

Toekomstverkenning: ambities en de praktijk : een etnografische studie naar de productie van toekomstkennis bij het Ruimtelijk Planbureau (RPB)

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English summary

How could we protect the Netherlands from floods and water damage if our climate continues to change? Where, how many houses, and what kind of houses should be built for the future? And do we need a railway connection between the North of the Netherlands and the Randstad area? Each of these complex policy issues asks for a long-term vision of the future.

In the Netherlands, there are many experts whose job it is to study the future⁵⁹. Many of these professional futurists work at Dutch planning bureaus⁶⁰. These planning bureaus are independent research institutes that, among others, provide the Dutch government with assessments of current and future developments. By assessing the long term, these futurists aim to support policy development in uncertainty and complexity. Over the years, a large number of such policy-oriented futures studies have appeared in which the future is explored.

Studying the future, however, seems a mission impossible. Resources to measure and obtain empirical data about past and present are limited and many relationships, that may seem to have developed continuously in retrospect, may follow non-linear patterns in the future. Since the system or processes under consideration can behave in different ways, both the appearance of the future and its underlying dynamics are unknown and unknowable. Studying the future is, therefore, not a matter of knowledge production in a classical sense. How do professional futurists accomplish what seems a mission impossible, how do they structure thinking and discussing the future, how do they balance between certainty and uncertainty, between probable and possible and between the known and the unknown? In this thesis I described and analysed how futurists study the future and, in doing so, produce future knowledge. By detailing the daily practice of professional futurists, I try to reveal the mechanisms and patterns active in / shaping the production of policy-oriented future knowledge.

⁵⁹ There are many different 'futures studies'. Also prophecies, utopian narratives and 'science fiction' stories could be classified as futures studies. When I talk about futures studies I refer to exercises performed by professionals that are portrayed (by futurists and/or their public) as 'scientific'. In this thesis, I focus on policy-oriented futures studies, i.e. future exercises that aim to support policy development by (Dutch) policy makers.

⁶⁰ There are four national planning bureaus in the Netherlands: the Netherlands Environment Assessment Agency (MNP), the Netherlands Bureau for Economic Policy Analysis (CPB), the Netherlands Institute for Spatial Research (RPB) and the Social and Cultural Planning Office of the Netherlands (SCP). These Planning Bureaus are part of national government but have a publication and research programme which does not require formal permission of a Minister.

Research approach

One way to disclose the daily practice of professional futurists is to study practitioners while they are doing their work. Such *in situ* monitoring or “participant observation” is generally referred to as ethnography, which involves close attention, with some exactness, to the daily doings, deliberations and social processes in action. We⁶¹ did our ethnographic research among practitioners in actual future telling exercises⁶².

In the period 2001 – 2006, we followed three foresight exercises at the Netherlands Institute for Spatial Research (RPB). The RPB, one of the four Dutch planning bureaus, focuses on spatial planning, and in particular on developments in the fields of housing, commercial land use, mobility, urbanisation and landscape. By assessing the long term future, RPB aims to support the Dutch national government in the development of policies pertaining to spatial planning, natural resources, and quality of the landscape.

The RPB can be considered a particular site of future knowledge production. We witnessed different types of RPB’s future telling exercises. Two exercises were referred to as “scenario projects”, i.e. exercises in which professional futurists aim to develop alternative, equally legitimate stories about how the future may unfold. In one of these projects, i.e. the SCENE project, the futurists aimed to develop four qualitative descriptions of 2030 and the paths towards these futures. In the second scenario project, referred to as WLO, the futurists intended to employ extensive integrated modeling and quantitative analyses to illustrate four scenarios. The third project known as VVR was explicitly not presented as a scenario exercise, but referred to as a “prognosis”, in which the futurists did not intent to develop different *possible* stories about the future, but they focused on the question of what the most *probable* futures would be.

The first project, which we observed from November 2001 to May 2002, was the qualitative scenario project called SCENE, an acronym for *A quartet spatial SCENarios for the NEtherlands*⁶³. The final report appeared in May 2003. The objective was to explore the potential impact of a variety of societal developments on future land use. Four scenarios were developed for the Netherlands in 2030: the Netherlands as production space, the Netherlands as a natural environment, the Netherlands as experience space and the Netherlands as consumer space.

The second project was referred to by RPB as VVR, a Dutch abbreviation for *Exploration*

⁶¹ Prof. dr Marjolein van Asselt, supervisor and leader of the research program ‘Perspectives on Uncertainty and Risk: A methodology program on *toekomstverkenning*’ also actively participated in the ethnographic fieldwork (see appendix 1 for an overview of ethnographic ‘moments’).

⁶² In Dutch: ‘Toekomstverkenning’.

⁶³ In Dutch: ‘Een kwartet ruimtelijke scenario’s voor Nederland’



of *Space*⁶⁴. The project started in June 2002 and finished in November 2003. The final report 'The unknown space explored', appeared in December 2003. This exercise was portrayed as a "prognosis" for the year 2040. The prognoses developed in this exercise were developed from quantitative extrapolative trend analysis on societal developments in the field of housing, commercial land use, agriculture and water. The futurists aimed to give special attention to uncertain developments that may change the course of observed trends in the past and present. These uncertain developments with a potential significant impact on land use were referred to as "signals". This project was furthermore characterised by the objective to integrate two cultures of foresight, i.e. research and design.

WLO, the other scenario exercise, started in January 2004 and was finished in July 2006. WLO was a Dutch abbreviation for *The future of the Dutch natural and built environment*⁶⁵ and was a co-production of three Dutch national planning bureaus: the Netherlands Environment Assessment Agency (MNP), the Netherlands Bureau for Economic Policy Analysis (CPB), and the Netherlands Institute for Spatial Research (RPB). The futurists aimed to explore how various aspects of the living environment and land use in The Netherlands may develop. To that end, they performed analyses on a large number of societal topics, such as housing, commercial land use, traffic & transport, energy, agriculture, nature & landscape, water safety, and environment & health. The study included extensive integrated modeling and quantitative analyses to support four scenarios in 2040: Strong Europe, Regional Communities, Global Economy and Transatlantic Market.

As we wanted to observe more than one future telling exercise, we choose not to immerse ourselves full time in the futurists' daily practice, but to select relevant ethnographic moments during the projects. We attended, audio recorded and transcribed many meetings. We talked to futurists and asked questions, both informally and in arranged open interview settings. We made notes on what we saw happening, on what we saw futurists doing and on what we heard them say, including non-verbal behaviour and monitored phone calls or bilateral chats. We collected documents that featured in the futurists' activities or that the futurists produced. We retrieved and received e-mails and took pictures. We also shared some observations with the futurists and recorded their feedback.

⁶⁴ In Dutch: 'Verkenning van de Ruimte'.

⁶⁵ In Dutch: 'Welvaart en Leefomgeving'.

Framework of the research

I analysed the production of future knowledge by these professional futurists by looking at two ambitions that are often associated with policy-oriented futures studies and the way these ambitions worked out in practice: the variation and the integration ambition. The following line of argument motivates the variation ambition: since the future is uncertain, fundamentally different perspectives can be legitimate and should, therefore, be taken into account. Professional futurists pertaining to the variation ambition aim to describe a varied set of possible futures (= scenarios). The integration ambition, on the other hand, is the ambition to integrate different knowledge elements (sectors, themes and/or disciplines) in order to develop a more comprehensive view on the complexities of the future. This ambition is motivated by the conviction that the sum is more than the total of the parts.

By addressing these two ambitions, futurists aim to provide policy makers with more insight into the nature of critical uncertainties the complexities and to increase their adaptive and anticipative capacity. In SCENE the futurists emphasized the variation ambition in the first phase, and the integration ambition became more important in the latter phases of the endeavour. In VVR, integration was the leading ambition in the process of future telling, although in the final report the variation ambition was foregrounded. The futurists in WLO aimed to address both the variation and the integration ambition.

Professional futurists who aim to address the variation and/or integration ambition, position themselves in a tradition of future telling, which is portrayed in futurist literature as 'new' or at least different. Their aim is not to predict the future – an ambition that they associate with the 'old' tradition', but to describe and picture uncertainty and complexity. In this thesis I described and analysed how professional futurists (try to) realise their 'new' ambitions. How do the variation and integration ambitions 'work' (out) in practice?

This thesis is structured as follows: first, I described how professional futurists (try to) realise the variation and integration ambitions. I observed that working with these ambitions is problematic in practice. Next, I tried to explain this problematic nature of future telling practice by distinguishing two competing temporal repertoires, i.e. a historical deterministic repertoire and a discontinuity repertoire. I showed that professional futurists are often not aware of the fundamental differences between the underlying perspectives on the 'knowability' of the future and, accordingly, the way future telling exercises should be carried out. I argued that if futurists do not acknowledge these conflicts, historical deterministic argumentations - that are at odds with the integration and variation ambitions - may actually prevail. I showed that if historical deterministic lines of argumentation become dominant, realising these ambitions becomes a mission impossible.



Summary of findings

Functional meanings

Chapter three is a story about futurists who tried to establish variation of future descriptions by using the scenario matrix. In the literature, this future telling technique is often recommended as a tool to construct different images of the future in a coherent and systematic way. Also in many other Dutch future telling exercises futurists often use this “variation tool”.

The two-by-two scenario matrix is both in the scenario literature and in practice often portrayed as a useful and straightforward tool to develop four different scenarios of the future. My observations in future telling practice, however, revealed that futurists attach fundamentally different meanings to this variation tool. In the SCENE project, three different what I proposed to refer to as “functional meanings” could be discerned: the matrix as skeleton, as foundation and as building scaffold. And each functional meaning, i.e. assumptions, logics, representations and functions ascribed to this ordering device, threw a different light on the variation ambition.

In the *backbone* functional meaning, the scenario matrix is considered as the frame representing the essential driving forces for the future and the four stories to be told. The backbone functional meaning prescribes how to do future telling: futurists study patterns and dynamics in order to discover the two most important driving forces. Once these are identified, they are to be plotted on two axes yielding four quadrants. The axes are read as a low-high dichotomy determining the four futures. Futurists pertaining to this scenario logic visualized the scenarios as a two-by-two matrix with four quadrants.

In the *foundation* functional meaning, the scenario matrix is not conceived as a two-by-two matrix yielding four possible futures, but as a two-dimensional space. The axes do not present a low-high dichotomy yielding four possible futures as in the backbone functional meaning, but they are portrayed as a continuum ranging from low to high allowing many possible futures. The axes are, foremost, considered a choice, a compromise or the upshot of a social process. The sense of the matrix itself is transformed: it multiplies the number of possible futures and it changes the relationship between the axes, i.e. the driving forces, and the scenarios, i.e. the futures told. The scenarios are still associated with the two axes, but the relationship is reversed. The quadrant, i.e. the position on the axes, doesn't determine the scenario narrative, but the scenario narrative determines the position on the axes. This representation violates the backbone functional meaning, but is unproblematic in case the scenario matrix is practised as foundation.

In the *building scaffold* functional meaning, the scenario matrix is not intrinsic to the

futures (to be) told. Instead, it is considered a heuristic to advance variety between scenarios: useful to start up, but in a later phase will likely become an obstacle. Discarding the scenario matrix is a precondition in the building scaffold logic: it is believed that removal is needed to enable futurists to develop complex and relevant scenarios. In this functional meaning the four scenarios are disconnected from the scenario matrix and the scenario matrix can, therefore, be removed: the futures told have a life of their own. This is a departure from both the backbone meaning, as this representation suggests irrelevance of the scenario matrix to the futures told.

Each of the functional meanings continued to be practiced and mobilised in the SCENE project. No closure with regard to functional meaning was established as none of the functional meanings was fully dismissed when alternative functional meanings were introduced. Our ethnography revealed the multiplicity of functional meanings associated with a variation tool referred to as standard in the futurists' community. In SCENE different interpretations of variation competed. There was, so to speak 'variation about variation', which made the realisation of the variation ambition very hard to realise.

Cross-boundary objects and transformation of the overlapping territory

In chapter four, I described how futurists in the VVR project tried to implement the integration ambition. My observations made clear that the integration ambitions can mean different things to different people and in different phases of a future telling exercise. Futurists in the VVR project referred to integration of sectors, themes, scale levels, disciplines, assumptions, time horizons, spatial claims, units of analysis and even of quantitative and qualitative insights. The way the VVR futurists tried to do the integration ambition was to combine two different cultures of foresight, i.e. research and design. The researchers positioned themselves and were positioned as "analysts", "content experts" and those providing quantitative knowledge about *probable* futures. The designers portrayed themselves and were portrayed as those providing "imagination" and "creativity" and qualitative knowledge in terms of "desirability" and "possibility".

To describe the cooperation between researchers and designers in the VVR project, I build upon an interdisciplinary body of literature, to which I refer as "boundary theory" (e.g. Callon (1986), Latour (1987; 1999), Star & Griesemer (1989) en Clarke & Fujimura (1992)). Boundary theory scholars try to explain cooperation between people from different social worlds. Star & Griesemer (1989) introduced the notion of "boundary objects" to describe such collaboration. Boundary objects can be ideas, words, objects (documents, concepts, techniques) and processes that are both plastic enough to adapt to local needs and robust enough to maintain a common identity across sites. Due to this combination of plasticity and robustness, boundary objects can travel from one social domain to another and thereby creating an infrastructure that facilitates cooperation between



people belonging to different social worlds. Because of quality to transcend boundaries, I considered cross-boundary object a more adequate description on the concept.

Also the VWR futurists tried to establish an infrastructure for cooperation. They did so by creating an “overlapping territory” between researchers and designers. In this overlapping territory, researchers and designers agreed to work together on the development of what I characterised as cross-boundary objects. However, despite hard work and good intentions, the futurists did not succeed in sustaining these cross-boundary objects. My analysis indicates that as a consequence they did not succeed in creating a solid infrastructure for interdisciplinary cooperation. Consequently, the integration ambition was unwillingly and unconsciously undermined. Even worse, boundary conflicts arose between researchers and designers. Futurists tried to solve these conflicts by moving the cross-boundary objects away from the overlapping territory of two disciplinary domains and by re-positioning them in either one of the cultural domains, i.e. they re-qualified them as either a research object or a design entity. Thereby, the infrastructure for cooperation, that never matured, was dismantled and the overlapping territory was depopulated. Instead of crossed, the borders between both domains were reinforced and reified. Consequently, the overlapping territory became a no mans land or ‘no go area’. Eventually, the knowledge production process, in which integration model served as the original aspiration of the futurists, developed into a reality which is more in line with an alienation model. In the course of the project, design was increasingly subordinated and became a fringe culture. A clear hierarchy was created in which the researchers could play a leading role.

The loss of cross-boundary objects and the shift from collaboration to hierarchy radically undermined the integration of cultures and made implementation of the integration ambition actually impossible. I concluded that the concept of cross-boundary objects not only has analytical and explanatory value in studying successful interdisciplinary collaboration, but that it has equal value in understanding problematic courses of interaction between different cultures of future telling.

Different temporal repertoires

Analysing the production of future knowledge by professional futurists at the RPB demonstrated that it is difficult to ‘do’ integration and variation. I tried to explain this problem by distinguishing two competing temporal repertoires, in which past, present and future are connected in fundamental different ways (see table 1). Next I analysed how these two repertoires were mobilised by futurists in the WLO exercise. I observed how both repertoires mutually interacted and how this shaped the course of the future telling exercise.

In the first repertoire, which I called the historical deterministic repertoire, the future is considered a 'probability space', i.e. a logical outcome of patterns and causal relations that can be observed in past and present. Starting points are the certainties of the past and temporal continuity. This repertoire is in accordance with the 'old' predictive ambition. In the second repertoire, that I called the discontinuity repertoire, futurists assume that the future can be fundamentally different from the past and present. Accordingly, they start from the uncertainties of the future and consider the future a 'possibility space' (compare Berkhout & Hertin, 2002). In this repertoire, futurists do not aim to root assessments of the future in the past and present. The starting point for their production of future knowledge are the uncertainties of the future.

	Historical deterministic repertoire	Discontinuity repertoire
Starting points	<ul style="list-style-type: none"> • Certainties of the past • The future as probability space • Temporal continuity • Predicting 	<ul style="list-style-type: none"> • Uncertainties of the future • The future as possibility space • Deviations from past and current patterns • Exploring
Future knowledge	<ul style="list-style-type: none"> • Firmly rooted in past and present (extrapolation) 	<ul style="list-style-type: none"> • Interpretations of uncertainties (exploring different futures)
Corresponds with	<ul style="list-style-type: none"> • The forecast tradition • The 'old' tradition' 	<ul style="list-style-type: none"> • The idea of scenario-analysis • The 'new' tradition

Table 1 – Different temporal repertoires

In WLO, both repertoires were mobilised. However, the futurists did not explicitly acknowledge this co-existence, let alone the interference, of different temporal repertoires. As a result historical deterministic argumentations, which are at odds with the variation and integration ambition, got space to become increasingly important over the course of the foresight exercise.

Having understood the WLO endeavour in terms of co-existence and interference of two conflicting temporal repertoires, I decided to “revisit” SCENE and WVR. By analysing to what extent the different temporal repertoires could also explain some unproductive tensions and problematic contradictions in these future telling exercises, I aimed to understand better the troubles in implementing the variation and/or integration ambitions.



In VVR, the conflict between researchers and designers, and consequently the failing integration ambition, could indeed be understood as a conflict between two competing temporal repertoires. Researchers were the most important advocates of the historical deterministic perspective, while designers favoured the discontinuity perspective. At the start of the exercise, the futurists agreed that research and design should satisfy different criteria. In time, the future produced knowledge was increasingly evaluated in terms of historical deterministic criteria advanced by the researchers. Especially designers' assessments of the future were disqualified as not enough rooted in past and present. As the designers, who tried to go beyond assumptions of temporal continuity, were sidelined, the exercise eventually became a historical deterministic endeavour.

The manifestation of different temporal repertoires in future telling exercises could also explain some of the tensions that were caused by unresolved discussions about the use and presentation of the scenario matrix. I argued that the backbone functional meaning of the scenario matrix corresponded with the historical deterministic line of reasoning. Although the disputes in SCENE were primarily between proponents of the foundation and building scaffold functional meaning, some of the futurists also continued to refer to the scenario matrix as a backbone. The 'stickiness' of this functional meaning through the scenario exercise can be explained by the attractiveness of the historical deterministic repertoire to some futurists. As a result of the coexistence of two temporal repertoires, 'variation over variation' remained.

Switching ambitions

Observing the daily practice of professional futurists showed that implementing the integration and variation ambition was problematic in each of the three RPB future telling exercises. In SCENE the so-called 'variation over variation' threatened the process as no consensus could be reached on the presentation of the scenario axes in the final reports. In VVR the integration ambition failed, the futurists involved in this project were even about to withdraw from the project and many changes took place in the project team as a way to move forward. In WLO, the range of scenarios was seriously narrowed by the unfolding dominance of the historical deterministic repertoire. Nevertheless, the futurists managed to finalise these projects in terms of producing three reports.

I argued that futurists overcame deadlocks and seemingly irreconcilable differences by switching between the integration and variation ambition. That is, in cases where the variation ambition stranded, the futurists mobilised or emphasized the integration ambition over the variation ambition and vice versa. By switching ambitions, futurists can still position themselves within the 'new' tradition of future telling, in which uncertainty and complexity are key motives. By switching ambitions, the futurists played a so-called paradox game (e.g. Bal, Bijker & Hendriks, 2002) in which the practice (backstage) is

presented fundamentally different front stage. Some of backstage practice can actually be characterised as corresponding to the “old” forecasting tradition, in which historical deterministic thinking and acting dominates. In the front stage portrayals, however, the process and the produced future knowledge were presented as part of a “new” tradition, which is more in line with the discontinuity temporal repertoire.

Conclusion

Professional futurists are confronted with unproductive tensions and problematic contradictions while producing future knowledge. Ongoing awareness of conflicting and competing temporal repertoires and how they may manifest themselves (multiple functional meanings, boundary conflicts), while producing future knowledge, seems needed.

If professional futurists, despite their ambitions, are unable to go beyond historical deterministic lines of argumentations, it seems more appropriate to acknowledge that there is more continuity between their practice and the “old” forecasting tradition. Another option would be to embrace the new ambitions more actively and really start reasoning from the uncertainties and complexities of the future. This means using the past as springboard, and no longer as hammock. Especially in times of critical uncertainties and major complexity, this challenging route asks to be explored.

By detailing mechanisms and interplays which are active in current future telling practice, I aimed to provide insights as well as vocabulary which hopefully help futurists to further explore how to implement the variation and/or integration ambitions. In so doing, I hope that the stories on RPB future telling endeavours serve as learning opportunities, not only for RPB futurists, but for everyone involved in the study of the future, whether in the production or the use of future studies.

