

## Summary

# Systematic, knowledge-based and transparent planning analyses

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*In this report we discuss how planning analyses can be more systematic, knowledge-based and transparent, which are important prerequisites for making plans that allow land use and transport development to help achieve defined goals. We review and discuss some key topics related to planning analyses, and define criteria we think planning analyses should satisfy to be systematic, knowledge-based and transparent. Based on this, we describe a method we have called 'systematic planning reasoning'. We investigate whether Norwegian planning analyses are in line with the criteria, and find that the improvement potential is greatest in describing and following a systematic approach, explaining the central cause-effecting relations that underlie planning work, providing references to documented knowledge, define zero-alternatives and explain why one alternative is recommended.*

## Background

Both at national, regional and municipal level, we find that the growth of passenger transport in urban areas is to be taken by public transport, bicycle and walking (the zero-growth objective), reducing greenhouse gas emissions and developing cities to become more attractive and vibrant. It can be argued that today's land use and transport development in many cases does not contribute to goal achievement. Institute of Transport Economics (TØI), together with a number of partners, has collaborated in the project *Knowledge and competence for climate friendly and attractive urban development*, abbreviated to KLIMATTT. In the project we have developed the report *Knowledge base: Land use and transport development for climate-friendly and attractive cities* (Tennøy et al., 2017). Here we have summarized and discussed research-based knowledge of what kind of land use and transport development can contribute to making cities both more climate-friendly and more attractive. The goal has been that the knowledge base will be a useful, relevant and referral tool that planners and others can use in planning and steering developments in directions that provide more climate-friendly and attractive cities.

Systematic, knowledge-based and transparent planning analyses are an important prerequisite for the development of plans that are capable of contributing to steer land use and transport development in directions helping to achieve defined goals. The aim of making plans and analyses is to provide a decision base that allows decision makers to assess the extent to which different alternatives contribute to achieving different goals and provide them with a good basis for making decisions about which alternative to choose, based on which goals they emphasize the strongest and what negative consequences they want to avoid. Others, and especially consultation agencies and others, must also be able to make such assessments. As part of the KLIMATTT project, we have prepared this report, which will provide input on how Norwegian planning analyses can become more systematic, knowledge-based and transparent, and how the knowledge base prepared in the KLIMATTT project can be useful in such analyses.

## **Aim and methods**

We seek to answer the following question: *How can planning analyses in Norwegian planning practice become more systematic, knowledge-based and transparent?* The report first reviews and discusses some key topics related to scholarly analyses based on existing literature and own previous studies, and describes what requirements we think planning analyses should satisfy to be considered systematic, knowledge-based, transparent and easy understandable. With this as a starting point, we describe a method for implementing planning analyses that we have called 'systematic planning reasoning'. The planning analyses cannot be clearly distinguished from the other tasks involved in making a plan, and we have therefore included the most important steps involved. Furthermore, we summarize findings from surveys (10 interviews with planners, and document studies of nine plans, three of which are thorough) of current practice. We have investigated whether the planning analyses are systematic, knowledge-based and transparent with respect to our definitions, what the deviations are and what consequences they may have. Based on this, we discuss changes that can make plans and planning analyses more systematic, knowledge-based and transparent. We focus on the more analytical parts of making plans, and less on planning processes.

## **Requirements for planning analyses**

Cities are complex systems, and analysing them involves uncertainty. It is therefore important that planning analyses are systematic, knowledge-based, transparent, and understandable, and account for uncertainty, so that they can be critically discussed by professionals, politicians and others. Below we summarize what we understand by systematic, knowledge-based, transparent and understandable planning analyses. These are partly overlapping.

**Systematic:** To be good decision support tools, planning analyses need to follow a clear and defined systematic. Objectives, alternatives and criteria must be clearly defined. The methods and knowledge that are used for the analysis must be described and the analyses must be carried out according to the best professional judgment. Results, and what they mean in terms of goal achievement for different goals, must be clearly stated. The procedures for compiling and ranking the various alternatives in terms of overall goal achievement must be systematic and clear. It must be clearly explained how recommendations and proposed or chosen solutions are rooted in the analyses.

**Knowledge-based:** Knowledge-based plans and analyses are based on research-based and other documented knowledge of the central cause-effect relations, and provide references to these. This largely concerns how we understand that physical changes of the city affect the behaviour of humans, which in turn affect the characteristics of the city, that affect the behaviour of humans, and so forth. We understand knowledge about causal effects as different from data about current situation and projections.

**Transparent:** In transparent plans and planning analyses, it is clear which key causal effects that underpin the system's understanding of how the analyses have been conducted including the methods, data and assumptions used. References for this must also be entered as far as possible. In principle, the description should be clear enough to allow others to carry out the same analyses based on the information provided, but this can sometimes be difficult.

**Understandable:** By understandable, we mean that it is clear what has been investigated, how it has been investigated, what has been found and what this means for goal achievement potential.

## Systematic planning reasoning

We have described a method for making planning analyses, which we have called 'systematic planning reasoning'. We describe this in eight steps:

- 1) Describe the current situation and define important challenges
- 2) Define important objectives
- 3) Describe and document the important causal effects that are used as the basis for the analysis
- 4) Develop or define alternatives
- 5) Determine the criteria for the alternatives are to be analysed against
- 6) Analyse the effects and consequences of each alternative for each objective, and rank the alternatives with respect to each objective
- 7) Compare the alternatives, rank them with respect to their total goal achievement potential
- 8) Present the plan for decision makers and others

The steps are not necessarily carried out in this order, and it will normally be necessary to go back and forth between the steps. Planning analyses that can be referred to as knowledge-based and transparent must usually include these steps, and the steps should be clearly discernible in the planning document presented for decision makers. All steps should be based on documented knowledge, and be transparent and understandable.

## Current practice

In our investigations of planning practice, we have considered if the plans and planning analyses we have studied, and that the planners have told about, include all the eight steps we have described, whether they are systematic, and in what ways. We found that this varies. We have seen a few planning analyses rather close to what we have described as systematic planning reasoning, in that they include all eight steps, that the steps are clearly separated, and that it is clear what is done and how. We have also found plans and planning analyses that deviate significantly from what we have described as systematic planning analyses, because important steps are missing or not explained, or by making it difficult to assess whether the planning analyses have been carried out in systematic ways.

*Current situation and challenges* are often described well, as are the *objectives* the plan will help to achieve. Whether or not the *central cause-effect relations are described and documented* varies widely. Some plans do not describe this, and go straight from the description of current situation to propose measures. Other plans describe cause-effect relations without references to where these are documented. Some plans explain important cause-effect relations and provide references to documentation. We also find variations with respect to *development of alternatives*. In some plans, only one alternative has been developed, without a zero alternative. In other plans, more alternatives are defined, and it varies if a zero alternative is included. It also varies if *criteria* that the alternatives should be analysed against are defined, but it seems that not all have a clear awareness about this. Practices concerning *analyses of whether the alternatives contribute to goal achievement* for the different objectives also vary. In some cases, it is difficult to understand whether such analyses have been carried out at all, in other cases it is understood that something is done but not what, while in other cases it is clear what has been analysed how and what has been found with respect to if the alternatives contribute to the achievement of goals. Effects and consequences are assessed using different methods, both quantitative and qualitative, but this is not clearly described in all plans and planning analyses. It varies if *alternatives are compiled and ranked*, and how clearly it is described why an alternative is recommended. In some plans, one alternative

has been agreed along the way, while other plans make clear rankings of evaluated alternatives and present a well-founded recommendation. When the *plans and analyses are presented to political decision makers and others*, several interviewees explain that they discuss how plans and analyses should be presented in understandable ways. Several believe that the planning documents cannot be too theoretical or have many references if they are to be perceived as understandable by decision makers. We also found substantial variations in how knowledge-based, transparent and understandable plans and analyses are.

Based on the studies of current practice, we can roughly distinguish between two types of planning analyses. In the more analytical approach, goals, criteria and several alternatives are defined, analyses are rooted in and documented with research-based or other documented knowledge, and clear rankings of individual objectives and goals are made. The more process-oriented approach discusses goals, alternatives, effects and consequences along the way, without conducting clearly defined analyses, and result in an agreed alternative (planning proposal).

### **Room for improvement**

In summary, we have found that the following improvements could help planning analyses become more systematic, knowledge-based and transparent:

- The planning analyses should follow a clearer and better described systematics, and normally include all eight steps defined in the method 'systematic planning reasoning'
- Cause-effect relations underpinning understandings and analyses should be explained, and references should be given to where they are documented
- A zero-alternative ('business as usual') should always be defined
- It should be stated how the alternatives are analysed against the different goals, and how they are ranked for each goal (if there is only one alternative, this must be compared and ranked against the zero-alternative)
- It should be explained how the different alternatives have been ranked with respect to total goal achievement potential, and why one alternative is recommended instead of others

### **Further research**

Our studies of planning practices showed a great deal of variety, pointing to the need for further research, including:

- Thorough and more comprehensive investigations and descriptions of current practice, in line with what we have done here
- Investigations of differences between more process-oriented and more analytical approaches to prepare plans and planning analyses in terms of political anchoring, implementation and goal-achievement potential
- Investigate whether politicians prefer unexplained and undocumented analyses and plans rather than analyses and plans that are well explained and documented