

**COMPARISON OF NORMATIVE SCENARIO AND VISION AS METHODS OF
FUTURES RESEARCH**

Essay for the course of
Futures Research Methods

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Contents

1. Introduction	3
2. Definitions	3
2.1. Brief history.....	3
2.2. Classification and sub-classification of the methods	4
3. Applications	5
3.1. Applications of normative scenario	5
3.2. Applications of the vision method	5
4. Execution	7
4.1. Requirements to backcasting	7
4.2. Backcasting steps.....	7
4.3. Requirements to visioning	7
4.4. Visioning steps	8
4.5. Some other execution-related aspects	9
5. Ethical dimension	10
6. Conclusions	10
References	11

1. Introduction

Normative scenario and vision are methods of futures research sharing many similarities. This paper compares them by their purposes and execution. We will also look into history of these methods, their possible variations, risks and limitations, and some ethical considerations.

2. Definitions

Following numerous examples in literature (e.g. Phdungsilp 2011; Neuvonen & Ache 2016), we will use the term *normative scenario* as a full synonym to *backcasting*. The latter can be defined as “generating a desirable future, and then looking backwards from that future to the present in order to strategize and to plan how it could be achieved” (Vergragt & Quist 2011, 747). Many authors emphasize that desired future situations are defined during the scenario development process more often than are selected a-priori (e.g. Robinson 2003; Andreescu et al. 2013). Andreescu et al. (2013) also argue that the key in recognizing a scenario normative is the fact that it is being offered as a ‘goal for action (and sometimes also a path to that goal).’

Similarly to definition of *normative scenario* above, we will imply with *vision* not only the *output* of the method such as “an image of the desired future” (Rampersad 2001, 214), but also the *process* of execution – so called *visioning*. A high number of existing definitions for vision can be explained, probably, by the high frequency with which people use their imagination and curiosity when attempting to describe future (Godet 1987). A collection of other definitions can be found, e.g. in the work by Holstius and Malaska (2004, 36-37).

As follows from the definition of *normative scenario* above, a vision containing a goal can be used as an input to the scenario method and ‘the activity of visioning is normally followed by an activity called ‘backcasting’ (Wilkinson & Mangalagiu 2012, 374). However, there are also many other applications for the vision method as we will show below.

2.1. Brief history

Although both methods, especially vision, tend to be described as existing since the beginning of times, the first instances of their professional use are known to be in 1970s (Lovins 1977; Robinson 1982; Bezold et al. 2009). A detailed history of backcasting can be found in literature (Quist 2007; Quist & Vergragt 2006; Neuvonen et al. 2016), as well as for the vision method (Bezold et al. 2009, 3-5). We will limit ourselves to one observation only: since 1990s both methods are increasingly used together with participatory techniques (Bezold et al. 2009, 3-5; Quist et al. 2011, 884). It is particularly noticeable for the vision method: while articles written in the 1990s (e.g. Coulson-Thomas 1992, 84) tend to emphasize the importance of the involvement of key decision-makers combined with effective communication of the vision to the rest of an organization, the articles written in 2000s and later (e.g. Neuvonen & Ache 2016, 9) stress the need to build a shared vision: “The central purpose of the vision is to collect and consider together the views...”

2.2. Classification and sub-classification of the methods

Both methods are classified as normative (Glenn 2009, 9). Normative scenarios can be both qualitative and/or quantitative, while the vision method is dominantly qualitative.

Some researchers (e.g. Robinson 2003, 845; Bilgin 2016, 60) note that the differences between normative and exploratory scenarios are blurring because a number of hybrid methods appeared. Some argue that the differences were never sharp because no exploratory scenario can be free of moral and values (e.g. Andreescu et al. 2013, 714).

There exist a number of sub-classifications for backcasting (Quist et al. 2011, 884), of which we believe two are the most relevant for our comparison because they categorize normative scenarios by purpose.

One divides normative scenarios into preserving and transforming ones (Börjeson et al. 2006, 725). This can be compared against the vision method, which is generally aimed at bringing about transformations (Voorn et al. 2012, 352).

The other one classifies participatory backcasting into target-oriented, pathway-oriented, action-oriented and participation-oriented (Wangel 2011). Although we did not find similar sub-classification for visions, we noticed a significant diversity of purposes for which visions can be used. For example, visions in corporate foresight can be used not only as guidelines for action, but also to reduce the number of alternatives to consider, analyse strategies, facilitate communication, act as frameworks for perceptions and be a starting point for environment scanning (Hines, Bishop 2006, 156).

Like normative scenarios, visions can be classified by the field or targeted audience for which they are intended: humanistic, religious or eschatological, political, business or organizational, communal, visions in public policy and personal visions (Helm 2009, 97-98).

To conclude with, vision is more often connected with transformation and normativity, while backcasting can be aimed at preserving status quo and is not always clearly differentiated from exploratory methods.

3. Applications

3.1. Applications of normative scenario

In addition to the four orientations proposed by Wangel – target, pathway, action and participation – normative scenarios can be used for learning (Quist & Vergragt 2006, 1034). Objects of learning include not only immediately relevant issues such as values, images of future, flexibility and implications of decisions and policies, freedom of actions (Robinson 2003, 842) – also higher level learning, i.e. changes in definition or interpretative frame of a problem, can occur as a result of interaction of participants (Vergragt & Quist 2011, 753).

Complexity of problems and impossibility to find solutions to them by forecasting are often mentioned as conditions favouring use of backcasting (Höjer & Mattsson 2000, 629; Börjeson et al. 2006, 733; Quist et al. 2011, 884). Such conditions help explain why normative scenarios are mostly used for long-term periods: 25-50 years, allowing for major transformations (Kishita et al. 2017, 843). Problem-oriented nature of normative scenarios define their inescapable conditionality (ibid, 843).

As many normative scenarios are implemented with participatory methods, participation-based effects are also often sought, such as goals agreed by representative selection of agents (Andreescu et al. 2013, 713), shared ‘frame of the future’ – ‘the foundational values and procedures enabling the residents of the future world to negotiate their interests’ (ibid, 714), mutual understanding and co-producing new knowledge (Kishita et al. 2017, 3 referring to Kasemir et al. 2003), and higher learning, e.g. about environment and change agents (Vergragt & Quist 2011, 749, 752).

Interestingly, Vergragt and Quist note that ‘expert-led backcasting is more often used to reach policy objectives, while participatory backcasting is more used to achieve stakeholders' and lay-persons' buy-in’, i.e. involvement and sharing of goals (ibid, 753).

3.2. Applications of the vision method

Being a less complex method with, ideally, an easily comprehensible output – an image of preferred future, the vision method is employed for a broader range of purposes. Although some researchers argue that a vision as an output shall include a pathway (Lissack & Roos 2001, 55), such view is not common and, without this obscuring element, the vision method is naturally suitable for less predictable environments and more complex problems. In distinction to backcasting, it does not always need to be contingent, oriented towards specific context or time horizon (Voorn et al. 2012, 352). While some authors imply that vision shall be realistic and, thus, possible (e.g. El-Namaki 1992, 27), it does not agree with practice: a vision can be a direction or an unachievable goal (consider, for example, Toyota’s ‘aiming for zero emissions’). This additional dimension of freedom significantly broadens possibilities for use of the vision method. It also makes it more ‘resilient’ towards failures of implementation, since they are less likely to discourage following a vision. In case of the normative scenario method, a failure of implementation is more likely to cause

disappointment in the objective because the path was conceived as a part of the desired image of future. The last argument is, of course, relative because unpredictable future can equally ruin a vision as well as a normative scenario (Lissack & Roos 2001, 58).

The task of listing categories of purposes for which vision can be used is therefore more complex. In addition to objectives similar to the orientations for backcasting proposed by Wangel, such as achieving higher performance, promoting change, creating basis for strategy, motivation of actors and contextual framing (Lipton 1996, 3-4) - communicative (Voorn et al. 2012, 352; Neuvonen & Ache 2016, 9), learning (Masini 2006, 1166; Edwards 2008, 251; Wilkinson & Mangalagiu 2012, 381), predictive (Polak 1973, 300), ethical (Stewart 1993, 91), normative (Bell et al. 2013; Morgan 2015, 110), managerial (Hines & Bishop 2006, 156), and psychological (Stevenson 2006, 110) aspects are mentioned as possible objectives for vision.

Although the normative scenario method is also used as communication medium, it would be logical to assume that the vision method is likely to be more suitable for larger audiences because it is less complex and, as will be shown below, often designed primarily for communicative purposes.

4. Execution

4.1. Requirements to backcasting

In addition to general requirements applicable to futures research, such as accuracy of model, its reliability for intended use, correctness of implementation etc. (Piiirainen et al. 2012, 468-469), Quist et al. propose to define three categories of special requirements to participatory normative scenarios: normative, process- and knowledge-related ones (Quist et al. 2011, 885). The first one should describe requirements to vision, the second shall outline the role(s) of stakeholders in backcasting and the third shall specify what knowledge backcasting shall help acquire.

Recent research papers describe normative scenario as a participatory and iterative process (Vergragt & Jaco 2011, 751; Voorn et al. 2012, 353-354). A sufficiently distant time horizon is recommended to bring about ‘veil-of-ignorance’ effect in imagining a picture of preferred future (Andreescu et al. 2013, 715).

4.2. Backcasting steps

Normative scenario development usually includes two main phases: defining one or several desired states (visions) and determining paths to it/them. Additional phases may be aimed at control of quality of analysis, evaluation of suitability of proposed visions and/or paths and their implications, elaboration of stakeholder roles enabling achievement of the desired state etc. Sometimes a visioning stage is not required because a certain vision is already accepted by the client. Development of paths can include a number of steps as illustrated by the examples in the next paragraph.

Voorn et al. proposed a five-step framework for normative scenarios: (1) strategic problem orientation, (2) visioning, (3) goal setting, (4) backcasting analysis, and (5) evaluation and monitoring (2012, 353-354). Robinson’s method consists of six steps: (1) defining objectives, (2) choosing goals, (3) describing present system, (4) analysis of exogenous variables, (5) scenario analysis, and (6) impact analysis (1990, 824). Other approaches to backcasting scenarios were described e.g. by Banister et al. 2000; Svenfelt et al. 2011.

4.3. Requirements to visioning

Among numerous requirements to vision, coherence is mentioned, probably, most frequently. A coherent vision is understood as the one corresponding to current reality, e.g. external trends and variables, stakeholders, corporate culture and values, products in a given organization, thus linked more to the present moment than to unknown and unpredictable future (Lissack & Roos 2001; Boaventura et al. 2008; Battistella & Toni 2011, 1033). Coherence is seen as a condition for possibility and practicality of a vision. Addressing the same concern for practicality, a paper by J. Gold warns against ‘dangers of imagery’ – that a vision can ‘be used as a license without having to consider social factors’ (1984, 379). However, this seemingly logical requirements should be taken into account together with precautions against unduly limiting vision (Lissack & Roos 2001,

54). A good example of such possible difficulties is suggested by observation of family-owned companies that followed their founders' visions for over a century (Harris & Ogbonna 1999) – a company with more rigid vision incurred additional loss with time. This paper is also notable for evidencing possible extremely long-term impact of vision, something that is hardly attainable in case of normative scenario.

Other requirements vary greatly and may include explicitness, authority, structural coupling (Voorn et al. 2012, 352); being imaginable, inspiring and innovative, consistent and transparent, qualitative and sufficiently broad (Kerkhof & Wiczorek 2005, 740); being translatable, powerful, challenging, unique, feasible, idealist (Harris & Ogbonna 1999, 334); ambitious, but not unrealistic, clear, compelling, easy to grasp, to have a long time frame (10-30 years) (Hines & Bishop 2006) etc.

As if this mosaic would not be bright enough, we will mention a number of 'inverse requirements' – fallacies typical for vision (Dorr 2016, 5-6) that need to be avoided: (1) linear projection fallacy, (2) *ceteris paribus* fallacy, (3) arrival fallacy. Some other typical 'pitfalls and pratfalls' were listed by I. Wilson: "Executive impatience, Failure of imagination, Failure to build consensus, Failure to solve short-term problems, 'Obsolescence through success', Lack of flexibility, Failure to implement." (Wilson 1992, 25) To overcome some of the difficulties mentioned above, such as failure of imagination etc., 'outsiders' may be useful, including women and children (Masini 2006, 1163-1164).

4.4. Visioning steps

Development of a vision is the only phase that is shared by highly diverse descriptions of the vision method. Depending on the case, the method can be applied with or without preliminary analysis of different environmental or internal aspects and can include certain post-visioning steps such as control of quality of analysis, review of implications of the vision, communication of the vision and, as argued by some authors, development of paths to the envisioned state. The latter case will make the visioning method equal to what we consider as *backcasting* here.

An attempt to create an integrative framework for visioning was made by Morden who suggested three steps: (1) development of a preferred image of future, (2) communication of the image to followers, (3) empowerment of the followers for implementation (Morden 1997). A similar, but somewhat more detailed process with more emphasis on preliminary analysis of environment is proposed by T. Stevenson (Stevenson 2006, 669-670). An example from the world of business can be found in the paper by Ian Wilson who proposed eight steps for corporate visioning, including analysis of the company's resources, management values, strategic objectives etc. and conducting 'sanity checks' (Wilson 1992, 22).

4.5. Some other execution-related aspects

In view of high variety of requirements to the methods, on the one hand, and similarity of the methods, on the other hand, it is difficult to define sharp differences in their implementation. However, some conclusions seem plausible.

First, backcasting is likely to be more costly. It follows logically from the fact that normative scenarios often include visions. The need to ensure implementation makes participation of broad public and/or experts a more probable requirement to backcasting than to the vision method and may increase costs additionally. Second, because of problem-oriented nature, backcasting is usually conducted as purposeful work on the stakeholder's side, including possible investment into social effects such as learning, networking, building shared understanding, creating involvement etc. Furthermore, normative scenarios are more likely to depend heavily on input data: if input data changes, the output of the method should also change.

Relatively higher complexity and costs limit use of normative scenarios in comparison with the vision method. Although not always mentioned explicitly, the outputs of normative scenario method are expected to be relevant to the customer and other stakeholders, to have optimum breadth, depth and transparency. In distinction to a vision, normative scenarios are more often, if not always, required to be realistic, correspond to the selected time frames, provide logical and internally consistent pathways, including roles of actors, etc.

The vision method may be less reliant on participatory methods and involvement of experts, it can also be neutral to input data and/or be construed with limited data. Sometimes outputs can be obtained from non-stakeholders and practically without any investment – from science fiction, politicians or from freely available publications. As strong emphasis in development of a vision is usually made on communicative and appealing aspects of the output, additional investment may not be needed into societal effects such as creating emotional link with target audience.

Ambiguity of many success criteria for the vision method, their often unconventional nature make it difficult, if not impossible, to validate the outputs of visioning. In combination with seemingly lower complexity of execution, it makes a vision a thin ice for milestones it is intended to keep.

Both methods are suitable for combined use with other tools methods such as (1) participatory, (2) design, (3) analytical, and (3) management tools and methods (Quist et al. 2011, 885).

To summarize this section, normative scenario method is likely to be more costly, but also allowing for more ways to validate its outputs. The vision method tends to require less investment but involves higher risk, particularly in view of typically longer term for which visioning outputs are expected to apply.

5. Ethical dimension

Based on the evaluation framework for futures research suggested by Piirainen et al. (2012), on Ulrich's Critical Systems Heuristics (1994), the definitions of the methods, and literature mentioned above, some probable conclusions can be drawn. For convenience, they are listed in the Table 1 below.

Questions	Normative Scenario	Visioning Method
What worldview is output based upon?	Based on someone's existing worldview	Often expected to create a new worldview. The new worldview is likely to be influenced by someone's existing worldview
Who determines purpose and measure of improvement?	Client	Author(s) (who convince clients, directly or indirectly)
Who should be involved in research?	Often aimed to involve all stakeholders, sometimes through representatives	Involvement of all stakeholders is desirable, but is likely to decrease the inspirational value of the resulting vision
What is the role of experts?	Experts are often key influencers	Experts are less important, often irrelevant
Who provides knowledge, expertise?	Knowledge is often provided by experts	Knowledge is often provided by the author(s)
How boundaries of relevant knowledge are defined?	Limitations and assumptions are more likely to be mentioned explicitly	Explanation of limitations and assumptions is unlikely to be provided, because it comes into conflict with form and intended use of the output
Who determines legitimacy of outputs?	Legitimate if supported by the client and other stakeholders	Legitimate if supported by the intended audience (can be broad public, not specific actors)

Table 1. Some probable ethical characteristics of normative scenario method and vision method

6. Conclusions

The vision and backcasting methods are flexible techniques primarily intended for research of preferable futures, sometimes with addition of possible and plausible futures. The vision method is more universal, while normative scenario method, or backcasting, is more specialized.

The vision method is better suited for less predictable situations requiring transformation, and for broad target audiences. It tends to be less costly, but also more risky. The normative scenario method can use the output of the vision method as an input. Being contextual, backcasting is likely to provide more possibilities for validation of its outputs, but is more sensitive to quality of inputs.

References

- Andreescu, Liviu – Gheorghiu, Radu – Zulean, Marian – Curaj, Adrian (2013) Understanding normative foresight outcomes: Scenario development and the ‘veil of ignorance’ effect. *Technological Forecasting & Social Change*, Vol. 80, 711–722.
- Banister, D., Dreborg, K.H., Hedberg, L., Hunhammar, S., Steen, P., Åkerman, J. (2000) Transport policy scenarios for the EU in 2020: images of the future. *Innovation*, Vol. 13 (1), 27–45.
- Barbanente, Angela – Camarda, Domenico – Grassini, Laura – Khakee Abdul (2007) Visioning the regional future: Globalization and regional transformation of Rabat/Casablanca. *Technological Forecasting & Social Change*, Vol. 74, 763–778.
- Battistella, Cinzia – Toni Alberto F. De (2011) A methodology of technological foresight: A proposal and field study. *Technological Forecasting & Social Change*, Vol. 78, 1029–1048.
- Bell, Frances – Fletcher, Gordon – Greenhill, Anita – Griffiths, Marie – McLean, Rachel (2013) Science fiction prototypes: Visionary technology narratives between futures. *Futures*, Vol. 50, 5–14.
- Bezold, Clem – Peck, Jonathan – Bettles, Craig – Olson, Bob (2009) Using Vision in Futures. *Futures Research Methodology Version 3.0*. The Millennium Project, Washington, D.C.
- Bilgin, Mert (2016) The state of future in international relations. *Futures*, Vol. 82, 52–62.
- Boaventura, Joao M.G. – Fischmann, Adalberto A. (2008) Is your vision consistent? A method for checking, based on scenario concepts. *Futures*, Vol. 40, 597–612.
- Börjeson, Lena – Höjer, Mattias – Dreborg, Karl-Henrik – Ekvall, Tomas – Finnveden, Göran (2006) Scenario types and techniques: Towards a user’s guide. *Futures*, Vol. 38, 723–739.
- Brabet, Julienne – Klemm, Mary (1994) Sharing the Vision: Company Mission Statements in Britain and France. *Long Range Planning*, Vol. 27 (1), 84-94.
- Coulson-Thomas, Colin (1992) Strategic Vision or Strategic Con? Rhetoric or Reality? *Long Range Planning*, Vol. 25 (1), 81-89.
- Dorr, Adam (2016) Common errors in reasoning about the future: Three informal fallacies. *Technological Forecasting & Social Change*, article in press, retrieved from ScienceDirect < <http://dx.doi.org/10.1016/j.techfore.2016.06.018> > 14.02.2017.
- Dreborg, K. (1996) Essence of backcasting. *Futures*, Vol. 28 (9), 813–828.
- Edwards, Mark G. (2008) ‘‘Every today was a tomorrow’’: An integral method for indexing the social mediation of preferred futures. *Futures*, Vol. 40, 173–189.
- El-Namaki, M. S. S. (1992) Creating a Corporate Vision. *Long Range Planning*, Vol. 25 (6), 25-29.
- Glenn, Jerome (2009) Introduction. *Futures Research Methodology Version 3.0*. The Millennium Project, Washington, D.C.
- Godet, M. (1987) *Scenarios and Strategic Management*, London, Butterworth.

- Gold, John R. (1984) The death of the urban vision? *Futures*, Vol. 16 (4), 372–381.
- Harris, Lloyd C. – Ogbonna, Emmanuel (1999) The Strategic Legacy of Company Founders. *Long Range Planning*, Vol. 32 (3), 333-343.
- Helm, Ruud van der (2009) The vision phenomenon: Towards a theoretical underpinning of visions of the future and the process of envisioning. *Futures*, Vol. 41, 96–104.
- Hines, Andy – Bishop, Peter (2006) *Thinking about the future : guidelines for strategic foresight*. Social Technologies cop., Washington (D.C.).
- Höjer, M. – Mattsson, L. (2000). Determinism and backcasting in future studies. *Futures*, 32, 613–634.
- Holstius, Karin – Malaska, Pentti (2004) *Advanced Strategic Thinking. Visionary Management*. Turun Kauppakorkeakoulun Julkaisuja, Turku.
- Kasemir, B., Jäger, J., Jaeger, C.C., Gardner, M.T. (2003) *Public Participation in Sustainability Science: A Handbook*. Cambridge University Press, Cambridge.
- Kerkhof, Marleen van de – Wieczorek, Anna (2005) Learning and stakeholder participation in transition processes towards sustainability: Methodological considerations. *Technological Forecasting & Social Change*, Vol. 72, 733–747.
- Kishita, Yusuke – McLellan, Benjamin C. – Giurco, Damien – Aoki, Kazumasu – Yoshizawa, Go – Hando, Itsuki C. (2017) Designing backcasting scenarios for resilient energy futures. *Technological Forecasting & Social Change*, article in press, retrieved from ScienceDirect < <http://dx.doi.org/10.1016/j.techfore.2017.02.001> > 14.02.2017.
- Lipton, Mark (1996) Demystifying the development of an organizational vision. *Sloan Management Review*, Vol. 37 (4).
- Lissack, Michael – Roos, Johan (2001) Be Coherent, Not Visionary. *Long Range Planning*, Vol. 34, 53-70.
- Lovins, A.B. (1977) *Soft Energy Paths: Toward a Durable Peace*. Friends of the Earth Int/Ballinger Publishing Company, Cambridge MA.
- Masini, Eleonora (2006) Rethinking futures studies. *Futures*, Vol. 38, 1158–1168.
- Milestad, Rebecka – Svenfelt, Åsa – Dreborg, Karl Henrik (2014) Developing integrated explorative and normative scenarios: The case of future land use in a climate-neutral Sweden. *Futures*, Vol. 60, 59–71.
- Milojevic, I. – Inayatullah, S. (2003) Futures dreaming outside and on the margins of the western world. *Futures*, Vol. 35, 493–507.
- Morden, Tony (1997) Leadership as vision. *Management Decision*, Vol. 35 (9), 668-676.
- Morgan, Dennis R. (2015) The dialectic of utopian images of the future within the idea of progress. *Futures*, Vol. 66, 106–119.
- Neugarten, Michael L. (2006) Foresight – Are we looking in the right direction? *Futures*, Vol. 38, 894–907.

- Neuvonen, Alekski – Ache, Peter (2016) Metropolitan vision making – using backcasting as a strategic learning process to shape metropolitan futures. *Futures*, article in press, retrieved from ScienceDirect < <http://dx.doi.org/10.1016/j.futures.2016.10.003> > 14.02.2017.
- Phdungsilp, Aumnad (2011) Futures studies' backcasting method used for strategic sustainable city planning. *Futures*, Vol. 43, 707–714.
- Piirainen, Kalle A. – Gonzalez, Rafael A. – Bragge, Johanna (2012) A systemic evaluation framework for futures research. *Futures*, Vol. 44, 464-474.
- Polak, F. (1973) *The Image of the Future*. Elsevier, Amsterdam.
- Quist, J. (2007) *Backcasting for a sustainable future: the impact after ten years*. Eburon, Delft NL.
- Quist, Jaco – Thissen, Wil – Vergragt, Philip J. (2011) The impact and spin-off of participatory backcasting: From vision to niche. *Technological Forecasting & Social Change*, Vol. 78, 883–897.
- Quist, Jaco – Vergragt, Philip (2006) Past and future of backcasting: The shift to stakeholder participation and a proposal for a methodological framework. *Futures*, Vol. 38, 1027–1045.
- Rampersad, Hubert K. (2001) A visionary management model. *The TQM Magazine*, Vol. 13 (4), 211-223.
- Robinson, J. (2003) Future subjunctive: backcasting as social learning. *Futures*, Vol. 35, 839–856.
- Robinson, J.B. (1982) Energy backcasting: a proposed method of policy analysis. *Energy Policy*, Vol. 10, 337–344.
- Robinson, J.B. (1990) Futures under glass: a recipe for people who hate to predict. *Futures*, Vol. 22 (8), 820–842.
- Stevenson, Tony (2006) From vision into action. *Futures*, Vol. 38, 667–662.
- Stevenson, Tony (2009) Enacting the vision for sustainable development. *Futures*, Vol. 41, 246–252.
- Stewart, J. M. (1993) Future State Visioning – A Powerful Leadership Process. *Long Range Planning*, Vol. 26 (6), 89-98.
- Svenfelt, A., Engström, R., Örjan, S., 2011. Decreasing energy use in buildings by 50% by 2050 — a backcasting study using stakeholder groups. *Technological Forecasting and Social Change*, Vol. 78 (5), 785–796.
- Ulrich, W. (1994) *Critical Heuristics of Social Planning: A New Approach to Practical Philosophy*. Wiley, New York.
- Vergragt, Philip J. – Quist, Jaco (2011) Backcasting for sustainability: Introduction to the special issue. *Technological Forecasting & Social Change*, Vol. 78, 747–755.
- Voorn, Tom van der – Pahl-Wostl, Claudia – Quist, Jaco (2012) Combining backcasting and adaptive management for climate adaptation in coastal regions: A methodology and a South African case study. *Futures*, Vol. 44, 346–364.

- Wangel, Josefin (2011) Exploring social structures and agency in backcasting studies for sustainable development. *Technological Forecasting and Social Change*, Vol. 78, 872–882.
- Wilkinson, Angela – Mangalagiu, Diana (2012) Learning with futures to realise progress towards sustainability: The WBCSD Vision 2050 Initiative. *Futures*, Vol. 44, 372–384.
- Wilson, Ian (1992) Realizing the Power of Strategic Vision. *Long Range Planning*, Vol. 25 (5), 18–28.