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Monitoring the future. Building an early warning system for the Dutch Ministry of Justice

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ABSTRACT

To determine the sustainability of the policy, an Early Warning System (EWS) has been developed for the Dutch Ministry of Justice. An EWS is used to monitor various developments and to place them within the perspective of future scenarios. Without actually predicting the future, this makes it possible to determine which scenario is the most relevant at any given moment, allowing the department to adapt its policies. Regular modifications to the EWS make it possible to monitor in the direction of which scenario society appears to be moving. This creates a path to the future with which the sustainability of (new) policies can be tested periodically.

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1. Introduction

Strategic decisions by definition concern tomorrow and they have far-reaching consequences for the future, which means that unpredictable changes in the areas of technology, demography, economy, globalization, and the environment need to be taken into account. This creates a need for the Dutch government (and for any government) to be prepared for an uncertain future. After all, to govern is to look ahead.[3] The Dutch Ministry of Justice wants to develop insight into which possible changes may be important to its policy area in the long term. To that end a broad strategic futures exploration was carried out in 2006, with the aim of increasing the departments focus on the future and the environment [2]. Uncertain developments and trends were identified and on the basis of two key uncertainties, four futures scenarios were developed.

To be able to determine at an early stage which scenario or which elements of the scenarios are unfolding in reality, the department felt the need to monitor environmental developments, which is why, 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.

This article is constructed as follows. In Section 2, we give a brief introduction to the scenario method and describe the scenarios of the Ministry of Justice. In Section 3, we discuss existing literature surrounding EWS and describe the structure of the EWS of the Ministry of Justice. In Section 4, we demonstrate an application of the EWS and discuss the results. Finally, we

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[3] For a recent study into the way the Dutch government applies futures explorations in its strategy and policy formation process, see [1].

Table 1
Scenario typology according to [5].

Variable	Type of scenarios
Breadth of the scenario topic	Sectoral scenarios vs. multi-sectoral scenarios
Level of aggregation	Micro, intermediate, and macro scenarios
Direction of time (from past to future or the other way round)	Projective scenarios vs. prospective scenarios
Amount of exploration	Dominant (i.e., current developments continue in the same direction), limited explorative (i.e., different futures that do not diverge very much from the present), and highly explorative (i.e., scenarios that diverge very sharply from the present to investigate the limits of what is possible)
Focus of action	Environmental scenarios (i.e., focus on developments beyond the control of policy-makers) vs. policy scenarios (i.e., focus on alternative ways of executing influence of the environment by carrying out different types of policy)

present our conclusions in Section 5 and we discuss some suggestions for further research with regard to scenarios and the EWS.

2. Scenarios

2.1. The scenario method in short

The scenario method is considered the most popular method of futures research among both commercial and government organisations [3]. However, scenario projects are not always successful. Despite the popularity of the method, only a small number of successful applications are known, with the Shell scenarios during the oil crisis of the 1970s as the most famous example. Often, the development of scenarios is limited to a one-off exercise and there is no follow-up or translation into policy. Scenario builders are looking for ways to improve the follow-up of scenario trajectories.

The immense popularity of scenarios has led to a wide variety of scenario types. There are, however, a number of staple characteristics:

- Scenarios are explorations of the future, not predictions;
- Scenarios need to offer room to think the unthinkable without losing themselves in science fiction, they have to be plausible;
- Scenarios not only describe various end states, but ideally they also present a path from the present towards the various possible futures, making it clear how a certain future can come into being. The storylines have to have a logical internal consistency.

In short, scenarios help us look ahead to an uncertain future by bringing together developments in a number of essentially different images. According to Herman Kahn, the founder of the scenario method, a scenario is a series of hypothetical events describing what could happen within our environment, in the form of a lively but realistic story that draws attention to causal relationships between developments and possible ways to intervene [4].

To do justice to the diversity of scenarios, we refer to the typologies presented by [5] and [6]. [5] draws the following distinction (Table 1).

The scenario typology presented by [5] contains content-related characteristics (like 'breadth of the scenario topic'), an approach to the future (like 'direction of time – from past to future or the other way around)', and ideas on how the scenarios can relate to action and decision-making ('focus of action').

The scenario typology presented by [6, pp. 427–428] is based on the process design of the scenarios and on their content. The process design can be *intuitive* with the emphasis on qualitative data, or *formal*, characterized by a quantitative and analytical approach. As far as the content of the scenarios is concerned, a distinction is drawn between *complex* and *simple* scenarios. *Complex* scenarios consist of dynamic interconnected variables from various social domains, while *simple* scenarios mainly focus on extrapolating a limited set of variables related to a single issue. By combining these four characteristics and linking them to the explorative and supporting function of scenarios (which are both objectives of scenarios), we get eight types of scenarios.

In the next section, we will describe the scenarios. At this point, we want to point out that the scenarios of the Ministry of Justice can be described in accordance with the typology of [5] as:

- Multi-sector scenarios: the scenarios not only refer to legal matters but to other subjects as well.
- Macro-scenarios: these scenarios deal with social issues that are relevant to national politics regarding legal policy.
- Projective scenarios: these scenarios do not contain desirable end states that are the result of policy choices that are made in the present, but images of the future that are the result of current and future developments that influence one another.
- Limited explorative: these scenarios do not contain dominant developments that move into one direction, but nor are they sufficiently extreme to me described as *highly explorative*.

'Brussels'

The european way

- Broad support for the EU
- Counterbalance emerging Asia
- Normative considerations important
- Favourable economic developments, in part attributable to the EU
- Feelings of insecurity reduced considerably
- Demand for social safety is not high
- Reappraisal judicial values
- Claims culture limited
- Reduced segregation through increased acceptance and participation foreigners

Forza Europa

- Fear of terrorism demands a repressive European approach
- Emergence Asia unites EU
- Segregation and hardening
- Development claims culture
- Legalisation of society
- Repressive climate
- Security above privacy
- Tendency for a more instrumental approach to the law
- Fear or huge influx fugitives from Africa

Low demand for social safety

High demand for social safety

Together.nl

- Nationally oriented parties play main role in politics
- Development EU comes to a standstill
- National pride of being Dutch
- Conflicts of interest are resolved through negotiation
- Harmonious social relationships
- No claims culture
- Citizens have faith in government
- Reappraisal legal values
- Shared values have a unifying influence
- Few incidents
- High level of regional cooperation
- Fugitives still welcome

Frightened Netherlands

- The Netherlands have become a frightened, inward-looking country
- Lack of support for the EU, in other countries as well
- Economy in a long-term slump
- High unemployment, especially in older urban neighbourhoods
- Concentration of low opportunity
- Tensions between different social groups rising
- Citizens want security above all
- Development claims culture
- Legalisation of society
- European countries compete for the most restrictive immigration policy
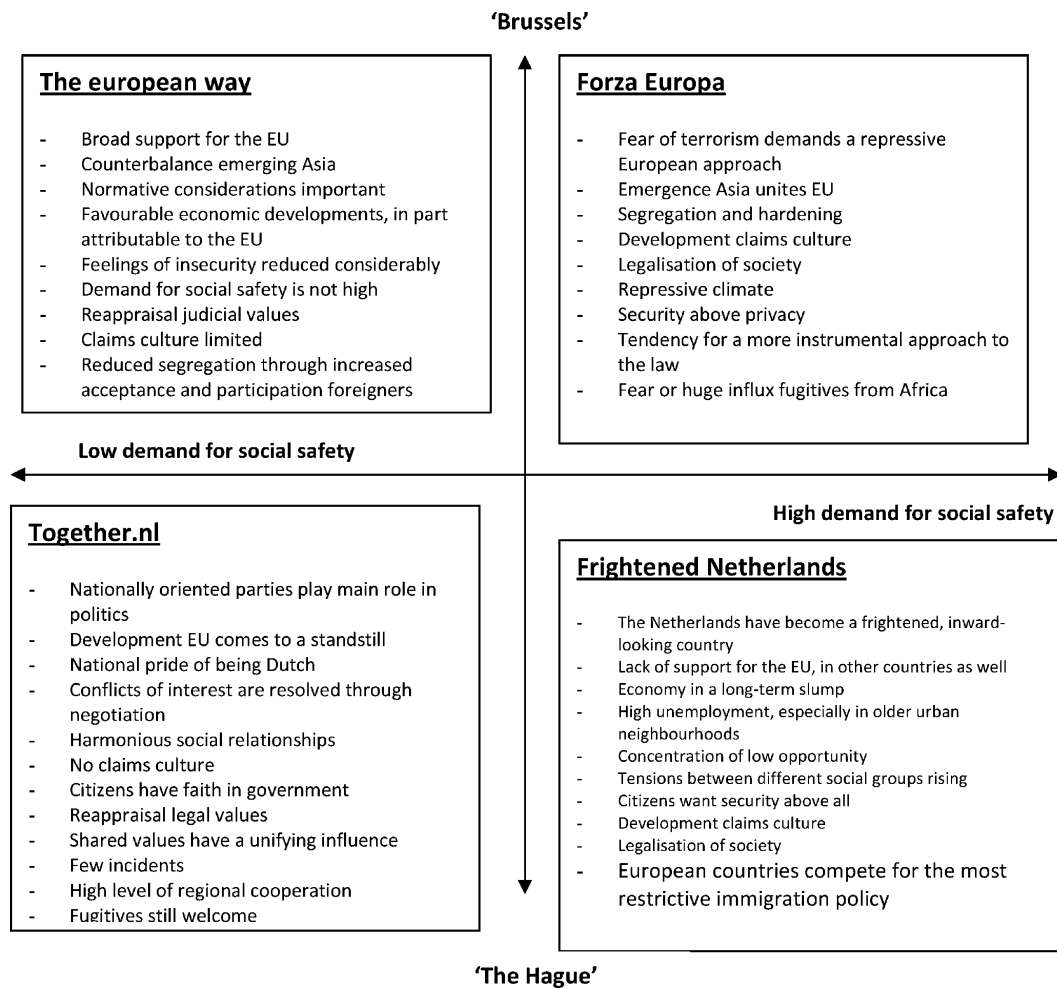
'The Hague'

Fig. 1. Futures scenarios of the Ministry of Justice [2].

- Environmental scenarios: these scenarios are clearly designed to get an idea as to which strategic and policy options are useful to the Ministry of Justice in the various scenarios.

According to [6], the scenarios of the Ministry of Justice are complex scenarios that have been created intuitively and that are meant to support the department in their policy decisions.

2.2. Scenarios of the Dutch Ministry of Justice

In the project 'Justice for tomorrow', the Ministry of Justice has developed four futures scenarios. The scenarios outline plausible future images of the development of the environment in which the department may have to operate in the period until 2015 [2]. The scenarios are based on two key uncertainties: *the demand for social safety*, and *internationalisation*.

The demand for social safety refers to the sacrifices people are willing to make to prevent others from causing them suffering or harm. The term 'sacrifices' refers to the amount of time people are willing to spend on securing greater levels of safety as well as sacrifices with regard to their freedom and privacy. The extent to which people are willing to make sacrifices to increase social safety may grow or diminish.

Internationalisation refers to the question whether the support for the European Union will decrease or increase and whether solutions to social problems are pursued at a national ('The Hague') or international ('Brussels') level of legislation and regulation.

The four futures scenarios that result from combining the two key uncertainties are: Forza Europa, the European Way, Together.nl, and Frightened Netherlands (Fig. 1).

To a large extent, building the scenarios was a linear process based on an outside-in approach. To identify relevant future issues for the department, interviews were first carried out outside the department. On the basis of these interviews, a discussion paper was written that was then discussed again with external experts. To gather additional information and to validate external information, a literature study was conducted. The resulting discussion paper was then discussed *within* the department. The discussion items and uncertainties that were identified served as the basic elements in the four scenarios. With regard to the policy areas within Justice, a "What if" question was designed. If a certain scenario were to

develop, what issues would that raise for the policy area in question? And what measures would have to be taken? By then looking at the relationships between the answers for the various scenarios, five strategic assignments could be deduced.

1. Provide a legal framework for dealing with risks and timely intervention.
2. Build an international basis for the national legal system.
3. Listen and act at a local level.
4. Choose clear horizontal and vertical roles in the legal playing field.
5. Overarching: be flexible in order to be stable.

The way in which the department has to deal with the strategic assignments is to a certain extent scenario-dependent, which means that it is necessary to know which scenario is actually unfolding. In other words, it is important to have insight into the social developments that are taking place and to monitor them. To that end, an early warning system is an appropriate instrument.

3. Early warning systems

3.1. Early warnings of future developments

Looking to the future is not just a matter of exploring future trends (i.e., changes over time) but also of detecting current signals or events that may announce a change or shift in existing trends. Early warning systems (EWS) are used to detect and identify these *seeds of change* that can even develop into discontinuities [7]. These early indications of future changes are referred to in different ways in futures research literature. [8, p. 201) speak of *wild cards*: "...sudden and unique incidents that constitute turning points in the evolution of a certain trend". However, these incidents do not occur in the present but in the future: "A wild card is a description of an occurrence that is assumed to be improbable, but which would have large and immediate consequences..." [8, p. 202]. As such, wild cards closely resemble *events* that can be described as: "A singular occurrence of which the chance that it might happen is difficult to predict and which has not already started" [9, p. 8]. Others use the term *weak signals*: "important discontinuities in an organisation's environment" [10]. According to [8, p. 205] weak signals refer to "...information on potential change of a system towards an unknown direction", while [10] refers to them as "a factor of change hardly perceptible at present, but which will constitute a strong trend in the future", and [11, p. 911] speak of a "potential discontinuity". [12] refers to Pierre Wack, who mentions *predetermined elements*: "...by predetermined elements, I mean those events that have already occurred (or that most certainly will occur) but whose consequences have not yet unfolded". According to [13], *weak signals* are (also) trend indicators that can be classified in an EWS. In short, *wild cards*, *events* and *predetermined elements* refer to the possible future events themselves, while *weak signals* have to do with *information* regarding possible future developments or possible wild cards. The next step then is spotting and structuring the signals.

3.2. Early warning systems

There are various kinds of early warning systems, for instance with regard to possible national disasters like earthquakes, floods and forest fires (e.g., [14]) and for signaling social issues like population make-up and possible hazards to humans and animals of new drugs, and other chemical substances. [15] speaks, for example, about 'social early warning systems' of which 'citizen movements' are the main ingredients.

In this article, we focus on an EWS with regard to the identification and explanation of events that have to do with social, technological, and economic changes that are indicative of the four scenarios outlined above. According to [16], a '*strategic early recognition* system' is capable of detecting changes in the environment at an early stage, investigating what the consequences of those changes will be and predicting their long-term development. As a result, [16] argues, such a system is a part of the initial phases of strategic planning (see also [17]). On the basis of a number of definitions of EWSs, [18] argue that there are two possible perspectives: detected changes in the environment are threats or opportunities that are not mutually exclusive. [18] then distinguish between two types of EWS: (1) *pro-active*, in which an organisation first determines which issues it finds important and then goes about monitoring those issues; (2) *reactive*, in which an organisation uses the EWS as a radar looking for unexpected changes (see also [16]). The fact that building and applying an EWS and relating it to scenarios is not as straightforward as it may seem is underlined by [19], who uses an evaluation of an anonymous case study of a strategic EWS to identify six pitfalls:

1. scenarios that are not broad and challenging enough;
2. organisational isolation of the EWS manager;
3. the scenarios limit the scanning of new developments (cf. pitfall 1);
4. no agreement on what a trend of changes is;
5. too much emphasis on quantitative data[4] rather than qualitative data,
6. (organisational) acceptance that the EWS (and the EWS manager) does not provide absolute certainties about the future.

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[4] For examples of a quantitative EWS, see [20] and [21].

To structure the exploration of *weak signals*, scenarios can be used as 'lenses' or 'filters' that can be used to identify information in the environment of an organisation from a broad perspective ([11, p. 913], [13, p. 36] see also [22]). Although *scenario myopia* may occur in this process, explorative methods are better able to pick up various signals than predictive approaches to futures research that examine the future from just one perspective. The scenarios make sure that apparently isolated *weak signals* can be linked to possible long-term changes. By doing this regularly, in other words by applying an EWS, a kind of *road to the future* emerges that gives shape to a possible future. This cannot be used to make any predictions, because this *future road* can change course regularly and thus indicate different futures scenarios over time. However, it does make it possible to link short-term developments or events to long-term changes.

That is why it is important, when using an EWS, not to see *signals of change* as independent short-term factors, but to place them in a long-term perspective, allowing for a more valid interpretation of the signals involved. After all, policy and strategy formation starts with perception: how do we know to which signals we need to pay attention? How can we focus sufficiently to ensure a structured approach to strategy while at the same time making sure we do not miss unexpected events? Scenarios help policy-makers to assess trends and shifts in trends for the organisation [23]. The scenario method pays special attention to identifying signals or *turning points* that indicate certain trend shifts. We argue that detecting and interpreting (possible) changes should always take place within the context of a futures exploration (i.e., a set of scenarios), in order to give the signals structure and meaning.

Using an EWS focuses the search process on potential changes, while the scenarios make sure that the scope is wide enough to limit the danger of overlooking important *seeds of change* (although that can never be prevented entirely, see [24]). The 'antennae' of the EWS are aimed at the specific content of the scenarios to ensure that the scanning and monitoring of possible changes is meaningful within the contexts presented in the scenarios. In a figurative sense, the scenarios are like movies, while the indicators within the EWS are individual scenes. In our vision, in a genuine EWS the changes and scenarios are connected in a systematic way.

In the figure presented below, we indicate what the relationship is between the scenario method and the EWS.

Fig. 2 describes how the EWS is connected to the scenario process of the Ministry of Justice. Possible external trends and developments are explored, after which two key uncertainties are selected. Futures scenarios are developed by connecting the two key uncertainties. During the scenario process, possible strategic issues and policy options have been identified on the basis of these various possible futures. By monitoring indicators of the direction in which the key uncertainties develop, the results enable policy-makers to determine proactively which strategic issues and policy options will become relevant in the future.

Although we will present the EWS in the following section, we want to make the following remarks with regard to that EWS on the basis of the previous discussion:

- The EWS is linked to existing scenarios that serve as a 'structuring' framework, which is why it is proactive in nature.
- The EWS has a predominantly strategic function, because it provides the basis on which it is determined which elements from the scenarios are dominant and what the consequences will be for the department's policies.
- The EWS does not comment on the possible positive or negative nature of the changes, because the scenarios are neutral and do not imply a desirable or undesirable future.

4. The early warning system of the Ministry of Justice

The Ministry of Justice felt a strong need to be able to monitor relevant trends and development in the environment that cause changes in the existing situation, to allow them to determine at an early stage which scenario or elements of the scenarios appear to be unfolding. This is why a follow-up study was carried out on the basis of the following research question: "*What empirical sources exist that, individually or in combination, provide a clue as to which scenario we currently find ourselves in and which development path or combination of development paths, as identified in the scenarios, appear to be unfolding in actuality*?" [25].

4.1. Operationalisation of the indicators

To be able to determine at an early stage which scenario actually appears to be unfolding, various approaches can be adopted. To begin with, it is possible to look at factors that (partly) determine the core uncertainties. That is to say, factors that may cause demand for social safety to increase or decrease and factors that affect the level of international orientation.

"Justice for tomorrow" describes a number of factors that may cause demand for social safety to increase. The factors include fear of attacks, news regarding incidents, the extent to which people believe technology can help prevent criminality, a reduction in the perceived acceptability of risks, and a concentration of low levels of opportunity. In addition, there are factors that may help reduce demand for social safety, for instance a reappraisal of legal values, a de-concentration of low levels of opportunity, and the emergence of climate change as a new priority. "Justice for tomorrow" also describes factors that encourage people to expect solutions to be provided either at the national level or at the international level [2].

Changes in the factors indicated above can be seen as "seeds of change" and can as such contribute to an EWS. An alternative approach to building an EWS is by measuring developments with regard to the core uncertainties directly, for
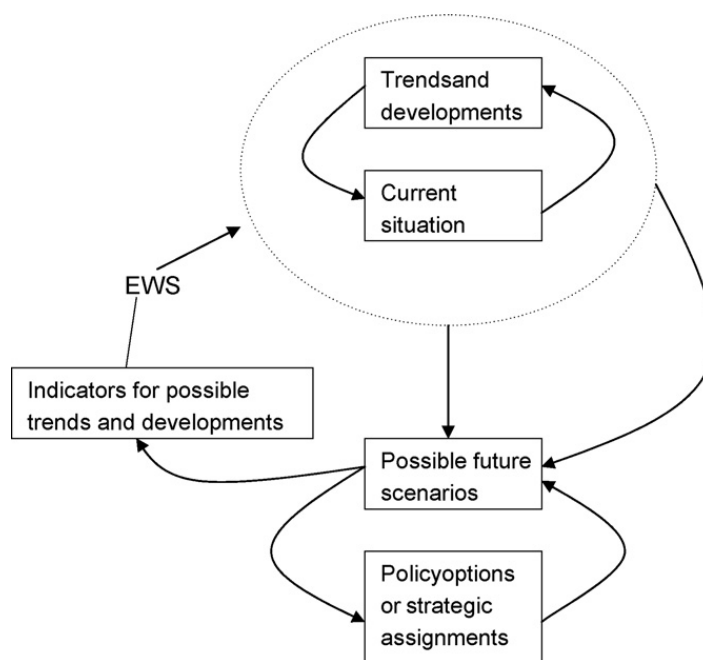
Fig. 2. The operation of an early warning system.

instance by examining whether existing empirical sources can provide information that is strongly indicative of the developments in question. If that is the case, it offers a simple way to obtain an indication with regard to the question which scenario appears to be unfolding. For practical reasons it was decided to explore this approach.

The question whether the indicators are *leading* or *lagging* is a relevant one. A *leading indicator* indicates which trend or situation will occur, while a *lagging indicator* 'indicates' in retrospect what trend or situation is occurring. The number of unemployment applications by companies, for example, is a *leading indicator* for the future development of unemployment levels, while the number of unemployment benefits is a *lagging indicator*, because unemployment levels are measured in retrospect. The indicators in the EWS of the Ministry of Justice are *leading* because they indicate which scenario is dominant is, which means the EWS is future-oriented.

4.2. Sources for the EWS

In order to apply the EWS, empirical material is needed. To determine the usability of empirical sources for the EWS, the following criteria were used:

- Representativity – Has a representative test been conducted and can the results be generalised to the entire population (i.e., the Dutch population)?
- Significance – How large was the test population of the study?
- Periodicity – How often is the study carried out? Is it a one-off affair or is it repeated annually?
- Validity – Is there a historical relationship between the source and the core uncertainty?

Here follows the application of these criteria on empirical sources relevant for the key uncertainty *the demand for social safety*. The Veiligheidsmonitor Rijk (VMR[5]) is the source that shows the highest scores on all items. In particular the periodicity of this source is important. Another empirical source that meets the criteria is the study by the CBS[6] into the turnover of the security sector. In every edition of www.21minuten.nl (another possible source), different questions are asked, which means that the consistency of this source is not very high. The representativity of www.21minuten.nl is also open to discussion. Furthermore, 'The social state of the Netherlands' by the SCP[7] uses, among other things, figures from the VMR, which is why VMR and the CBS have been used as a starting point: the other sources are used to provide contextual understanding and a theoretical framework. Although the VMR has only been used since 2007, it uses the same information that was previously collected in the Politiemonitor Bevolking (1995–2005)[8] and the

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[5] Government Safety Monitor.
[6] Central Bureau of Statistics.
[7] Social and Cultural Planning Bureau.
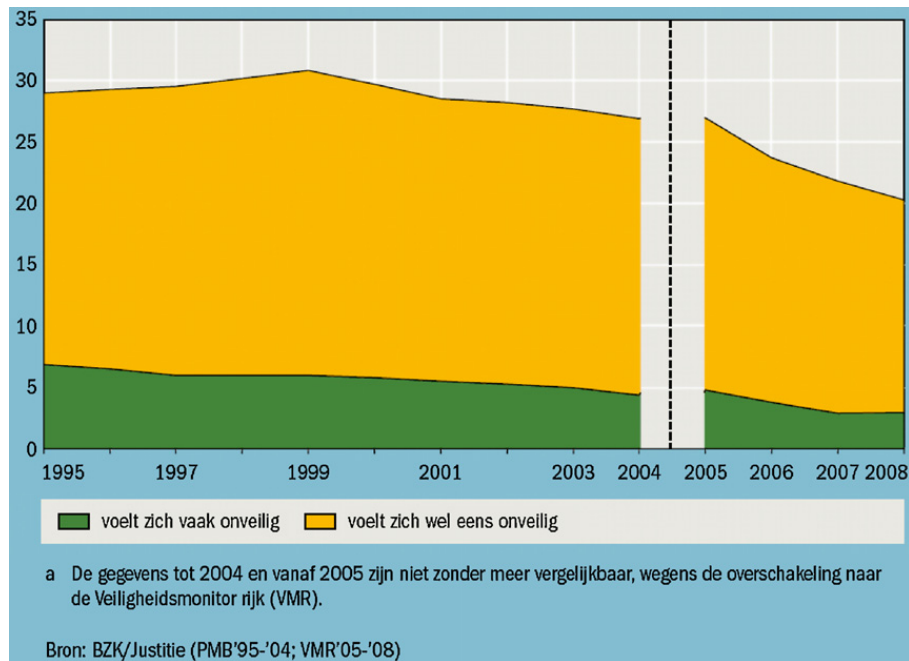[8] Police Monitor Population.

Fig. 3. Percentages of the Dutch population of 15 years and older who sometimes or often feel unsafe, 1995–2008 (source: Dutch Ministry of Internal Affairs BZK/Ministry of Justice (PMB '95–'04; VMR '05–'08) in: SCP).
Percentages of the Dutch population of 15 years and older who sometimes or often feel unsafe, 1995–2008 (translated title of the graph).
The data until 2004 and from 2005 on are not entirely comparable because of the transfer to the VMR.
Legend: green area: 'Often feels unsafe'; yellow area: 'Sometimes feels unsafe'. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of the article.)

Bevolkingsmonitor Politiekorpsen (2006).[9] These monitors were part of the 'Social and Cultural Exploration' of the SCP. These days, the VMR continues to exist as an independent monitor.

If we look at the validity of the VMR as a source of the key uncertainty, we can conclude that actual safety levels say little about people's *sense* of safety, which makes it hard to represent the validity of this monitor via a reflection on past events. If we pick a moment when social safety was in danger, that does not have to be reflected in the sense of uncertainty indicated by the sources we selected.

The most obvious threat to the sense of safety among the Dutch people is probably the terrorist attack on September 11, 2001. According to the VMR, people's sense of safety did not change in this period. We could explain this by pointing out that governments have responded to the attack in an attempt to increase our sense of safety. The sources that have been classified as being supportive in nature are also in line with this trend. What is striking in the various sources is the relationship between the objective and subjective safety and people's willingness to make sacrifices. The empirical sources show that the subjective safety increase, while people's willingness to make sacrifices also increases. In addition, it is argued that there is not one-to-one relationship between the objective and subjective safety. If that is the case, what then is the nature of the relationship between the willingness to make sacrifices and the objective safety? One may wonder whether, if more money is spent on increasing safety (more sacrifices), the objective safety increases in equal measure. In addition, the question is whether a reduction in people's willingness to make sacrifices is a *leading indicator* for the increase in subjective safety. Another question that arises when we look at the constant level of security-related expenditures is whether what we are dealing with here is a plateau theory. Are the expenditures that have been made of a permanent nature, or can they also be reduced (once the objective safety increase again)? It is impossible to answer these questions within the framework of this article, but they can be used as input for future research.

4.3. Applying the EWS

In this section, we describe an application of the EWS of the Ministry of Justice for the year 2007. The application has been carried out on the basis of the following steps:

1. Determining the starting point; in the first year, a starting point will be determined and in the following years, the endpoint can be used as a starting point.
2. Selecting empirical sources on the basis of the criteria.

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[9] Population Monitor Police Force.

Table 2
Movement along the social safety axis.

	No priority social safety	Social safety priority
CBS	←	
The Social State of the Netherlands	↔	
21minuten.nl	←	
Veiligheidsmonitor Rijk		

3. The movement along the horizontal axis; the demand for social safety.
4. The movement along the vertical axis; the level of internationalisation.
5. Combining the first four steps to determine where we find ourselves at the moment.

As far as the empirical sources are concerned, we need to point out that, although a large number of studies is available in the Netherlands, they are not always consistent. The questions in the studies vary, subjects changes, and monitors exists only a limited number of years. All this makes it difficult to discover trends in certain developments and to compare data from different empirical sources. In addition, a historical starting point has to be determined, which requires a calibration of the scenario-axes. The scenario-axes do not use a scale, which makes it impossible to indicate a starting point on the basis of figures, which is why a starting point was determined by consulting a number of experts, who together reached the following conclusion: "Society seems to be moving in a clockwise direction. At the end of 2001, events seemed to point towards Forza Europa, with broad support for the war on terror. Not much later, we see indications of Frightened Netherlands and at this moment (June 2007) there are indications in favour of Together.nl" [26]. With regard to the sense of social safety, we see a low in 2001 ('9/11'), after which the sense social safety appears to increase. However, the willingness to make sacrifices seems to increase, which implies an increase in the demand for social safety.

Fig. 3 of the Veiligheidsmonitor Rijk shows that the sense of safety in the Netherlands is growing. This means that social safety is given a lower priority. In 2007, 22% of the population sometimes felt unsafe, while 3% often felt unsafe. Again, compared to 2006, this represents a reduction. The VMR 2008 shows a continuous reduction in the number of people who sometimes feel unsafe: 22% in 2007 and 20% in 2008. The percentage of people who often feel unsafe is both in 2007 and in 2008 about 3%.
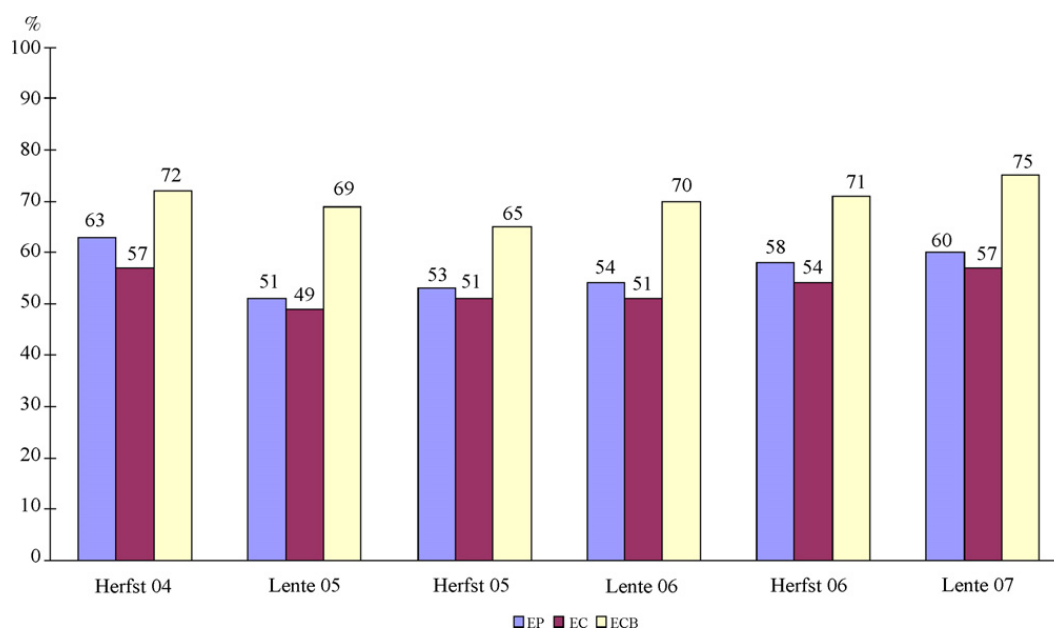

Fig. 4. Trust Dutch people have in European Institutions (Eurobarometer).
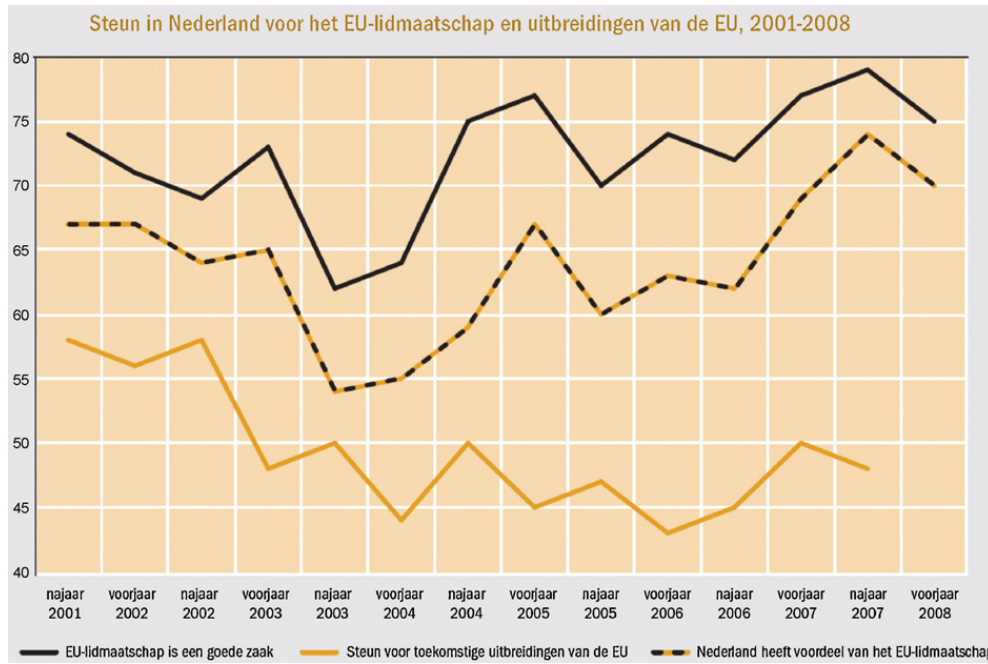Time intervals: Spring 2004–Spring 2005–Autumn 2005–Spring 2006–Autumn 2006–Spring 2007.

Fig. 5. Support in the Netherlands for EU-membership and expansion of the EU, 2001–2008. Source: [27, p. 16].
Legend: black line: EU-membership is a good thing; yellow line: support for future expansion of the EU; black-yellow line: the Netherlands benefits from EU-membership.
Time intervals: Autumn 2001 until Spring 2008. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of the article.)

Table 3
Movement along the internationalisation axis.

	Brussels	The Hague
Eurobarometer	←	
21minuten.nl	←	
CPB/SCP	↔	

If we look at the study of the CBS into the security sector, we see that its figures have thus far moved in the opposite direction. However, because there is as yet no information available on 2007, this source cannot be included in this application. The development of the supporting sources is as follows. 'The Social State of the Netherlands' (by SCP) also indicates a reduction in the priority citizens assign to safety. www.21minuten.nl also indicates that safety is still very much a high priority for a large portion of the Dutch population, but that it has not altered since 2006. We conclude that the importance people place on safety moves slightly to the left of the horizontal axis in 2007 (see Table 2), although the VMR 2008 does indicate a slight increase in terms of the preventive measures taken by private individuals. The sense of internationalisation can be deduced from Fig. 4 in the Eurobarometer, which represents the trust Dutch people have in European institutions. It shows that trust in Europe has increased in recent years. What is striking in the Eurobarometer of the Spring of 2007 is the large increase in trust in the EU, which rose to 69%, from 41% in the Autumn of 2005 and 44% in the Autumn of 2006. 75% of the Dutch population is positive about the future of the EU. The new measurement of the Eurobarometer (December 2008) shows that trust in European institutions is increasing (Fig. 5).

Since the low in 2003, support for the EU has increased. However, support levels in 2008 are slightly lower than they were in 2007. Having said that, 75% of the population still considers EU-membership a good thing, while 70% of the population feel that the Netherlands benefit from the EU-membership.

The study by www.21minuten.nl also indicates that de Dutch population, despite the poor functioning of the EU, places great importance on the power of the EU and that they are willing to share power with Europe in a large number of areas. The study by www.21minuten.nl is suitable to comment on public opinion for the year 2007. The other supportive empirical
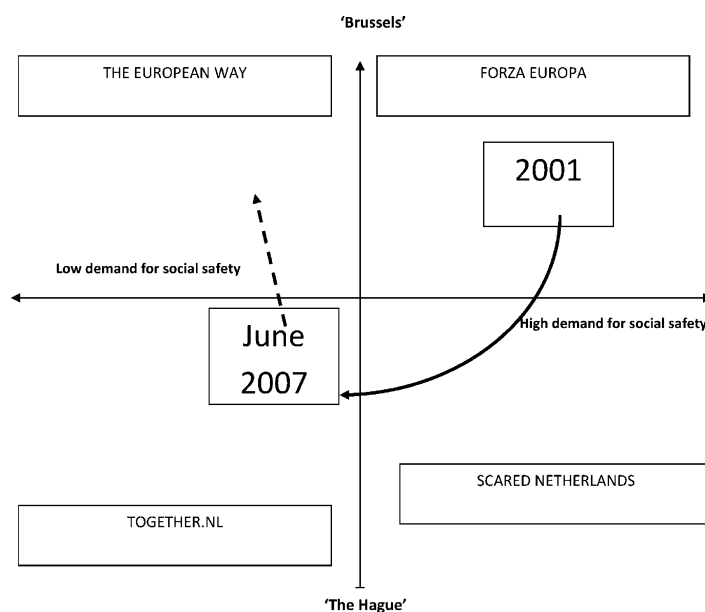
Fig. 6. The future scenarios with application of the EWS for 2007.

source, the publications on Europe by the CPB/SCP, indicates that the Dutch people are still relatively positive about EU-membership, but that opposition to future expansion is increasing. We conclude that the Netherlands are slowly moving upwards on the horizontal axis of internationalisation (Table 3).

The development that was indicated by the experts appears to be consistent with the actual development according to the empirical sources we selected. Fig. 6 illustrates what this development looks like in the axial cross. Above, we have argued that the key uncertainties, according to the empirical sources, move as follows in 2007: social safety moves to the left and internationalisation moves upwards. Fig. 6 shows that this suggests we are moving towards the scenario of the European Way.

5. Concluding remarks and directions for future research

In this article, we have described the construction and application of an EWS for the Ministry of Justice. The EWS makes it possible to identify the short-term policy consequences of scenarios, which means it can play an important role in the follow-up of the scenarios, the lack of which is an important drawback of scenarios.

The application of the EWS suggests that there is a movement "towards the top left" in 2007. If that is correct, the Netherlands would become a less inward-looking society and social safety would be less of a priority. It would mean, for instance, that there would be less support for instruments designed to detect risks and early intervention to prevent those risks. However, it would not be wise for the Ministry of Justice to focus on one likely scenario. The core of the scenario approach is, after all, an awareness of the fact that there is uncertainty regarding future developments. The question arises to what extent the department should follow the prevailing social climate and to what extent it should operate independently of that social climate.

These strategic assignments (see Section 2.2) can be regarded as futures options [28]. By identifying at an early stage which scenario will emerge, the Ministry can anticipate this trend by developing appropriate policies and by experimenting with them on a small scale. These small policy steps can be seen as a kind of 'beachhead' that allow the Ministry to prepare for the future. Some options are suitable choices in all scenarios, we call them *robust options*. Other options are only relevant when certain developments take place, which means they can be stored to be used when that is appropriate (*call options*). In some cases, it has to be possible to stop actions that are positive in the present when the future takes a certain turn. We call this a *put option*. This approach allows the department to order the various strategic assignments and to translate them into a dynamic strategy that can be tested at certain points in time via the EWS. Scenarios do not always have to result in a single robust strategy through a combination of various possible strategies, which is not always available and which in many cases would result in an 'mediocre' strategy that presents an organisation with the risk of being 'stuck in the middle'. The combination of scenarios and an EWS makes it possible to develop a strategy that is based on 'logical incrementalism' [29]. The regular application of an EWS creates a path from the present to the future on the basis of which the strategy can be adjusted incrementally. We do need to keep in mind that 'logical incrementalism' (a form of 'strategic piecemeal engineering') can develop into a kind of 'muddling through', causing an organisation to lose its strategic edge and making it move ever so slowly towards the abyss.

As we mentioned earlier, scenarios are not meant to predict but to explore the future. Keeping that in mind, how should we interpret the results of the EWS? After all, the results of the EWS show which elements form the scenarios are 'dominant'

at a certain point in time, which is somewhat odd, because the scenarios are not connected to the present but to their time horizon: the year 2015. However, the fact that the results of the EWS at a certain moment point to a specific scenario does not have to clash with the concept of scenarios, because its explorative nature does not preclude a scenario from actually becoming a reality. The famous scenarios that were used by Shell in the early 1970s also contained one scenario that came true. A continuous application of the EWS creates a path from the present to the future that may be described in one of the four scenarios or it may be a combination of the developments described in the scenarios.

Another function of an EWS is to determine when the 'sell by date' of the scenarios has been reached and new scenarios have to be created (cf. [17, p. 184]). There may be new sources or new developments that cannot be incorporated into the existing scenarios, which means they cannot be detected by the EWS. When one or more *new* possible futures present themselves that cannot be described within the existing set of scenarios, new (or additional) scenarios have to be developed.

In our vision, an EWS is a very useful way of linking scenarios to policy development. Improving this link means that the following issues need to be addressed from the perspective of the EWS:

1. It is interesting to investigate whether the type of EWS depends on the type of scenario. For now, we may assume that, for instance when multi-sector, projective, highly explorative, environmental scenarios (typology [5]) are used, it makes sense to use an EWS that conducts a very broad scan, while it would make sense to use a more focused EWS in the case of formal, simple scenarios (typology [6]).
2. How can we determine in a responsible manner what the starting point of the scenarios is? In this article, we have done so by consulting a number of experts, but it is by no means a foregone conclusion that the experts will be in agreement. Nor can we simply assume that the starting point is located at the centre of the axial cross on the basis of our current uncertainty about the future and the equal likelihood of the various scenarios coming true.
3. What should one do when sources point in different directions? An EWS does not have to provide an unequivocal result, because sources may vary a lot in terms of their research method and the data under investigation. Perhaps attaching different weights to the empirical sources may solve this problem.
4. How often does the EWS have to be carried out? Every month? Three times a year? Or once a year? Or when the sources publish their findings? The answer to this question depends, among other things, on the time horizon of the scenarios (carrying out the EWS on a monthly basis when there is a 30 years time horizon does not seem to make much sense, on organisational factors (who will conduct the EWS?) and on practical considerations (financial budget and personnel resources).

Looking back on the construction of the EWS, we finally want to address a fundamental question. What building blocks are the most suitable for constructing an EWS? In the case of the EWS described in this paper, we have looked for time series that are direct indications of key uncertainties, for practical reasons. The question is if this was the best choice. The available time series turned out to be but poor proxies for the key uncertainties. There is a risk that the accidental availability of other time series might lead to other conclusions. Despite our attempts at validation, this remains a vulnerable point. For that reason, we need to be cautious with the application. One alternative, which would cost more time and money, would be to monitor the factors that determine the development of the key uncertainties explicitly. In that case, the connection between the factors and the key uncertainties would have to be made explicit. It may be worth exploring whether the system-dynamic models would be helpful in doing so. In addition, it is possible to identify events that are typical for certain scenarios and to conduct a systematic scan of the environment for these events.

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