

Backcasting Case Study: The Kiev ERAIHM Spring School Project

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1. Backcasting

Backcasting literally means looking back from the future and can be seen as the opposite of forecasting, which is about looking to the future from the present. A more comprehensive description of backcasting is to develop first a desirable future, before looking back how that future could have been achieved and through what pathways or trajectories that could have happened. This is followed by setting agendas towards that desirable future and defining next steps. Leo Jansen at the STD program in the Netherlands has called this ‘from vision to action’ and ‘using backcasting for the challenge of sustainable development’. According to Dreborg (1996), backcasting is particularly useful if it concerns highly complex problems on a societal level, if there is a need for a major change, if dominant trends are part of the problem, and if scope and time-horizon are wide enough to leave room for very different choices and development pathways. Sustainability problems are obvious examples of such problems.

Backcasting was proposed in the 1970s in energy studies by amongst others Amory Lovins in the US and John Robinson in Canada. In the late 1980s the emphasis in backcasting shifted towards its potential for identifying and exploring sustainability solutions (see Robinson 1990), In the 1990s a shift to stakeholder involvement in backcasting took place starting in The Netherlands, Canada and Sweden (for an overview see Quist & Vergrat 2006). Up till now backcasting for sustainability has been applied to a wide range of different topics like regions such as the Baltic Sea region, river basins domains like transportation, mobility, consumption, at different scales varying from local to international, as well as within organisations and companies.

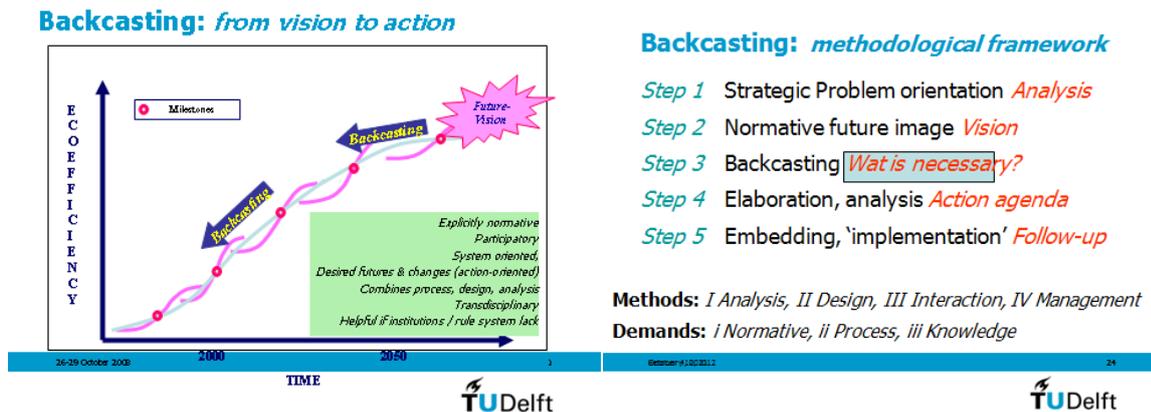


Figure 1: (a) Backcasting: key concept and characteristics & (b) methodological framework with steps, types of methods & demands

2. Methodological framework for backcasting

A more comprehensive methodological framework for participatory backcasting has been developed (Quist 2007), which is depicted in Figure 1. The framework is based on three key elements of participatory backcasting that also emerged from an earlier literature review (Quist & Vergrat 2006, Quist 2007):

- (1) The construction and use of desirable future visions or normative scenarios;

(2) Broad stakeholder participation and stakeholder learning

(3) Combining process, participation, analysis and design, using a wide range of methods within an overall backcasting framework. For other characteristics see also Figure 1.

The developed framework consists of five steps and the outline of a toolkit containing four groups of methods and tools. The backcasting approach reflected by the framework is not only inter-disciplinary (by combining and integrating tools, methods and results from different disciplines), but also trans-disciplinary in the sense that it involves stakeholders, stakeholder knowledge and stakeholder values. It must be noted that though the approach is depicted stepwise and seems to be linear, it definitely is not. Iteration cycles are likely to occur, while there is also a mutual influence between steps following one to another. In addition, the first step includes defining and bounding the system and includes defining time horizon, the number of visions to be developed, and developing the trans-disciplinary or multi-disciplinary research design. Furthermore, four groups of tools and methods are distinguished. In each step of participatory backcasting, methods and tools can be applied from each group.

3. Backcasting project for sustainable heating & cooling in Kiev

Participatory Backcasting for creation of a more sustainable heating and cooling system in the city is a part of FP7 project "Advancing Research and Cooperation Capacities of IHM NASU towards ERA" (ERAIHM) and has been applied in the city of Bila Tserkva in Ukraine. This exercise was conducted in framework of its work package dedicated to capacity building of researchers from the leading research centres of Ukraine – Institute of Hydromechanics of the National Academy of Sciences of Ukraine (IHM NASU) and included evaluating energy & heating system developments in the Ukraine, an analysis of the local situation with regard to current issues and developments in the heating system in Bila Tserkva, stakeholder interviews and workshops, vision and scenario development for future sustainable heating, and scenario evaluation.

Based on this successful participatory backcasting project in the ERAIHM project, an assignment has been developed to do participatory backcasting for sustainable heating futures for the capital of Kiev in the Ukraine as part of the ERAIHM Spring School. It will include an analysis of the current issues with regard to heating in Kiev, stakeholder interviews, development of future visions and scenarios for sustainable heating in Kiev and evaluating and elaborating these. Methodological support and expertise on the topic will be provided by lecturers and experts at the Spring School.

Key reading

Quist J, Vergragt P (2006) Past and future of backcasting: the shift to stakeholder participation and a proposal for a methodological framework, *Futures* 38(9): 1027-1045.

Robinson J (1990) Futures under glass: recipe for people who hate to predict, *Futures* 22: 820-843.

Further/background reading

Höjer M, A. Gullberg, R. Pettersson(2011), Backcasting images of the future city-Time and space for sustainable development in Stockholm." *Technological Forecasting and Social Change* 78(5): 819-834.

Holmberg, J. and K. H. Robèrt (2000). "Backcasting: a framework for for strategic planning." *International Journal of Sustainable Development and World Ecology* 7(4): 291-308.

Quist J, Thissen W, Vergragt P (2011) The impact and spin-off of participatory backcasting after 10 years: from Vision to Niche, *Technological Forecasting and Social Change* 78(5): 883-897.

Rotmans J, Kemp R, van Asselt M (2001) More evolution than revolution: transition management in public policy, *Foresight* 3 (1): 15-31.

Wangel, J., (2011) Exploring social structures and agency in backcasting studies for sustainable development. *Technological Forecasting and Social Change*. 78(5): p. 872-882.