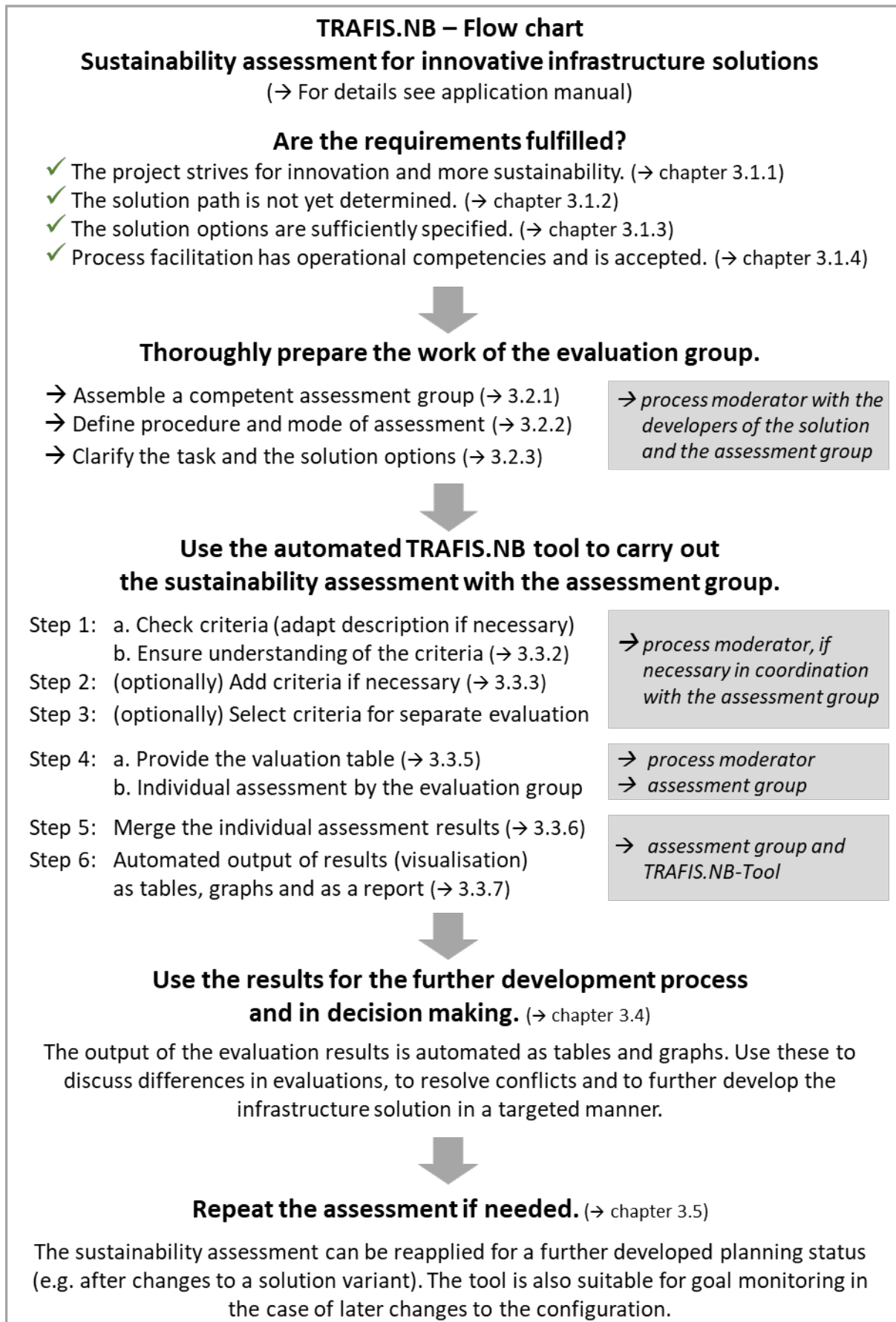
→ TRAFIS.NB helps to bring together existing knowledge, to survey important effects, to structure the necessary exchange about goals and effects as well as to identify possible strengths and weaknesses at an early stage and to develop appropriate solutions.

Figure 3:   Criteria for the sustainability assessment of innovative infrastructure solutions

Performance and security of supply	Resource conservation	Economic efficiency and user orientation
• Performance • Susceptibility to failure • Dependency • Adaptability • Redundancy (technical, personnel) • Buffer capacity • Decoupled operation • Availability of skilled personnel • Cost of function recovery	• Primary energy, end energy • Surface, soil • Raw materials, critical raw materials • Water, water bodies • Greenhouse gases • Substances hazardous to health • Noise and waste • Protected habitats and species • Alternative land potential	• Economic viability (operator) • Quality and quantity of service • Investment requirements for users • Required user competence • End-user price

Source: Criteria based on Olfert et al. 2020, VDI 2016

Figure 4: **TRAFIS.NB Flow Chart**

TRAFIS.NB – Flow chart
Sustainability assessment for innovative infrastructure solutions
(→ For details see application manual)

Are the requirements fulfilled?
✓ The project strives for innovation and more sustainability. (→ chapter 3.1.1)
✓ The solution path is not yet determined. (→ chapter 3.1.2)
✓ The solution options are sufficiently specified. (→ chapter 3.1.3)
✓ Process facilitation has operational competencies and is accepted. (→ chapter 3.1.4)

Thoroughly prepare the work of the evaluation group.

→ Assemble a competent assessment group (→ 3.2.1)
→ Define procedure and mode of assessment (→ 3.2.2)
→ Clarify the task and the solution options (→ 3.2.3)

> → process moderator with the developers of the solution and the assessment group

Use the automated TRAFIS.NB tool to carry out the sustainability assessment with the assessment group.

Step 1: a. Check criteria (adapt description if necessary)
b. Ensure understanding of the criteria (→ 3.3.2)
Step 2: (optionally) Add criteria if necessary (→ 3.3.3)
Step 3: (optionally) Select criteria for separate evaluation

> → process moderator, if necessary in coordination with the assessment group

Step 4: a. Provide the valuation table (→ 3.3.5)
b. Individual assessment by the evaluation group

> → process moderator
> → assessment group

Step 5: Merge the individual assessment results (→ 3.3.6)
Step 6: Automated output of results (visualisation) as tables, graphs and as a report (→ 3.3.7)

> → assessment group and TRAFIS.NB-Tool

Use the results for the further development process and in decision making. (→ chapter 3.4)

The output of the evaluation results is automated as tables and graphs. Use these to discuss differences in evaluations, to resolve conflicts and to further develop the infrastructure solution in a targeted manner.

Repeat the assessment if needed. (→ chapter 3.5)

The sustainability assessment can be reapplied for a further developed planning status (e.g. after changes to a solution variant). The tool is also suitable for goal monitoring in the case of later changes to the configuration.

Source: own figure, Alfred Olfert (IÖR) & Jörg Walther (BTU)