

Draft Paper

# Early Warning through a Pluralism Lens: Assessing Scenario Planning as a Possible GCP Approach

Stefan Wolff

[stefan@stefanwolff.com](mailto:stefan@stefanwolff.com) | [www.stefanwolff.com](http://www.stefanwolff.com) | [@stefwolff](https://twitter.com/stefwolff)

*Everyone of us should be concerned about the future, because that is where we will be spending the rest of our lives.*

Godet (2000, 21)

# Contents

- A definition of scenario planning ..... 3
- Origins and applications of scenario planning ..... 5
- Scenario Types ..... 7
- Scenario Techniques ..... 10
- The GCP Approach ..... 14
- Implications and next steps ..... 20
- References ..... 24

## A definition of scenario planning

The literature on scenarios is relatively, but not unmanageably extensive, and a number of quasi-systematic reviews already exist (Amer, Daim, and Jetter 2013, Chermack, Lynham, and Ruona 2001, Varum and Melo 2010), which indicate a significant degree of terminological variety with the more or less simultaneous and synonymous use of scenario planning alongside scenario building, thinking, analysis, etc. (Bradfield et al. 2005, 796, also Millett 2003, 16f.). This has led to a wide variety of definitions of approaches that are by-and-large similar in their underlying assumptions, commonly derived from a critical realist perspective (van der Heijden 2000), and definition of purposes, usually linking scenarios to ‘sense making’, ‘anticipation’, ‘strategy development’ and ‘adaptive organisational learning’ (Bradfield et al. 2005, 806, Wright, Bradfield, and Cairns 2013, 632). In a broader sense, Burt and van der Heijden (2003, 1012) argue that “it is the basic purpose of scenario planning to improve the quality of the strategic conversation” in a given organisation.

Rather than engage in depth with different approaches taken to describing and defining the concept and analysing the often miniscule differences between them, this paper focuses on identifying a number of common features identified in the existing scenario literature, including that scenario planning:

- assumes and identifies critical uncertainties about the future (Cairns et al. 2006, MacKay and McKiernan 2004, Wilson 2000, Wright and Goodwin 2009, Wright, Bradfield, and Cairns 2013);
- aims to offer a small number of internally coherent and plausible pathways to future outcomes (Amer, Daim, and Jetter 2013, Bishop, Hines, and Collins 2007, Bradfield et al. 2005, Postma and Liebl 2005);
- can enhance the quality of (strategic) decision making to achieve desirable/avoid undesirable future outcomes (Amer, Daim, and Jetter 2013, Burt and van der Heijden 2003, Mietzner and Reger 2005, Ramirez and Wilkinson 2014, van der Heijden 1996, Varum and Melo 2010);
- is a participatory process in which a group of carefully selected participants considers the possibility of different futures (Andreescu et al. 2013, Maack 2001, Quist, Thissen, and Vergragt 2011, Quist and Vergragt 2006, Robinson et al. 2011, Robinson 2003, Silveira and González 2011, van Notten et al. 2003);
- can help shape consensus among stakeholders on desirable and undesirable future outcomes (Amer, Daim, and Jetter 2013, Bowman et al. 2013, Galer 2004, Hughes 2013, Maack 2001, Kahane 2012, 1999, 1998, Robinson et al. 2011, Selin 2006, Silveira and González 2011); and
- provides a range of indicators that can be monitored to identify trajectories towards one or another scenario (Chermack and van der Merwe 2003, De Jouvenel 2000, Maack 2001, Ramírez, Österman, and Grönquist 2013, Wilkinson, Kupers, and Mangalagiu 2013).

Scenarios, thus, are tools that enable participants to gain a greater understanding of what the future might hold and to obtain a higher degree of control over their future. While they do not predict any specific future as such, they highlight a number of potential

futures and can thus sensitize stakeholders towards the possibility and actionability of both desirable and undesirable futures; that is, they broaden horizons about multiple possible futures and can help diverse groups of scenario participants and stakeholders find a joint understanding of the problems and challenges they face and of ways to deal with them jointly and constructively (Kahane 2012). In other words, scenarios provide an opportunity to create a shared vision, i.e., ‘the shared commitment by a community to the future it will create’ by agreeing on ‘the best that could be achieved to which community members would commit themselves to creating.’ (Bezold 1999, 467) This, in turn, requires a strategically designed and implemented process of communicating scenarios in a way that contributes to building a broader public awareness and mobilise public support for desirable futures and how to achieve and/or reduce opposition to some potentially hard choices to be made (Maack 2001).

By identifying pathways to these futures, scenarios connect past and present foundations with future developments and crucially future actions to illustrate how different futures might unfold. This offers both a contribution to strategy (how to achieve/avoid a particular future) and an instrument to monitor which scenario might be unfolding and hence which actions may be required to consolidate a particular trajectory or to change course, and which must be avoided in order to prevent a negative trend gaining undue momentum. Scenarios, in other words, can enhance the strategic preparedness of all stakeholders to grasp opportunities and manage crises effectively, and thus improve the quality of their (strategic) decision making.

Overall, thus, scenario planning as conceptualised here,<sup>1</sup> fits well with the emerging GPC perspective on early warning through a pluralism lens and can build significantly on existing and emerging work, including the drivers of pluralism and the ten-indicator tool, giving GPC’s future scenario work a clear sense of normative purpose and practical direction.

---

<sup>1</sup> The paper deliberately uses the term ‘scenario planning’ rather than ‘scenario building’. The rationale for doing so is in line with the reasoning by Bishop, Hines, and Collins (2007) who argue ‘that “scenario planning” has more to do with a complete foresight study, where scenario development is concerned more specifically with creating actual stories about the future. Scenario planning is a far more comprehensive activity, of which scenario development is one aspect.’ This point is also reflected by Wright, Bradfield, and Cairns (2013) who note that ‘scenario methods do not in themselves incorporate methods and tools for making fully-informed decisions and, thereby, formulating strategies and plans. They merely inform the process, if utilized appropriately and successfully.’

## Origins and applications of scenario planning

Scenario planning is generally considered to have its origins in work led by Herman Kahn at the RAND Corporation in the late 1940s (Bradfield et al. 2005, Burt 2010, O'Brien and Meadows 2013). Initially called 'future-now thinking', Kahn later adopted the term scenario. In the 1960s, Kahn founded the Hudson Institute which focused on 'unthinkable' future scenarios. Kahn's work was initially focused on political and military issues, but his ideas were soon adopted for business application.<sup>2</sup> Since 1970s, scenario planning has been widely used in the private sector (an early adopter most notably and successfully was Shell<sup>3</sup>), and a number of consultancy firms and individual consultants developed their own proprietary approaches, including the Stanford Research Institute, the Futures Group, the Global Business Network, etc. (Ramírez and Selin 2014).

The only notable 'rival' to these US-based scenario planning approaches deriving from Kahn's work is the French *La Prospective* school that emerged in the 1970s in the work of Michel Godet, drawing on the French philosopher Gaston Berger's use of 'perspective' (hence, *la prospective*). Initially also focused on public policy issues, it, too, soon carried favour in the private sector (Godet 2000).

In the public and third sectors, apart from being used as a management tool, scenario planning is also applied to a number of public policy issues, from healthcare, to employment, to migration, environmental protection, climate change, etc. (Burt 2010, Cairns et al. 2006, Dortmans and Eiffe 2004, Varum and Melo 2010). It also features in the work of major international donor organisations like the World Bank country assessments (Maack 2001), and in the work of international governmental organisations like UNDP (Silveira and González 2011), the EU (Masini and Vasquez 2000, Fontela and Hingel 1993), the OSCE (Maas et al. 2012), and NATO,<sup>4</sup> as well as in different ways in the work of major relevant policy think tanks and advocacy groups like the International Crisis Group (International Crisis Group 2013), the International Peace Institute (Kemp 2014), International Idea (Antola and Hassan 2012), and in the work of humanitarian relief agencies like Oxfam (Willenbockel 2011). In addition, there are two specific studies that look at scenarios (Ramírez, Österman, and Grönquist 2013) and the application of the Delphi method (van de Linde and van der Duin 2011) in the context of early warning.

While the fundamentals of scenario planning have largely remained the same since its early days, their application has spread into a wide range of different domains and to a large number of issues. This means, on the one hand, that scenarios as a tool have become widely accepted. On the other hand, this wider application and acceptance has led to a proliferation of different methods or approaches to how to conduct a scenario exercise.<sup>5</sup>

---

<sup>2</sup> On Kahn's work more broadly, see Bruce-Briggs (2005)

<sup>3</sup> For details of Shell's scenario work, see <http://www.shell.com/global/future-energy/scenarios.html>.

<sup>4</sup> Within NATO, the Euro-Atlantic Disaster Response Coordination Centre (EADRCC) "conducts annual large-scale field exercises with realistic scenarios to improve interaction between NATO and partner countries." See [http://nato.int/cps/en/natohq/topics\\_52057.htm?selectedLocale=en](http://nato.int/cps/en/natohq/topics_52057.htm?selectedLocale=en).

<sup>5</sup> This is often criticised in the literature as 'methodological chaos', e.g., by Amer, Daim, and Jetter (2013), Bradfield et al. (2005), Millett (2003), Ramirez and Wilkinson (2014), and Varum and Melo (2010).

GCP can thus rely on an established tool in the strategic planning arsenal with recognised, albeit varied, underpinning methodologies and adopt scenario planning for its own specific purposes of early warning through a pluralism lens.

## Scenario Types

Many scenario typologies start from a distinction that focuses on futures as ‘probable’ (i.e., what is likely to happen?), ‘possible’ (i.e., what is plausible to happen?), and ‘preferable’ (i.e., what is desirable to happen?). On that basis, they arrive at types of scenarios frequently referred to as ‘exploratory’ vs. ‘anticipatory’ or ‘normative’ (Godet 2000, 11), or ‘predictive’ vs. ‘explorative’ vs. ‘normative’ (Börjeson et al. 2006).<sup>6</sup>

Such a typology, however, as van Notten et al. (2003) imply, offers only one specific approach to classifying scenarios and excludes a number of other important frames of classification. While the above typologies would fall broadly into the frame of purpose (or goal) for which the scenarios are to be employed (‘explorative vs. decision support’), they ignore two other frames—process design (‘intuitive vs. formal’) and content (‘simple vs. complex’). Table 1 provides an overview of the various types of scenarios that can be conceived of along these three dichotomies.

Table 1: Scenario types (adapted from van Notten et al. 2003, 416)

Classification frame	Scenario characteristics
Project goal: exploration vs. decision support	I. Inclusion of norms? : descriptive vs. normative
	II. Vantage point: forecasting vs. backcasting
	III. Subject: issue-based, area-based, or institution-based
	IV. Time scale: long term vs. short term
	V. Spatial scale: global/supranational vs. national/local
Process design: intuitive vs formal	VI. Data: qualitative vs quantitative
	VII. Method of data collection: participatory vs. desk research
	VIII. Resources: extensive vs. limited
	IX. Institutional conditions: open vs. constrained
Scenario content: complex vs simple	X. Temporal nature: chain vs. snapshot
	XI. Variables: heterogeneous vs. homogenous
	XII. Dynamics: peripheral vs. trend
	XIII. Level of deviation: alternative vs. conventional
	XIV. Level of integration: high vs. low

The utility of this more extensive typology also lies in that it assists in identifying a full set of aspects for designing a comprehensive scenario building process. In other words, using the typology offered by van Notten et al. (2003), it is possible to identify an approach to scenario planning that would be suited to the purposes and resources of the GCP’s approach to early warning through a pluralism lens.

As noted earlier, the main purpose of scenario planning is to explore probable and possible futures, contribute to better-informed decision making, and monitor key

<sup>6</sup> Note that there is also a school of thought in scenario building that explicitly rejects the idea of scenario building as including ‘forecasting the most probable future’ and emphasises that it rather ‘creates a set of plausible futures.’ (Amer, Daim, and Jetter 2013, 25) Yet, there is also a debate on the utility and necessity of a hard distinction between probability and plausibility (Ramírez and Selin 2014). As outlined below, predictive scenarios can be useful from the perspective of developing a specific GCP approach to scenario building as part of its early warning work.

indicators that indicate developments towards one or another future outcome. These purposes are not mutually exclusive but can be integrated into an overall approach to scenario planning. This fits well with the principle assumption underpinning this paper that, from a GCP perspective, scenario planning can facilitate early warning in two ways:

1. It can identify (weak) signals indicating the evolution of a scenario at the end of which pluralism failure or breakdown stand.
2. It can identify (weak) signals indicating that a preferred scenario of achieving or sustaining pluralism is unlikely to evolve.

In both cases, scenario planning would then facilitate early action as decision makers would be less likely to ignore (weak) signals, would be more resilient in the face of the otherwise unexpected, and would be better prepared to respond to events and developments. This means that the project goals of GCP scenario planning would require both descriptive and normative scenarios and would need to involve elements of both forecasting and backcasting.

Descriptive (aka predictive and explorative) scenarios would serve the purpose of sensitizing stakeholders to the possibility of both desirable and undesirable future outcomes; while normative scenarios could be used to design, implement, and mobilise support for interventions to assist stakeholders in achieving particular desirable future outcomes.

Closely related to this, forecasting and backcasting can be used in a complementary fashion, as noted by Höjer and Mattsson (2000, 613) who argue that

backcasting and different forecasting approaches are complementary. The argument is that backcasting is mainly appropriate where current trends are leading towards an unfavourable state. Therefore, forecasting methods are necessary because they inform the backcaster when backcasting is required.

Scenarios can then be scaled up or down along three different dimensions—an issue or subject, and a spatial and temporal scale. For the purposes of GCP's use of scenario planning for early warning, the subject could be broadly seen as inclusion (or exclusion), the spatial scale as a country (or region within a country or a region of countries), and the temporal scale as either below or beyond ten years. While there is some consensus in the scenario literature in general that longer-term scenarios (upwards of ten years) are more useful for strategic planning (Amer, Daim, and Jetter 2013, 24), there is nothing to say that shorter timeframes may not also serve their purpose. In fact, the three most commonly used scenario development techniques (intuitive logics, *la prospective*, probabilistic modified trends) all cover timeframes between three and twenty years (Amer, Daim, and Jetter 2013, 28). This would suggest that a timeframe of around ten years, which would fit with GCP's upstream, early-intervention approach to early warning, would be fully consistent with established scenario planning practice.

As this paper will cover scenario techniques (i.e., issues of process design) in a separate section below, the exploration of potentially useful scenario types for GCP's approach to early warning now needs to consider the content dimension identified by van Notten et



al. (2003). Broadly speaking, it is fairly obvious that GCP scenarios are likely to be complex in nature, as they would be ‘composed of an intricate web of causally related, interwoven, and elaborately arranged variables and dynamics[,],...manifest alternative patterns of development consisting of a series of action-reaction mechanisms[and] ... draw on a broad range of actors, factors, and sectors, and use multiple time or spatial scales.’ (van Notten et al. 2003, 428)

In terms of the temporal nature, a strict dichotomy between a snapshot and a chain scenario is an unnecessary, and perhaps even unwarranted, distinction. As List (2004) notes ‘[t]he original developers of the scenario method describe a scenario as being both an end-state and the sequence of events which led to that state.’ This is particularly useful to remember given this paper’s focus on exploring the utility of scenario planning for early warning: the snapshot/end-state is a descriptive or normative short-hand for a desired or undesired future, the pathway leading there is essential for developing strategies and strategic interventions to sustain a certain pathway, to change course, and to monitor trajectories so that interventions can be timely. GCP scenarios would thus require both a fairly detailed description of the end-state (which would inform, and justify, strategy development) and an extensive account of a pathway towards this end-state (which would inform ongoing or periodic monitoring of events and developments).

The variables GCP scenarios are likely to rely on would be heterogeneous rather than homogeneous, drawing on a range of relevant factors (actors, structures, etc.) across diverse sectors of society. In line with their assumed complex nature, GCP scenarios would be alternatives (i.e., significantly different in their end-state) and include one or more peripheral scenarios in addition to a trend scenario in order to account for discontinuity along a particular pathway. This would then, logically, also require a high level of integration in each individual scenario of the various ‘variables and dynamics across time and spatial scales...across relevant social, economic, environmental, and institutional domains’ and demonstrating ‘a high degree of interaction between’ them (van Notten et al. 2003, 434).

## Scenario Techniques

The existing literature on scenarios generally identifies three different approaches to building scenarios: the intuitive logics method, *la prospective*, and probabilistic modified trends (Bradfield et al. 2005, Franco, Meadows, and Armstrong 2013, Ramírez and Selin 2014, O'Brien and Meadows 2013, Amer, Daim, and Jetter 2013). The latter two fall into the category of more formal process designs as used by van Notten et al. (2003), at least in terms of the specific methods used.<sup>7</sup> Each of these approaches then follows a series of steps employing distinct techniques in order to build scenarios. Rather than examining these techniques individually in terms of their utility for developing a scenario planning based approach to early warning, this paper relies on the existing scenario literature to determine which approach is most likely to serve the purposes of GCP best and then examines the relevant techniques of that approach in greater detail with a view towards contributing to developing a distinct GCP approach.

Following Amer, Daim, and Jetter (2013) and van Notten et al. (2003), the three most critical aspects of matching scenario approaches with scenario purposes are related to the project goal. This is in line with the assertion by Burt and van der Heijden (2003, 1011) that the success of any scenario exercise critically depends on the ability 'to identify the purpose of such work and to understand its role and scope.' In other words, whatever approach is chosen, it needs to generate scenarios that fit the requirements of the way GCP intends to use scenarios as a tool for early warning through a pluralism lens. That is, a set of techniques is required that can generate descriptive and normative, equally plausible, complex, highly integrated, alternative chain scenarios on a national scale with long-term timeframe.

The approach most widely identified in the scenario literature to fulfil these requirements is the intuitive logics approach (Amer, Daim, and Jetter 2013, Bishop, Hines, and Collins 2007, Bradfield et al. 2005, Burt 2010, Ramirez and Wilkinson 2014, Wilkinson, Kupers, and Mangalagiu 2013, Wright, Bradfield, and Cairns 2013, Wright and Goodwin 2009, Wilson 2000). Franco, Meadows, and Armstrong (2013) go as far as suggesting to 'take the intuitive logics school as representative of the mainstream approach to scenario planning', similar to Postma and Liebl (2005), who cite a survey,<sup>8</sup> conducted in the 1990s, of scenario approaches adopted across a wide range of consultants and users that showed that most of them used a technique based on this approach, developed initially by Herman Kahn at RAND and then adopted by Pierre Wack at Shell (Amer, Daim, and Jetter 2013, 26, Bradfield et al. 2005, 799). Due to its popularity, many variations of the intuitive logics approach are now in existence, and this paper will therefore focus on its core techniques rather than on a discussion of specific individual versions of the approach overall.

---

<sup>7</sup> There are, however, also some intuitive elements in *la prospective*, as Godet (2000, 7) notes that 'often personal judgement is the only information available to deal with the unknown. It is, therefore, necessary to gather other people's opinions before forming one's own, and then to place bets in the form of subjective probabilities.' See also De Jouvenel (2000).

<sup>8</sup> Postma and Liebl (2005) rely on Ringland (1998) who surveyed the Battelle Institute, the Copenhagen Institute for Future Studies, the European Commission, the French (*la prospective*) School, the Futures Group, the Global Business Network, Northeast Consulting Resources, and the Stanford Research Institute.

The intuitive logics approach to scenario planning, according to Wright, Bradfield, and Cairns (2013, 634) ‘analyzes the relationships between: the critical uncertainties (as they resolve themselves); important predetermined trends (such as demographics); and the behavior of actors who have a stake in the particular future (who tend to act to preserve and enhance their own interests).’ In doing so, it relies on primarily qualitative methods of analysis and allows an internal scenario team to draw on external experts and their subjective opinions. It requires an experienced scenario practitioner to lead the design of the scenario process and to facilitate and supervise a range of established techniques, such as brainstorming workshops, stakeholder mapping, desk research, interviews, and STEEP or PESTEL analysis.<sup>9</sup>

These techniques are employed at different stages of a multi-step process that starts with defining the purpose and parameters of the scenario exercise (Burt and van der Heijden 2003). Once this has been accomplished, a scenario team needs to be constituted, ideally bringing together a mix of people internal to the organisation (including, to the extent possible, key decision makers<sup>10</sup>), a small number of external experts, and a scenario practitioner to implement the scenario process. This group of people can be considered the technical core (or ‘secretariat’) of the scenario project that will provide the necessary support and guidance through various stages of the whole project.

Frequently, the first task of this core team is to carry out a stakeholder mapping in order to identify key actors that have an impact—direct or indirect—on the issue that the scenario is concerned with, or are affected by it, and who should be involved as part of a participatory process of data gathering and analysis, as well as developing the scenarios and, if part of the scope of the project, the strategy formulated as a result. Their involvement can take different forms. In a highly inclusive and participatory process, stakeholders could in fact be considered part of the scenario team. This was effectively the case in the *Destino Colombia* scenario process where ‘a scenario team of 43 influential leaders drawn from almost all sectors of Colombian society’, selected by a group of six ‘eminent persons’, ‘worked for 14 days over three workshops to produce the scenario stories contained in the report.’ (Kahane 1999, 3). At the opposite end of stakeholder involvement is a process in which stakeholders are treated primarily as data sources and where strategic interviews (Ratcliffe 2002) and various types of survey, especially the Delphi method (Bañuls and Turoff 2011, Nowack, Endrikat, and Guenther 2011), serve as the main methods of data gathering, in particular from key decision makers ‘from all functional areas, and from all involved organisations’ that are critical to the issue of concern in the scenario (Cairns et al. 2006, 1014). The PAPEP methodology, for example, combines in-depth interviews with ‘Delphi-type’ closed questions immediately at the end of the interview in order to gauge ‘expected trends for the diverse key factors being identified (“variables”)...[which] also allow rough

---

<sup>9</sup> STEEP is an acronym for ‘Societal, Technology, Economic, Environment, Political’ framework or driving forces; PESTEL stands for ‘political, economic, social, technological, ecological and legal’ aspects. See, for example, Wright and Goodwin (2009) and Wright, Bradfield, and Cairns (2013).

<sup>10</sup> The inclusion of key decision makers either in the core scenario team or as closely involved stakeholders is essential under the intuitive logics approach given its proponents’ objective of ‘challenging conventional thinking, reframing perceptions, and changing the mindsets of those within organizations’ (Wright, Bradfield, and Cairns 2013, 634). Yet, as Schoemaker (1993, 200) notes, it is equally important that ‘the scenario building process should not be entirely entrusted to an intellectual elite ... [because its] organizational power stems from drawing numerous players and viewpoints into the process.’

conjecturing on the occurrence probability of different scenarios constructed by the project.’ (Silveira and González 2011, 35f.)

Data gathering in the early stages of the scenario process serves the purpose of identifying common themes in individual and group narratives as they emerge. This can involve a strict sequence of individual interviews, focus group discussions and additional expert input or a reliance on just one or two of these methods in parallel or in a different sequence.<sup>11</sup> It is also important to note that this can be an iterative process. For example, use of the Delphi method would involve several rounds of polling and controlled feedback, e.g., a first stage of carrying out a closed-question Delphi survey, followed by the analysis of results, and a second stage in which participants are invited to reflect on their own initial responses in light of the survey results overall (Bolger and Wright 2011, Hasson and Keeney 2011, Nowack, Endrikat, and Guenther 2011).

Based on the analysis of the data gathered, it is then possible to begin drawing up scenarios, which, again, can be an iterative process of subjecting initially rough scenario outlines to scrutiny by experts and/or stakeholders to ensure their validity before producing a set of final scenarios. The existing literature on scenarios suggests a relatively wide range of validation criteria, most prominent among them plausibility and consistency (or coherence).<sup>12</sup> Plausibility, in this context, refers to the respective scenario end-state, while consistency/coherence is required of the pathway leading there. Plausibility is often assessed through morphological analysis or cross-impact analysis (Börjeson et al. 2006, 735, Godet 2000, 14f.), while consistency can be established through a consistency analysis (Amer, Daim, and Jetter 2013, 37). Two other frequently mentioned criteria include scenario relevance (i.e., its fitness for the purpose of the scenario exercise) and creativity (in line with the idea that scenarios are to challenge conventional thinking, establish novel perspectives on the issue at hand, and thus broaden participants’ views of multiple possible futures).

In order to suit the GCP requirements noted above, the scenarios thus finally developed would need to include both descriptive and normative scenarios, which would need to be equally plausible, complex, highly integrated, alternative chain scenarios most likely on a national scale and with a long-term timeframe. In other words, the outcome of the scenario *development* phase of GCP’s more comprehensive approach to scenario *planning* would be detailed descriptions of approximately 25 pages of both the end state and a sequence of events (or pathway) leading there for each of typically 3-5 scenarios (List 2004, 28).

Among these scenarios, one should be specifically normative and start from a desired end-state and elaborate a pathway back into the present. This method of backcasting, briefly mentioned above, would serve the particular purpose of informing strategy development, i.e., identifying what actions would be required in order to ensure that this particular scenario unfolds.

---

<sup>11</sup> For examples of the range of approaches discussed in the literature, see, among others, Cairns et al. (2006), Franco, Meadows, and Armstrong (2013), Masini and Vasquez (2000), Silveira and González (2011), Wright, Bradfield, and Cairns (2013). Practical illustrations include Kahane (1999, 1998), Ramírez, Österman, and Grönquist (2013).

<sup>12</sup> In the following, this paper draws on a useful summary of scenario validation criteria by Amer, Daim, and Jetter (2013, 36ff.).

Together with establishing requisite indicators (weak signals) of progress on a pathway towards a desired future, the backcasting scenario approach would also contribute to early warning in the sense that it could help identify deviations from a charted pathway and enable relevant early action to correct or change course. If a comprehensive monitoring system was developed, based on GCP's emerging ten-indicator tool and relevant context-sensitive adaptations to particular scenario exercises, it would also be possible to monitor simultaneously deviations from a preferred scenario and signals for potentially unfolding undesirable scenarios. This in turn could inform regular strategy assessments and, as necessary, revisions. Such more a broadly systemic monitoring would also provide indications about possibly changed underlying assumptions in the nature and/or dynamics of drivers and relationships between them that may require revisiting the original scenarios (in terms of the plausibility of both pathways and end-states).<sup>13</sup>

---

<sup>13</sup> A comparative analysis of how scenario planning and early warning can be usefully integrated in a business context (Ramírez, Österman, and Grönquist 2013, 834) emphasises the added value of such an approach as enabling monitoring of scenario unfolding, continuing analysis of the underlying uncertainties, continuous sense-making, and updating of scenarios (thus maintaining their relevance).

## The GCP Approach

The main task of this paper is to assess whether scenario planning can serve as an approach through which GCP can establish itself as a credible and effective player in the early warning field by applying its pluralism lens as the focus of early warning. This requires both demonstrating the feasibility of scenario planning in relation to the issues that GCP is interested in and outlining an approach that would bring together scenario planning with early warning.

The former can be done relatively easily with respect to some relevant, and widely cited, examples of the use of scenarios in a context that covers a number of areas of concern in debates on pluralism. Such examples include the very successful *Mont Fleur* scenarios used at the end of Apartheid in South Africa (Kahane 2012, 1998) and the *Destino Colombia* scenarios in the second half of the 1990s (Kahane 1999), as well as the Regional Project of Political Analysis and Prospective Scenarios (PAPEP) of the United Nations Development Program's Regional Bureau for Latin America and the Caribbean (Silveira and González 2011). Each of them present a slightly different approach and all of them could be useful to draw on to develop a distinct GCP approach.

The *Mont Fleur* scenarios were essentially an exercise in managing South Africa's transition process at the end of Apartheid, creating a common vision among all key stakeholders in the process over the course of twelve months (September 1991—August 1992). The *Destino Colombia* scenarios were a longer and more open-ended process (1996—1999) and included the development of five scenarios for Colombia's future (1996—1997) followed by a broader national conversation about them based on wide-spread multi-channel dissemination.

The *PAPEP* project, in turn, started in 2002 and has past and on-going scenario-planning projects in 13 Latin American countries, covering shorter- and longer-term country and sector-specific scenarios and offers strategic advice and capacity building. It has also seen at least one application outside the Latin American context, in the (former Yugoslav) Republic of Macedonia.

All of the examples briefly described above, in one way or another, link scenario *building* with strategy development, and in this sense they are relevant examples for scenario *planning* in the way in which it is suggested here to serve as a model for the GCP approach. However, the three examples are less explicit about the ongoing nature of scenario planning as a tool to generate continuous and early insights into how any of the scenarios built actually evolve and when and how to act in response to such insights.

This nexus of scenario planning and early warning, both of which are widely known concepts but are relatively less integrated into a single systematic approach, is critical for the feasibility and viability of developing a distinct GCP approach to early warning through scenario planning. The existing scenario literature identifies, albeit more often in a rather implicit fashion, that there is significant potential for early warning on the basis of scenarios. A notable exception in this regard is van der Heijden (1996, 130) who notes that the

underlying structures to which the events in the scenarios are related ... can be used to identify developments in the environment which could be the early signals of the world moving into the direction indicated by one of the scenarios. After the scenario project the team can identify such key variables and make these the subject of conscious periodic monitoring. The best monitoring variables play a central position in the underlying structure. By identifying such variables in the influence diagrams underpinning the scenarios the institutional attention can be directed in directions where manifestations of structural differences become evident first.

Similarly, Chermack and van der Merwe (2003, 457) note that, as part of scenario planning, '[i]ndicators and signposts are selected to monitor, in an ongoing sense, the development of the environment along the lines of a given scenario.' De Jouvenel (2000, 41) makes a related point, speaking of scenarios offering the opportunity to 'anticipate the strategic environment, perhaps a form of monitoring or vigilance'. Mietzner and Reger (2005, 235) emphasise that one advantage of scenarios is that they 'are an appropriate way to recognise "weak signals"'. This also connects to the idea of scenario planning 'as ongoing and iterative learning and unlearning processes, with the scenarios themselves subject to continuing monitoring in relation to evolving events' (Hughes 2013, 696).

In a practical application of this, the scenario team at Shell, in a report entitled *Shell Energy Scenarios to 2050: Signals and Signposts*, demonstrate how such monitoring can pick up indicators for one or more scenarios evolving (Shell International 2011, 61ff.). Wilkinson, Kupers, and Mangalagiu (2013, 705) describe this as Shell 'monitoring its wider business environment to detect early warning signals that either confirm a particular energy scenario is emerging or to highlight that new signals are evident which imply the need to update or rebuild its energy scenarios.' Similarly, Botterhuis et al. (2010, 454) show in a case study of the Dutch Ministry of Justice, 'after building the scenarios, an early warning system (EWS) was developed to determine which scenario is (or will be) the dominant one and in which direction society might be moving.'<sup>14</sup>

In other words, there is thus sufficient evidence that scenarios can offer a useful, context-sensitive and systematic approach to early warning that is applicable to GCP's focus on pluralism. Moreover, on the basis of the discussion so far, it is also apparent that GCP's approach could be positioned as distinct in several ways. First, with its conception of drivers of inclusion/exclusion it already has created a space for itself in the debate on pluralism and established the purpose of potential scenario planning exercises (i.e., achieving pluralism success/preventing pluralism failure) and which drivers would inform each such exercise. At the same time, and given the crowdedness of the early warning field, the scenario-planning approach would enable the GCP to take a longer-term perspective that would, based on the notion of 'weak signals', enable truly early action well before a country reaches crisis stage, i.e., by thinking ahead at least 5-10 years and beyond a single electoral cycle. Put differently, GCP's approach to scenario *planning* would extend beyond simply *building* scenarios but rather involve further work with relevant stakeholders to assist them in acting upon scenarios, by monitoring developments (*qua* the ten-indicator tool or some version thereof) and by devising and

---

<sup>14</sup> See also the case studies of Nokia and Statoil by Ramírez, Österman, and Grönquist (2013) and on global societal trends' impact on radicalization and terrorism in the Netherlands by van de Linde and van der Duin (2011).

implementing viable and feasible strategies to achieve desirable future outcomes or prevent undesirable ones. In that sense, the GCP approach would offer a fully integrated model of scenario planning and early warning.

With the feasibility of such an approach established, the question that arises next is under what conditions such an approach can be viable; that is, what would be the success conditions of the GCP approach? There are principally two areas in which such conditions can be found: first, in relation to getting the approach to scenario planning (and early warning) right in a technical sense; and second, in relation to gaining and maintaining traction with relevant stakeholders.

There is a certain degree of overlap between these two: a technically well-conducted scenario planning exercise will generate the right input for early warning and early action as pointed out by van der Heijden (1996) and noted above. Similarly, scenario planning that produces relevant scenarios (i.e., those that fit the agreed purpose of the exercise) are more likely to be used by stakeholders beyond the exercise of building scenarios in a narrower sense. This also implies that identifying the right stakeholders and involving them in a participatory, iterative process into the building of scenarios, the development of relevant strategy, and the following early warning process will be critical to maintaining traction. This underscores again the need to involve key decision makers in the process who must be prepared to act (or not) as relevant and who must be willing to revisit both scenarios, and the strategies derived from them, at regular intervals and update and revise them as necessary.

While it may be reasonably straightforward to map out who the relevant decision makers and other stakeholders are during the early stages of a scenario planning exercise, it is also critical for the success of the GCP approach as a whole that these individuals are open to scenario planning. In other words, well before we can consider scenario planning as underpinning an ongoing early warning process, it is necessary to ensure that participants in the exercise recognise its value.

Burt and van der Heijden (2003) identify three sets of hurdles that need to be overcome for scenario planning to be successful: cultural assumptions, the 'client' state of mind, and fear of the outside world and the future. While these hurdles relate specifically to the context of small and medium-sized enterprises, they have broader relevance for the GCP approach as well. The prevalence of 'group-think', a focus on the urgent rather than the important (and an inability to distinguish clearly between the two), and a lack of awareness of internal weaknesses and vulnerabilities are among the cultural hurdles. Obstacles in relation to the 'client' state of mind express themselves, among others, as narrow vision of what the key drivers of change are and where they are located (i.e., in management-speak a focus on the narrower transactional rather than the broader contextual environment), a consequent inability to identify and understand those changes in the external environment that may have a structural impact on the organisation, and a preference for incremental change that relies on trend forecasts rather than considering the possibility of disruptive events. Finally, fear of the outside world and the future manifests itself in anxiety about the scenario project itself



(especially personal/career repercussions in the case of failure), anxiety about the ability to cope with the opportunities or threats that might be recognised as a result of scenario planning, and a reluctance to engage with an outsider who will not bring ready-made advice but require active participation in a 'thinking process'.

Awareness of these issues is important from a GCP perspective as receptiveness to the ideas underpinning scenario planning among the participants in a scenario exercise is crucial for its success. Being able to determine during an initial project scoping phase whether potential participants (and a majority of stakeholders more generally) are in fact able to see and willing to embrace scenario planning as an approach to early warning through a pluralism lens is essential in deciding whether a given project is feasible and viable. In other words, success of the GCP approach will in part depend on the ability to identify suitable projects and to walk away from unsuitable ones.

A related point, mentioned in some of the scenario literature, and one that is of crucial importance for the GCP approach given the potentially highly sensitive nature of issues around pluralism, is the question of trustworthiness of 'participants, facilitators, process (methodology) and product (the scenario stories)', because trustworthiness determines the degree to which 'scenarios become ... considered valid for action' (Selin 2006, 2, 3). Trust is crucially associated with decreasing political positioning among participants; long-term thinking about a shared future, rather than short-term individual organizational considerations; empathy with the stories that different scenarios tell, which in turn can result in broader participant commitment to the scenario process as a whole (Bowman et al. 2013, 746). From a GCP perspective, this would also include a broader commitment to early warning and, as required, early action. Thus, trust among participants in a broad sense (decision makers, stakeholders, external experts, facilitator) is critical to the success of the scenario planning exercise<sup>15</sup> and thus to the robustness of any early warning system put in place as a result.

Equally important, and closely related, is trust by the participants in the process and results of scenario planning. Risks in this respect can be mitigated by carefully selecting and briefing external experts and facilitators;<sup>16</sup> by adopting an iterative and participatory process that gives participants several opportunities to contribute, to reflect on their and others' contributions, and not to be forced to converge on a consensus (pre-determined or otherwise);<sup>17</sup> and by respecting participants' needs for confidentiality as necessary. Also significant in this regard is a technically sound scenario process, especially as far

---

<sup>15</sup> Kahane (2012, 5, my emphasis), in the context of the *Destino Colombia* scenarios notes that '[t]he project participants, especially the members of the promoting group, were remarkable in the humility and generosity with which they put the higher purpose of the project above their individual agendas. They led by serving with the power of their authenticity, rather than by directing with the power of their positions. This allowed the project to become and to be seen as a truly shared enterprise, *built on mutual trust* and respect, and not owned by any one person or faction.'

<sup>16</sup> Silveira and González (2011) make the point that foreigners often make better interviewers in a scenario building process as they are less likely to be politically invested and thus more easy to entrust with honest answers. This, in turn, will increase the chances of the process and its results being seen as more trustworthy.

<sup>17</sup> Bowman et al. (2013), for example, emphasise the need for 'building trust and ownership through a highly open and participative process.'

as the selection of credible data sources (human and otherwise) and validating scenarios are concerned (see *Scenario Techniques* above).

From the perspective of GCP's perspective of using scenario planning as an approach to early warning through a pluralism lens, much of this is further complicated by the often sensitive nature of issues around pluralism. Three of these complications are particularly noteworthy—two of them are more closely related to the context of the scenario process, the other is, to some extent, more content-related.

Achieving and/or sustaining pluralism, especially when focused on inclusion/exclusion, is all too often framed as a zero-sum game that creates winners and losers. This, in turn, creates opportunities and challenges for political leaders that are closely tied to electoral cycles (in democracies) and regime survival (in non-democratic regimes). While scenarios may present a chance to reframe zero-sum games into positive sum games by developing plausible narratives of broadly desirable futures, they can only achieve this on the basis of trustworthiness (as outlined above), which, however, may be more difficult to establish in conditions in which GCP is likely to engage. At the same time, the *Mont Fleur* and *Destino Colombia* scenarios clearly show that even under the most difficult conditions this is not impossible. Both processes benefited from genuinely committed and visionary leaders engaging in an open process of thinking about the future (rather than directly negotiating it). As Kahane (1998) notes in the context of *Mont Fleur*, '[w]hat was remarkable about the project was the heterogeneous group of important figures delivering the messages, and how this group worked together to arrive at these messages.' The same lesson applies in the *Destino Colombia* case, even though it was almost three times as long and involved almost twice the number of people: 'The project participants, especially the members of the promoting group, were remarkable in the humility and generosity with which they put the higher purpose of the project above their individual agendas.' (Kahane 1999, 5)

Getting the scenario team right will thus be critical to the success of any GCP scenario exercise and thus to effective early warning and early action. It will require a significant degree of sensitivity to local context, it may necessitate a prolonged preparation phase of working with relevant stakeholders to establish agreed parameters of any scenario project, and it might demand a degree of flexibility about the size of a scenario team, the roles of participants and stakeholders, and the form of their engagement over time from conception of the project, to its implementation and communication.

The more content-related complication derives from the fact that 'one significant cause of faulty reasoning when generating futures is the analysis and use of historical data, and how thinking about the past can distort our ability to understand the future.' (MacKay and McKiernan 2004, 163) The problem here is not simply one of hindsight

bias<sup>18</sup> or creeping determinism,<sup>19</sup> but also one that rests on the fact that history, and its interpretations, are deeply contested because they 'are generated through a combination of [varied] past experiences, cultural mythologies, routinised behaviour, religion, ideology, the media, entertainment and so on.' (MacKay and McKiernan 2004, 165). This is a particular challenge for future GCP projects. At the same time, however, scenario planning offers at least a partial solution to this problem in the sense that participants can search for equally plausible scenarios, i. e., they do not have to accept a scenario logic as either true or probable, but only as plausible. Scenario planning as a whole can also contribute to perspective taking and empathy among participants. Moreover, scenario planning emphasises the importance of choice in formulating and implementing strategies aimed at achieving or avoiding a particular future outcome. In that sense, scenarios also present an opportunity to avoid 'creeping determinism' and challenge what participants consider hard facts about how and why the past unfolded as it did.

Revisiting and rethinking the past as part of constructing scenarios of the future is critical to the success of any GCP project using scenarios for early warning. It enables more open debate about past choices and the possibility of alternative course of action, and hence different outcomes, that can enable participants to chart different future pathways or create different 'memories of the future' (Chermack and van der Merwe 2003, MacKay and McKiernan 2004). What is required to achieve this, from a GCP perspective, is a team of facilitators, interviewers, and external experts that ably complements and challenges participants and stakeholders in their knowledge, understanding and use of the past in the scenario process.

---

<sup>18</sup> 'The hindsight bias is a phenomenon that takes place after the occurrence of an event. It leads people to overestimate the likelihood that they could have predicted its outcome before its occurrence as easily using foresight, as it was using hindsight after its occurrence.' (MacKay and McKiernan 2004, 164)

<sup>19</sup> 'Creeping Determinism is a phenomenon that can lead unknowingly to misinterpretation, self-fulfilling prophecies, self-sealing processes and escalating error through an inherent human tendency to gravitate towards determinist explanations of history that result from the process of retrospection itself.' (MacKay and McKiernan 2004, 165) Put differently, developments of the past are seen as inevitable and human choice in bringing them about is denied.

## Implications and next steps

Integrated into its conception of drivers of inclusion/exclusion and its emergent ten-indicator tool, scenario planning could be developed into a distinct component of GCP's overall approach by offering a unique tool of early warning and early action focused on preventing pluralism breakdown and assisting in creating future societies that rest on solidly pluralist foundations. Taking a 5-10+ years perspective, GCP would not be a player in an already crowded early-warning field. Using scenarios as the basis of strategic action, GCP would also make a contribution to developing and implementing pluralism strategies, based on a careful analysis of the implications of the scenarios developed, including working not only with stakeholders in countries but also with their international partners in mobilising support and resources.

In order to turn this vision of early warning and early action through a pluralism lens into a concrete reality, next steps would need to include formulating a more detailed methodology of the GCP approach to scenario planning (including early warning), establishing and developing a core team to implement it, and refining and piloting it in a small number of case studies, with a view of presenting some robust early results at the launch of the GCP global headquarters in early 2017, particularly with a view to have one or more case-specific early warning systems in place.

This timeline presents a potentially major challenge, given that much of the scenario literature emphasises that allowing sufficient time for scenario planning is essential to the success of scenario planning. With perhaps as many as four or five scenarios required for GCP purposes, this will be a resource intensive and time-consuming process. For GCP, an additional issue would be to develop, subsequent to the scenario exercise, an appropriate early warning system through which a case can continuously be monitored (with a focus on weak signals that can indicate the unfolding of one or another scenario) and which could trigger a process of scenarios and strategies being revisited and as necessary revised.

As outlined in previous sections, in order to build internally consistent, plausible, relevant scenarios that can sensitize stakeholders to various possible futures and assist them in improving the quality and timeliness of their decision-making processes, a significant up-front effort is usually required to establish and build the quantity and quality of relationships and generate a sufficient amount of reliable data that are both critical to successful scenario planning. This may include desk research into the background of a specific issue and country, a comprehensive stakeholder mapping, a range of 'strategic conversations' (Ratcliffe 2002) with key stakeholders individually and/or in focus groups, and additional workshops with (academic) experts. The data thus generated can then be analysed to build scenarios. These can initially be 'raw' scenarios that are tested by the core scenario team and/or by a second round of stakeholder consultations for their internal coherence, plausibility and relevance before they are fully fleshed out and finalised. This would then normally be followed by a dissemination of the final scenarios to all stakeholders and/or a wider public audience.

In parallel, once scenarios have been finalised, GCP would then need to focus on putting in place a case-specific early warning system.

Clarity, therefore, is required about the time and resources GCP wants to allocate to implementing its approach to early warning, and with which milestones and benchmarks in place to monitor progress. If GCP were to commit to making scenario planning a core component of its approach to early warning (and perhaps more generally to building and sustaining pluralist societies), an in-house capability of scenario planning would need to be developed that could form the core team of any scenario-planning exercise and that would need to be complemented with experts on a case-by-case basis. The core team would ideally incorporate process (scenario planning) and subject (inclusion/exclusion) expertise. External experts would need to bring country expertise, for example, to assist in identifying key stakeholders, to serve as a sounding board for 'raw' scenarios, and help with testing fleshed-out scenarios for internal coherence and plausibility. Initially, it might be useful to bring in an experienced scenario practitioner/facilitator to complement evolving in-house capacity, but it is conceivable that over time, sufficient in-house capability in this respect could be developed as well.

In developing an in-house capability, it is crucial to recognise the importance of integrating early warning expertise with scenario planning expertise and adopt an approach to scenario planning that has early warning as one of its core purposes. In other words the GCP approach would emphasise the purpose of adaptive organisational learning (Bradfield et al. 2005, 806f.) as one of its main and distinctive objectives to scenario planning and early warning through a pluralism lens.

GCP's global headquarters at 330 Sussex Drive could function as the home of the scenario planning and early warning core team from where local efforts would be coordinated; as the place to hold early discussions with key stakeholders as well as more advanced workshops to discuss early and advanced drafts of scenarios, and develop both dissemination and implementation strategies; as a depository of an ongoing resource collection of scenarios and implementation strategies; and as a base for training to enhance GCP's approach to scenario-building.

## Post-workshop Reflections

The workshop on scenario planning, held at GCP on 30 September 2015, largely confirmed the assumptions and conclusions of this paper about the utility and feasibility of a GCP approach to early warning based on scenario planning through a pluralism lens. Discussions with internal and external participants also highlighted the need to identify:

1. The purpose and audience of GCP's early warning work; and
2. The role of scenarios within GCP's work more generally.

Ad 1, the general internal consensus appeared to be that early warning from a GCP perspective was perhaps best conceived as *early action for pluralism*, with an emphasis on promoting pluralism and facilitating transformative change.

Ad 2, as a consequence of focusing GCP's work in a broad sense on early action for pluralism, scenarios can serve a diagnostic purpose (identifying plausible pathways to more or less pluralistic futures), a transformative purpose (formulating a strategy towards achieving a sustainably pluralistic future), and an adaptive purpose (using the early warning utility of scenarios to monitor progress towards the goal of a sustainably pluralistic future and adapting strategy as required).

These different scenario purposes are not mutually exclusive, but highly complementary. Scenarios can thus be considered as one element in the GCP toolkit of early action for pluralism, alongside research and analysis, including monitoring, and engagement projects. They would be essential in developing a distinct GCP approach to early action for pluralism and could establish GCP as a highly credible, trustworthy, and effective player in an otherwise crowded field that is focused predominantly on either crisis prevention and management or on development in a much broader sense, albeit limited to developing countries.

One of the key challenges for GCP will be to integrate scenarios conceptually with its core mission (pluralism lens/living with diversity) and practically into its other work streams and with its core mission. For example, developing options for pluralist societies on the basis of case studies and 'gap analyses' can help in scenario building and planning by identifying feasible future states and viable pathways to reach them, and it can assist in establishing measures and benchmarks to be monitored with a view to identifying signals of particular scenarios unfolding. In turn, scenarios can contribute bringing the whole range of relevant stakeholders together across different sectors of society and international partners and help them develop shared insights and understanding, build trust and relationships, develop a capacity to work together, formulate joined commitments and intentions, and translate these into actions. In this sense, GCP's early action for pluralism could be considered facilitative in that it enables

1. Accurate diagnosis of actual and potential pluralism deficits and opportunities;
2. A transformative vision and the course of action that underpins it, including an identification of the change that needs to happen and the actors and resources required to achieve it; and
3. An adaptive capacity among core domestic stakeholders and their international partners to implement a strategy to achieve change, monitor progress towards a desired end state, and adapt (proactively) to changing circumstances.

While this would not require GCP to commit ad infinitum to remain engaged in a particular country, it would nonetheless imply a sufficiently long-term commitment to ensure that stakeholders follow through on their commitments and it may necessitate periodic follow-up with them. As is already evident from

some of GCP's projects, this kind of 'deep engagement' is ultimately promising in terms of the possibility of success, but it is also time and resource intensive and will limit the number of cases in which GCP can be simultaneously engaged.

This would suggest an initially limited scenario exercise focused on one or two cases to be explored in 2016/17 with a view to develop and refine the GCP approach, to test the extent to which scenarios can be integrated with existing work streams and engagement projects, and to get a better sense of the resource requirements this would involve. It might be most useful to set up a mixed working group of GCP-internal staff and a small number of external experts to be tasked with developing and implementing one or two relevant projects.

## References

- Amer, Muhammad, Tugrul U. Daim, and Antonie Jetter. 2013. "A review of scenario planning." *Futures* 46:23-40. doi: 10.1016/j.futures.2012.10.003.
- Andreescu, Liviu, Radu Gheorghiu, Marian Zulean, and Adrian Curaj. 2013. "Understanding normative foresight outcomes: Scenario development and the 'veil of ignorance' effect." *Technological Forecasting and Social Change* 80 (4):711-722. doi: <http://dx.doi.org/10.1016/j.techfore.2012.09.013>.
- Antola, Martti, and Hamdi Hassan, eds. 2012. *An Energy-Rich Region of Increasingly Energized Citizens*. Stockholm: International IDEA.
- Bañuls, Víctor A., and Murray Turoff. 2011. "Scenario construction via Delphi and cross-impact analysis." *Technological Forecasting and Social Change* 78 (9):1579-1602. doi: <http://dx.doi.org/10.1016/j.techfore.2011.03.014>.
- Bezold, Clement. 1999. "Alternative futures for communities." *Futures* 31 (5):465-473. doi: [http://dx.doi.org/10.1016/S0016-3287\(99\)00006-3](http://dx.doi.org/10.1016/S0016-3287(99)00006-3).
- Bishop, Peter, Andy Hines, and Terry Collins. 2007. "The current state of scenario development: an overview of techniques." *Foresight* 9 (1):5-25. doi: doi:10.1108/14636680710727516.
- Bolger, Fergus, and George Wright. 2011. "Improving the Delphi process: Lessons from social psychological research." *Technological Forecasting and Social Change* 78 (9):1500-1513. doi: <http://dx.doi.org/10.1016/j.techfore.2011.07.007>.
- Börjeson, Lena, Mattias Höjer, Karl-Henrik Dreborg, Tomas Ekvall, and Göran Finnveden. 2006. "Scenario types and techniques: Towards a user's guide." *Futures* 38 (7):723-739. doi: 10.1016/j.futures.2005.12.002.
- Botterhuis, Lineke, Patrick van der Duin, Paul de Ruijter, and Peter van Wijck. 2010. "Monitoring the future. Building an early warning system for the Dutch Ministry of Justice." *Futures* 42 (5):454-465. doi: <http://dx.doi.org/10.1016/j.futures.2009.11.030>.
- Bowman, Gary, R. Bradley MacKay, Swapnesh Masrani, and Peter McKiernan. 2013. "Storytelling and the scenario process: Understanding success and failure." *Technological Forecasting and Social Change* 80 (4):735-748. doi: <http://dx.doi.org/10.1016/j.techfore.2012.04.009>.
- Bradfield, Ron, George Wright, George Burt, George Cairns, and Kees van der Heijden. 2005. "The origins and evolution of scenario techniques in long range business planning." *Futures* 37 (8):795-812. doi: <http://dx.doi.org/10.1016/j.futures.2005.01.003>.
- Bruce-Briggs, Barry. 2005. *Supergenius: The Mega Worlds of Herman Kahn*. New York, NY: North American Policy Press.
- Burt, George. 2010. "Revisiting and extending our understanding of Pierre Wack's the gentle art of re-perceiving." *Technological Forecasting and Social Change* 77 (9):1476-1484. doi: <http://dx.doi.org/10.1016/j.techfore.2010.06.027>.
- Burt, George, and Kees van der Heijden. 2003. "First steps: towards purposeful activities in scenario thinking and future studies." *Futures* 35 (10):1011-1026. doi: [http://dx.doi.org/10.1016/S0016-3287\(03\)00065-X](http://dx.doi.org/10.1016/S0016-3287(03)00065-X).
- Cairns, George, George Wright, Kees van der Heijden, Ron Bradfield, and George Burt. 2006. "Enhancing foresight between multiple agencies: Issues in the use of scenario thinking to overcome fragmentation." *Futures* 38 (8):1010-1025. doi: <http://dx.doi.org/10.1016/j.futures.2005.12.020>.
- Chermack, T. J., and L. van der Merwe. 2003. "The role of constructivist learning in scenario planning." *Futures* 35 (5):445-460. doi: [http://dx.doi.org/10.1016/S0016-3287\(02\)00091-5](http://dx.doi.org/10.1016/S0016-3287(02)00091-5).
- Chermack, Thomas J., Susan A. Lynham, and Wendy E. A. Ruona. 2001. "A Review of Scenario Planning Literature." *Futures Research Quarterly* 17 (2):7-31.



- De Jouvenel, Hugues. 2000. "A Brief Methodological Guide to Scenario Building." *Technological Forecasting and Social Change* 65 (1):37-48. doi: [http://dx.doi.org/10.1016/S0040-1625\(99\)00123-7](http://dx.doi.org/10.1016/S0040-1625(99)00123-7).
- Dortmans, Peter J., and Eleanor Eiffe. 2004. "An examination of future scenarios using historical analogy." *Futures* 36 (10):1049-1062. doi: <http://dx.doi.org/10.1016/j.futures.2004.03.011>.
- Fontela, Emilio, and Anders Hingel. 1993. "Scenarios on economic and social cohesion in Europe." *Futures* 25 (2):139-154. doi: [http://dx.doi.org/10.1016/0016-3287\(93\)90160-U](http://dx.doi.org/10.1016/0016-3287(93)90160-U).
- Franco, L. Alberto, Maureen Meadows, and Steven J. Armstrong. 2013. "Exploring individual differences in scenario planning workshops: A cognitive style framework." *Technological Forecasting and Social Change* 80 (4):723-734. doi: <http://dx.doi.org/10.1016/j.techfore.2012.02.008>.
- Galer, Graham. 2004. "Scenarios of change in South Africa." *The Round Table* 93 (375):369-383. doi: 10.1080/0035853042000249960.
- Godet, Michel. 2000. "The Art of Scenarios and Strategic Planning: Tools and Pitfalls." *Technological Forecasting and Social Change* 65 (1):3-22. doi: [http://dx.doi.org/10.1016/S0040-1625\(99\)00120-1](http://dx.doi.org/10.1016/S0040-1625(99)00120-1).
- Hasson, Felicity, and Sinead Keeney. 2011. "Enhancing rigour in the Delphi technique research." *Technological Forecasting and Social Change* 78 (9):1695-1704. doi: <http://dx.doi.org/10.1016/j.techfore.2011.04.005>.
- Höjer, Mattias, and Lars-Göran Mattsson. 2000. "Determinism and backcasting in future studies." *Futures* 32 (7):613-634. doi: [http://dx.doi.org/10.1016/S0016-3287\(00\)00012-4](http://dx.doi.org/10.1016/S0016-3287(00)00012-4).
- Hughes, Nick. 2013. "Towards improving the relevance of scenarios for public policy questions: A proposed methodological framework for policy relevant low carbon scenarios." *Technological Forecasting and Social Change* 80 (4):687-698. doi: <http://dx.doi.org/10.1016/j.techfore.2012.07.009>.
- International Crisis Group. 2013. Eritrea: Scenarios for Future Transition. In *Africa Report*. Brussels: International Crisis Group.
- Kahane, Adam. 1998. "The Mont Fleur Scenarios: What will South Africa be like in the year 2002?" *Deeper News* 7 (1):1-22.
- Kahane, Adam. 1999. "Destino Colombia: A Scenario-Based Planning Process." *Deeper News* 9 (1):3-31.
- Kahane, Adam. 2012. *Transformative Scenario Planning: Working Together to Change the Future*. San Francisco, CA: Berrett-Koehler Publishers.
- Kemp, Walter A. 2014. "The (Dis)integration of Moldova? Five Scenarios for Ukraine's Fragile Neighbor." *IPI Global Observatory*.
- List, Dennis. 2004. "Multiple pasts, converging presents, and alternative futures." *Futures* 36 (1):23-43. doi: [http://dx.doi.org/10.1016/S0016-3287\(03\)00140-X](http://dx.doi.org/10.1016/S0016-3287(03)00140-X).
- Maack, Jonathan N. 2001. "Scenario Analysis: A Tool for Task Managers." In *Social Analysis: Selected Tools and Techniques*, edited by Richard A. Krueger, Mary Anne Casey, Jonathan Donner, Stuart Kirsch and Jonathan N. Maack, 62-87. Washington, D.C.: World Bank.
- Maas, Achim, Gulzhamal Issayeva, Lukas Rüttinger, and Atabek Umirbekov. 2012. *Climate Change and the Water-Energy-Agriculture Nexus in Central Asia: Scenario Report*. Berlin: Office of the Coordinator of Economic and Environmental Activities of the OSCE.
- MacKay, R. Bradley, and Peter McKiernan. 2004. "The role of hindsight in foresight: refining strategic reasoning." *Futures* 36 (2):161-179. doi: [http://dx.doi.org/10.1016/S0016-3287\(03\)00147-2](http://dx.doi.org/10.1016/S0016-3287(03)00147-2).
- Masini, Eleonora Barbieri, and Javier Medina Vasquez. 2000. "Scenarios as Seen from a Human and Social Perspective." *Technological Forecasting and Social Change* 65 (1):49-66. doi: [http://dx.doi.org/10.1016/S0040-1625\(99\)00127-4](http://dx.doi.org/10.1016/S0040-1625(99)00127-4).
- Mietzner, Dana, and Guido Reger. 2005. "Advantages and disadvantages of scenario approaches for strategic foresight." *International Journal of Technology Intelligence and Planning* 1 (2):220-239.

- Millett, Stephen M. 2003. "The future of scenarios: challenges and opportunities." *Strategy & Leadership* 31 (2):16-24. doi: doi:10.1108/10878570310698089.
- Nowack, Martin, Jan Endrikat, and Edeltraud Guenther. 2011. "Review of Delphi-based scenario studies: Quality and design considerations." *Technological Forecasting and Social Change* 78 (9):1603-1615. doi: <http://dx.doi.org/10.1016/j.techfore.2011.03.006>.
- O'Brien, Frances A., and Maureen Meadows. 2013. "Scenario orientation and use to support strategy development." *Technological Forecasting and Social Change* 80 (4):643-656. doi: <http://dx.doi.org/10.1016/j.techfore.2012.06.006>.
- Postma, Theo J. B. M., and Franz Liebl. 2005. "How to improve scenario analysis as a strategic management tool?" *Technological Forecasting and Social Change* 72 (2):161-173. doi: <http://dx.doi.org/10.1016/j.techfore.2003.11.005>.
- Quist, Jaco, Wil Thissen, and Philip J. Vergragt. 2011. "The impact and spin-off of participatory backcasting: From vision to niche." *Technological Forecasting and Social Change* 78 (5):883-897. doi: <http://dx.doi.org/10.1016/j.techfore.2011.01.011>.
- Quist, Jaco, and Philip Vergragt. 2006. "Past and future of backcasting: The shift to stakeholder participation and a proposal for a methodological framework." *Futures* 38 (9):1027-1045. doi: <http://dx.doi.org/10.1016/j.futures.2006.02.010>.
- Ramírez, Rafael, Riku Österman, and Daniel Grönquist. 2013. "Scenarios and early warnings as dynamic capabilities to frame managerial attention." *Technological Forecasting and Social Change* 80 (4):825-838. doi: <http://dx.doi.org/10.1016/j.techfore.2012.10.029>.
- Ramírez, Rafael, and Cynthia Selin. 2014. "Plausibility and probability in scenario planning." *Foresight* 16 (1):54-74. doi: 10.1108/fs-08-2012-0061.
- Ramirez, Rafael, and Angela Wilkinson. 2014. "Rethinking the 2 × 2 scenario method: Grid or frames?" *Technological Forecasting and Social Change* 86:254-264. doi: <http://dx.doi.org/10.1016/j.techfore.2013.10.020>.
- Ratcliffe, John. 2002. "Scenario planning: strategic interviews and conversations." *Foresight* 4 (1):19-30. doi: 10.1108/14636680210425228.
- Ringland, Gill G. 1998. *Scenario Planning: Managing for the Future*. Chichester: Wiley.
- Robinson, J. 2003. "Future subjunctive: backcasting as social learning." *Futures* 35 (8):839-856. doi: [http://dx.doi.org/10.1016/S0016-3287\(03\)00039-9](http://dx.doi.org/10.1016/S0016-3287(03)00039-9).
- Robinson, John, Sarah Burch, Sonia Talwar, Meg O'Shea, and Mike Walsh. 2011. "Envisioning sustainability: Recent progress in the use of participatory backcasting approaches for sustainability research." *Technological Forecasting and Social Change* 78 (5):756-768. doi: <http://dx.doi.org/10.1016/j.techfore.2010.12.006>.
- Schoemaker, Paul J. H. 1993. "Multiple scenario development: Its conceptual and behavioral foundation." *Strategic Management Journal* 14 (3):193-213. doi: 10.1002/smj.4250140304.
- Selin, Cynthia. 2006. "Trust and the illusive force of scenarios." *Futures* 38 (1):1-14. doi: <http://dx.doi.org/10.1016/j.futures.2005.04.001>.
- Shell International. 2011. *Shell Energy Scenarios to 2050: Signals and Signposts*. The Hague: Shell International BV.
- Silveira, Pablo da, and Luis E. González. 2011. "Political Analysis and Prospective Scenarios Project: Conceptual and Methodological Foundations." In. New York, NY: United Nations Development Programme - Political Analysis and Prospective Scenarios Project.
- van de Linde, Erik, and Patrick van der Duin. 2011. "The Delphi method as early warning: Linking global societal trends to future radicalization and terrorism in The Netherlands." *Technological Forecasting and Social Change* 78 (9):1557-1564. doi: <http://dx.doi.org/10.1016/j.techfore.2011.07.014>.
- van der Heijden, Kees. 1996. *Scenarios: the art of strategic conversation*. Chichester: John Wiley & Sons.

- van der Heijden, Kees. 2000. "Scenarios and Forecasting: Two Perspectives." *Technological Forecasting and Social Change* 65 (1):31-36. doi: [http://dx.doi.org/10.1016/S0040-1625\(99\)00121-3](http://dx.doi.org/10.1016/S0040-1625(99)00121-3).
- van Notten, Philip W. F., Jan Rotmans, Marjolein B. A. van Asselt, and Dale S. Rothman. 2003. "An updated scenario typology." *Futures* 35 (5):423-443. doi: 10.1016/s0016-3287(02)00090-3.
- Varum, Celeste Amorim, and Carla Melo. 2010. "Directions in scenario planning literature – A review of the past decades." *Futures* 42 (4):355-369. doi: 10.1016/j.futures.2009.11.021.
- Wilkinson, Angela, Roland Kupers, and Diana Mangalagiu. 2013. "How plausibility-based scenario practices are grappling with complexity to appreciate and address 21st century challenges." *Technological Forecasting and Social Change* 80 (4):699-710. doi: <http://dx.doi.org/10.1016/j.techfore.2012.10.031>.
- Willenbockel, Dirk. 2011. Exploring Food Price Scenarios Towards 2030 With a Global Multi-Region Model. In *Oxfam Research Reports*. Oxford: Oxfam International.
- Wilson, Ian. 2000. "From Scenario Thinking to Strategic Action." *Technological Forecasting and Social Change* 65 (1):23-29. doi: [http://dx.doi.org/10.1016/S0040-1625\(99\)00122-5](http://dx.doi.org/10.1016/S0040-1625(99)00122-5).
- Wright, George, Ron Bradfield, and George Cairns. 2013. "Does the intuitive logics method – and its recent enhancements – produce "effective" scenarios?" *Technological Forecasting and Social Change* 80 (4):631-642. doi: <http://dx.doi.org/10.1016/j.techfore.2012.09.003>.
- Wright, George, and Paul Goodwin. 2009. "Decision making and planning under low levels of predictability: Enhancing the scenario method." *International Journal of Forecasting* 25 (4):813-825. doi: <http://dx.doi.org/10.1016/j.ijforecast.2009.05.019>.