

Participatory backcasting: A tool for involving stakeholders in long term local development planning

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What is Backcasting?

- Backcasting is a term introduced by Robinson (1982), denoting a method to analyse future options
 - “The major distinguishing characteristic of backcasting analysis is a concern, not with what futures are likely to happen, but with **how desirable futures can be attained**. It is thus explicitly **normative**, involving working backwards from a particular desirable future end-point to the present in order to determine the physical feasibility of that future and what policy measures would be required to reach that point.”

What is Backcasting?

It has two main characteristics:

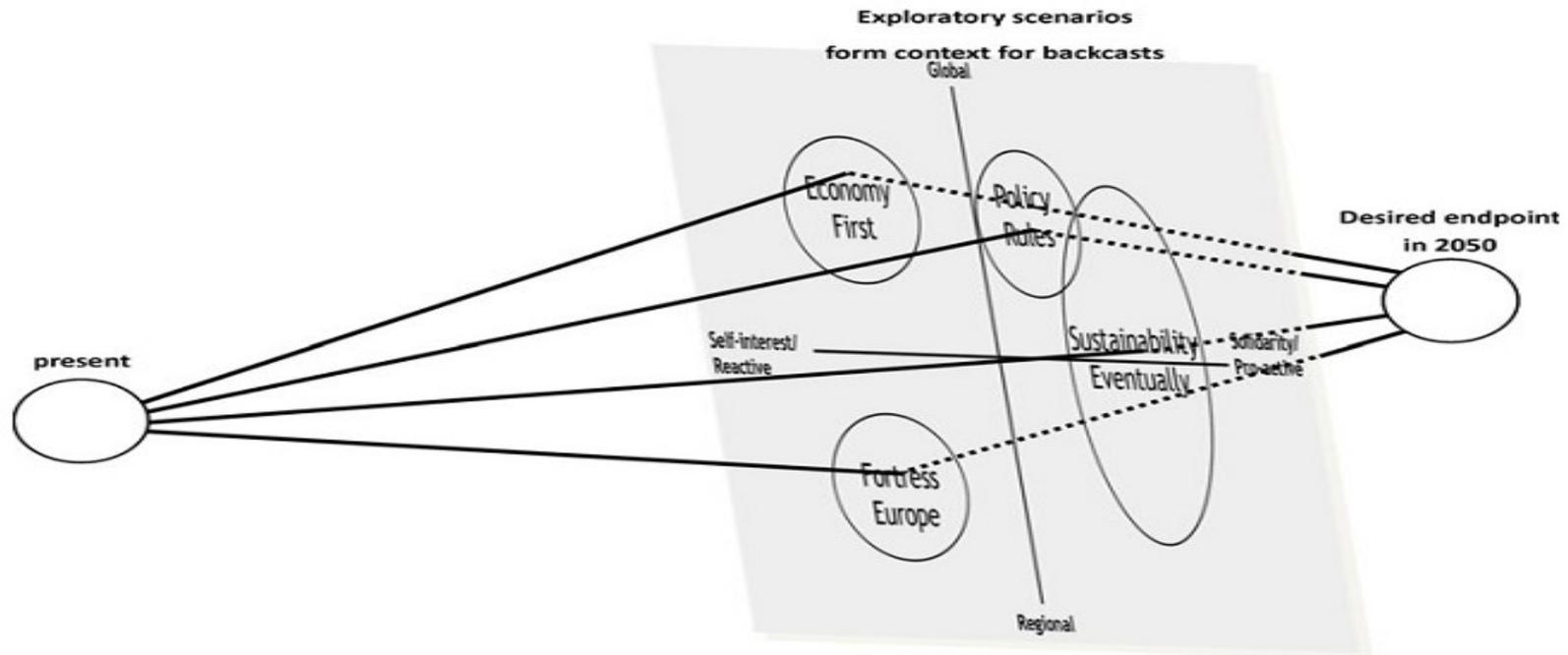
- A **normative** nature
- And represent a process of “**working backwards** from a particular desired future end-point” (Robinson 2003)

Normative nature

- Not explorative (*What will happen?*)
 - Where scenarios that sketch **plausible futures** are developed. Usually these show the implications of several external drivers (Börjeson et al. 2006)
- Normative (*What we have to do to make happen something?*)
 - Backcasting leads to the identification of **actions** that are effective in the different socio-environmental contexts (e.g. those sketched in the exploratory scenarios)

How is it articulated?

- It includes at least
 - 1) the development of **desirable images of the future** (visions)
 - 2) A backwards analysis of how these visions can be realised



Other characteristics

- some backcasting studies have a strongly quantitative nature, depending strongly on models
- others take a more qualitative (and often participatory) approach

Methodological Steps

- Step 1. Identification of the **desired end-point**
- Step 2. Identification of **obstacles**, **opportunities** and **milestones**
 - 2a. Identification of the obstacles (e.g. lack of financial resources) and opportunities
 - 2b. At the same time, milestones were defined.
- Step 3. Identification of (Policy) **actions**
- Step 4. Identification of **Strategies**
(=mix of actions)

Step 1. Identification of the desired endpoint

- A desired endpoint is chosen in plenary session.
 - It need to be a major goal upon which all participants agreed

(however, to save time, we did it through an online survey)

Step 2. Identification of obstacles, opportunities and milestones

- 2a. In small groups, participants study the contextual exploratory scenario that they had developed previously in order to identify the obstacles (e.g. lack of financial resources) and opportunities (e.g. investment in new technologies) encountered in relation to achieving the desired endpoint

(however, to save time, we also did it through the same online survey)

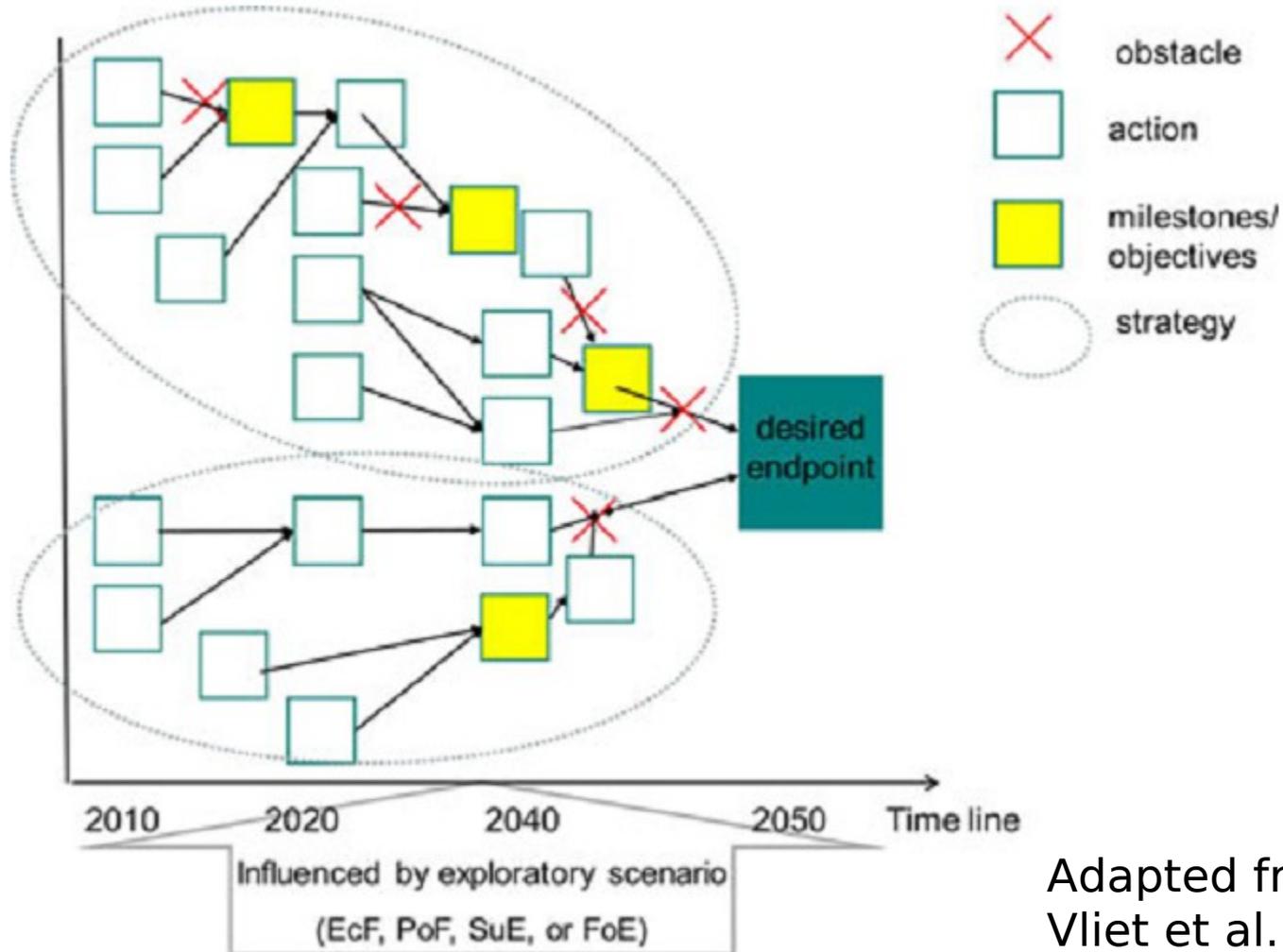
Step 2. Identification of Obstacles, opportunities and milestones

- 2b. At the same time, milestones (*bottlenecks*) are defined. The milestones form the main steps from the desired endpoint back to the present.
 - They are often linked to one or multiple obstacles and opportunities, and thus to the exploratory scenario.

Step 3. Identification of (Policy) actions

- The milestones, obstacles and opportunities provided a **framework** for the identification of more concrete actions.
Actions are designed to overcome obstacles and lead to the achievement of **milestones** and the **desired endpoint**
 - The actions are plotted on a timeline to show the relations between them, and their relations with milestones, obstacles and opportunities

Simplified example of the result of a backcasting



Adapted from Van Vliet et al. 2013

Step 4. Identification of Strategies

- Strategies are main sequences of actions and milestones leading to the desired endpoint.
- They summarise the backcasting timeline
- They are identified roughly by the participants
- After the workshop, they are fine-tuned by the workshop organisers

The main outputs

1. The timelines with **actions, milestones, obstacles, opportunities** and the desired endpoint showing how the desired endpoint can be reached;
2. A summarising overview in the form of **strategies**, for each scenario;
3. A **list of robust actions**, independent of the scenarios

A possible output



When is backcasting applicable?

- Typically backcasting is applied on **long-term complex issues**, involving many aspects of society as well as technological innovations and change
- The focus of interest is on a **perceived societal problem of great importance** (e.g. impacts of transports on the environment)

When is backcasting applicable?

the following characteristics favour backcasting:

- the problem to be studied is **complex**, affecting many sectors and levels of society
- there is a **need for major change**, i.e. when marginal changes within the prevailing order will not be sufficient
- the **dominant trends are part of the problem**.
These trends are often the cornerstones of forecasts
- the problem to a great extent is a matter of **externalities**, which the market cannot treat satisfactorily;
- the **time horizon is long enough** to allow considerable scope for deliberate choice

An Experiment

The development of a Bio-Based Economy (BBE) in European rural areas

- Identify the desired **endpoint** in 2035
- Identify the main **obstacles**
- Identify the main **opportunities**
- Identify the appropriate **actions** to achieve the desired end point, while taking into account obstacles and opportunities

Identify the desired endpoint in 2035

1) Which of these three options would you come true in the year 2035? Please select one:

1. Zero organic waste
2. Creation and development of a market for products from biorefinery
3. Make profitable the market for the products from biorefinery

Identify the main obstacles

2) Which are the main obstacles?

Select the most important 5

Absence of a clear market;	Limited access to external information and knowledge, including the lack of technological support;	Inconsistent policy framework at local, national and European level;
Uncertainty on return on investment or too long payback period for eco-innovation;	Lack of collaboration with research institutes and universities.	bureaucratic obstacles and administrative lacks;
Lack of external funding;	Cultural gaps on the role of sustainable development and the opportunities that its pursuit may determine;	Limited capacity of SMEs in R&D activities;
Insufficient access to existing subsidies and tax exemption;	Significant cuts to public and private spending with consequent limited availability of financial resources for BBE investments;	lack of technical and technological support to SMEs;
Lack of human resources;	Lack of common standards in order to measure eco-innovation of a product and a process (ie how green a process or a product);	relocation of businesses;
Technical and technological constraints (e.g. obsolete technical infrastructures);	Lack of clear and effective communication on the eco-innovation and its environmental and economic benefits;	barriers to education;
Market dominated by consolidated companies;		Others obstacles (pleas descrtibe)

Identify the main obstacles



3) Which are the main Opportunities? Select the most important 5?

Forward Thinking of the institutions	Enforcement of environmental law	Positive effects in terms of revitalization of local economies
Forward Thinking of entrepreneurs	Awareness for sustainable issues	Positive effects of the bio-economy in terms of job creation and employment and social services
Presence of dedicated crops	Strong social acceptability by stakeholders and society	Positive Demographic trends
Promising market for products from biorefinery	Involvement of local, national and supra-national stakeholders	Open-innovation networks
Bureaucratic public administration support	Importance of the strategic role of energy security, with emphasis on agro-energy.	Availability of suitable support systems
Presence of EU funding	Recognition of the bioeconomy as a key strategy for the development of the European rural areas	reduction of pollution
Presence of successful cases		Others oppportunities (pleas descrite)

Identify the desired endpoint in 2035

4) Identify the appropriate action to achieve the desired end point

Based on the aggregation of the response to the three previous questions, it is achieved in a participative manner by the group

...

It's your turn now ...!!!



Is backcasting a method?

- Robinson (1982): it is a method describing how a study should proceed in a number of well-defined consecutive steps, each of which in turn divided into substeps
- Dreborg (1996): it should be seen as a general approach than as a method
 - It is an approach which may promote creativity, by shifting the focus from present conditions to a situation sufficiently far off in the future to permit radical change

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Summary: core features of backcasting

- **The outcome:** *alternative images of the future*, thoroughly analysed as to their feasibility and consequences.
 - Often they highlight polarities (eg solar vs. nuclear), and limit to what is technologically and socially possible to attain (is economic growth compatible with a 40% reduction of transports over the next 30 years?)
 - Also, strategic choices for society are identified. Of specific interest are decisions that may close or open the door to some of the identified future solutions

Summary: core features of backcasting

- **For whom:** addressed to **many actors** such as political parties, Governmental authorities, municipalities, organizations, private enterprises and an informed general public
 - The studies are meant to provide input to a policy-forming process, with many actors.

Summary: core features of backcasting

- **For what:** The images of the future are meant to serve as well worked out examples of what, e.g., sustainability may be like, with the aim of *widening perceptions of possible solutions among various actors*. Another purpose is to highlight consequences of strategic choices in society (the opening or closing of future options).
 - The result is not meant to form a basis for a single, big decision. It provide alternative (coherent) images of the future and their (credible) consequences. *Then the results may work as a scientific material in a process, facilitating for actors with different values and goals to form an opinion and a view on the future.*

Summary: core features of backcasting

- **How:** A backcasting study needs novel ideas about solutions to the problem at stake. *Getting ideas is a non-logical process.*
 - There is no point in prescribing any formal methods (Methods such as expert panels etc may work, but you may also get a brilliant idea without using any specific method) It is the result that counts.
 - However, a sound knowledge of the relevant aspects of society and technology is a necessary foundation. Since the studies cover such broad fields of knowledge, a multidisciplinary team is required.

Reading List

- Robinson J (1982) Energy backcasting—a proposed method of policy analysis. *Energ Policy* 10:337–344
- Robinson J (2003) Future subjunctive: backcasting as social learning. *Futures* 35:839–856
- Börjeson L, Höjer M, Dreborg K-H, Ekvall T, Finnveden G (2006) Scenario types and techniques: towards a user's guide. *Futures* 38:723–739
- Van Vliet M and Kok K (2013) Combining backcasting and exploratory scenarios to develop robust water strategies in face of uncertain futures. *Mitigation and Adaptation Strategies for Global Change*
- Dreborg KH (1996) Essence of backcasting. *Futures* 28:813–828

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Thank you !

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