

Instructions

The Board of Government Advisors advises the State on spatial quality, advocating long-term thinking. Not in search of beautiful vistas, but to reason backwards: what should we do now. Broad-based design workshops form the basis for this. Design as a way to explore the many possible futures and to examine how we should deal with them now. Design, in short, as a way of thinking as well as acting. Design thinking expands the playing field in time and space, formulates uncomfortable questions, challenges frames, offers solutions and vistas.

In 2022, the Board launched the Future Academy. To learn 'future thinking' together (designers, researchers, creative thinkers). The Future Academy consists of a series of lectures with working sessions on methods of future thinking. We describe those methods in this manual. Step by step, so you can get started yourself.

This guide contributes to ways to interact with each other to work on the future. For this, it is important to adopt an open attitude towards design and work together constructively. Learning together. This guide could not have come about without the open attitude of all those working on the future of the Netherlands.

Glossary

Design method

Working method to turn an image or narrative of a future into spatial reality.

Design research

Method by which knowledge and insights around a spatial issue are retrieved and translated into possible futures; a process in which research and design alternate.

Scenario thinking

Working with a variety of futures for the spatial development of an area based on carefully chosen variables.

Future thinking

With future thinking, you try to make the future imaginable in order to make informed choices in the here and now.

Transition

A fundamental change at the level of a collective regime. The 'regime' is a set of rules that we have internalised in skills, preferences and ways of looking at things.

Imagination

Imagination represents the shared images of the future.

Imaginative power

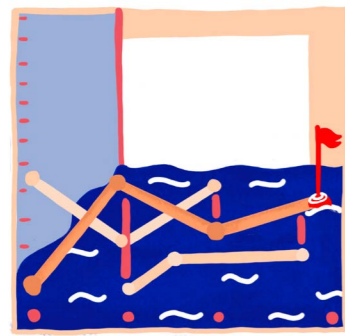
Imaginative power is the individual gift of being able to imagine the future.

Imaginative logic

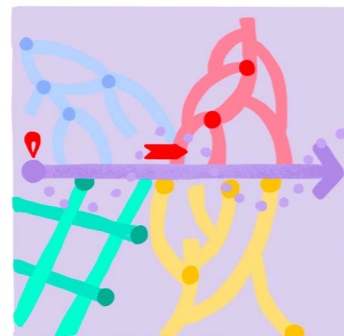
The way the future is made tangible in the present.

Value-driven scenario studies

These scenarios help to explore the range of possible futures of the Netherlands from a spatial, qualitative and normative perspective.



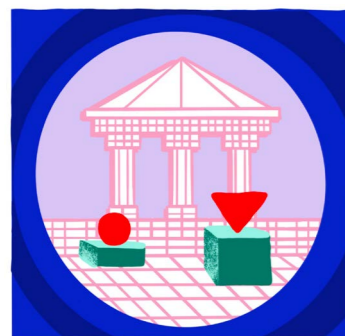
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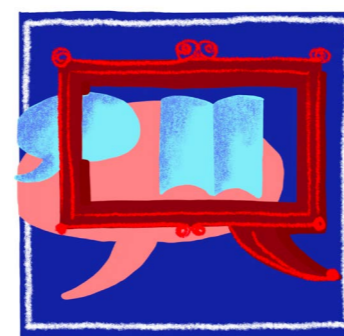
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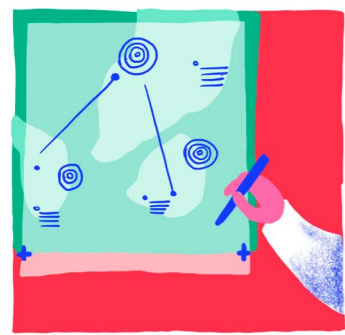
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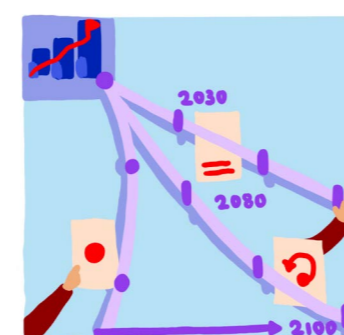
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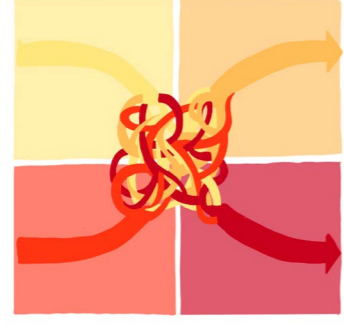
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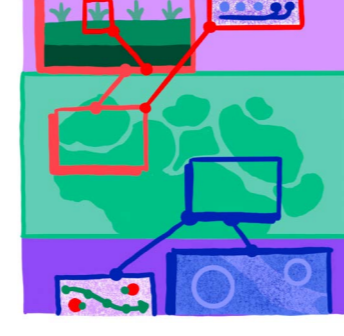
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12 methods

① Adaptation paths

In this method, the focus is not space, but time. As a result, adaptable plans can be made for a long-term goal.
- Deltares / Marjolijn Haasnoot, Rutger van der Brugge

② Futures ecologies

Using ecological thinking, speculative design and storytelling to create the most concrete stories and images of the future.
- Wondermash / Marjolein Pijnappels

③ Intergenerational design

Intergenerational design brings perspectives from future and past generations to the present.
- WRR (the Netherlands Scientific Council for Government Policy) / Olivier Koen de Vette, Elsenoor Wijlhuizen, Annick de Vries, Victor Toom

④ Museum of the future

Creating an object or describing a moment from the future that marked a turning point in time. From there, look back at the transitions that led to that object or moment.
- Utrecht University / Peter Pelzer, Jesse Hoffman

⑤ Natural future perspective

Based on a better understanding of the natural system – and the related tasks and opportunities for economy and society – jointly sketch a positive picture of the future.
- Wageningen University & Research / Bertram de Rooij, Michaël van Buuren, Tim van Hattum, et al.

⑥ Reframing

The 'Reframing' method helps ask how we as a society can and want to shape our future. Stories play an important role in this.
- Technical University Delft and Reframing Studio / Femke de Boer

⑦ Spatial exploration

This method helps to explore different desirable futures of the Netherlands from a spatial, qualitative and narrative perspective. The values-driven scenarios give more insight into important choices you can make right now.
- PBL (Netherlands Environmental Assessment Agency) / David Hamers, Rienk Kuiper, Ed Dammers, et al.

⑧ Time and design journey

A total experience of the future. When you really want to find a solution, you need to empathise as much as possible. By making it empathic, you can better understand the task and start designing for the future.
- Verveeld en Verward / Dorine Baars, Jonas Martens

⑨ Timelines for the Netherlands

Looking at the past, you find out that ideas about a desirable future have changed a lot over the past century. Discussing thematic links reveals not only how events influence each other, but also how preferences for desirable futures have changed.
- Utrecht University / Jaimy van Dijk, Tim Favier, Peter Pelzer, Tine Beneker, in collaboration with KNAG (Royal Dutch Geographical Society)

⑩ Future matrix

Using four columns, the future matrix helps to structure thinking about the long-term future and to reason back to what needs to be done now.
- Board of Government Advisors / Jannemarie de Jonge, Paul Kersten, Saskia Naafs, et al.

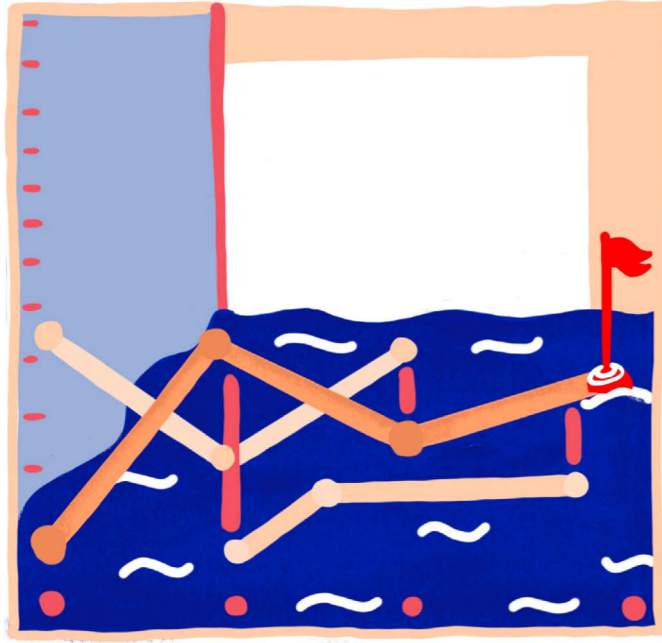
⑪ Transition thinking

With this method, you gain insight into transitions using the X-curve. The X-curve shows with the ascending line the build-up of the new system and with the descending line the dismantling of the existing system.
- Drift + EUR (Erasmus Universiteit Rotterdam) / Derk Loorbach

⑫ Decision making based on water and soil

You apply this method if you want to know what decision making based on water and soil means for the long-term future plans for a particular region. The method leads to design thinking which creates various 'what if' scenarios to explore the bandwidth of possible futures and create a development strategy.
- Board of Government Advisors / Jannemarie de Jonge, Matthijs Willemsen, Tertius Hanekamp, et al.

① Adaptation paths



In this method, the focus is not space, but time. As a result, adaptable plans can be made for a long-term goal.



What and why?

'Adaptation paths' are a kind of road maps. They present the solution space, the routes to it and the connections with other developments.

To illustrate: to keep your water system up to standard, you can look at pivotal points: the possible limits of the measures you have taken. In practice, these can lead to both incremental adjustments within current systems, and to transformative change. In the latter case, the system is no longer adequate for the expected task. A transition path then leads to a system change of the water and soil system, the uses and the spatial planning in the area.

When?

You can use adaptation paths when you take into account of a high degree of uncertainty in the long term. That way, on the one hand, you can find out what you can do in the short- and medium-term and, on the other hand, what options you have for the long term.

How?

When creating an adaptation path, you look at what the future of an area could look like. This type of future exploration corresponds to design-based research. By reasoning back from the future, the adaptation path can be then be further explored and analysed. The great adaptation pathway game is a method that helps you to make decisions in the here and now, even if the future is uncertain.

Developed by whom?

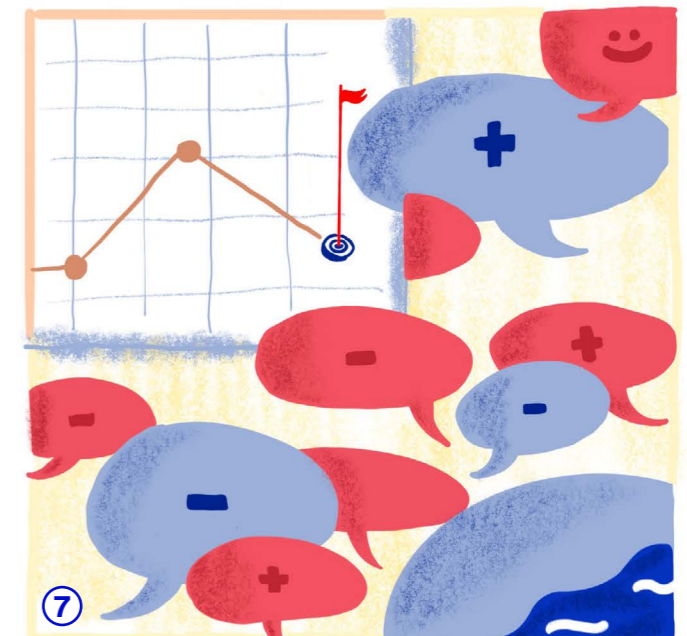
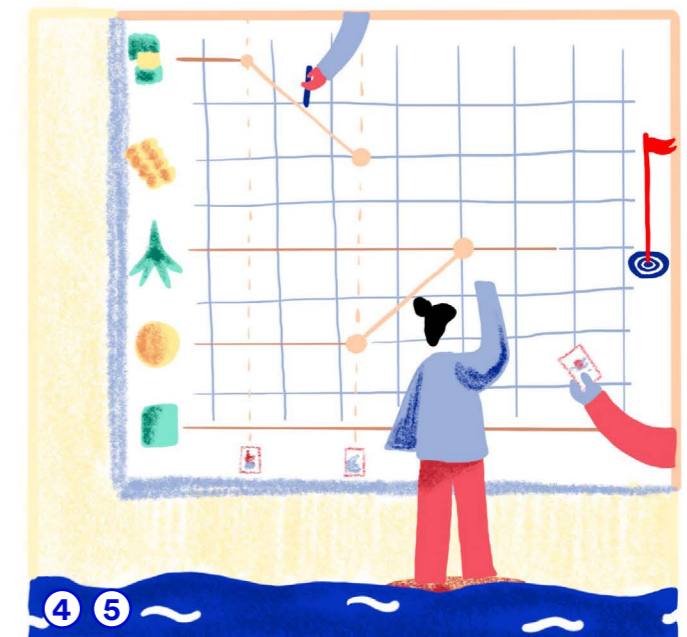
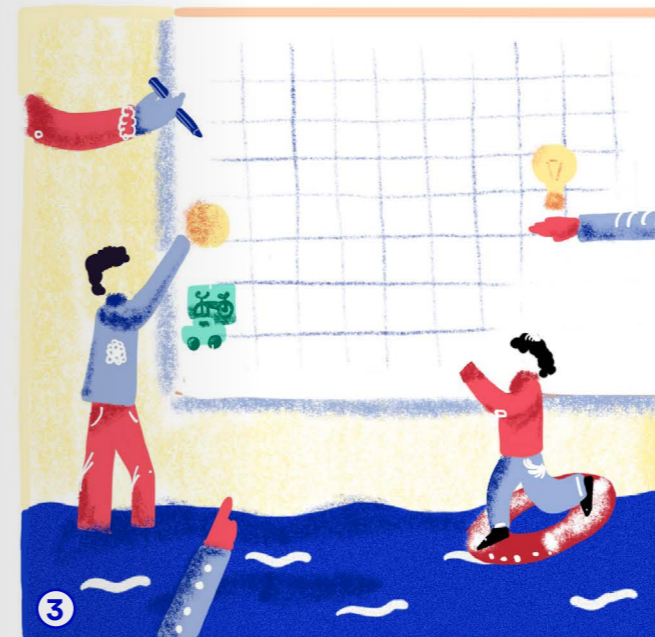
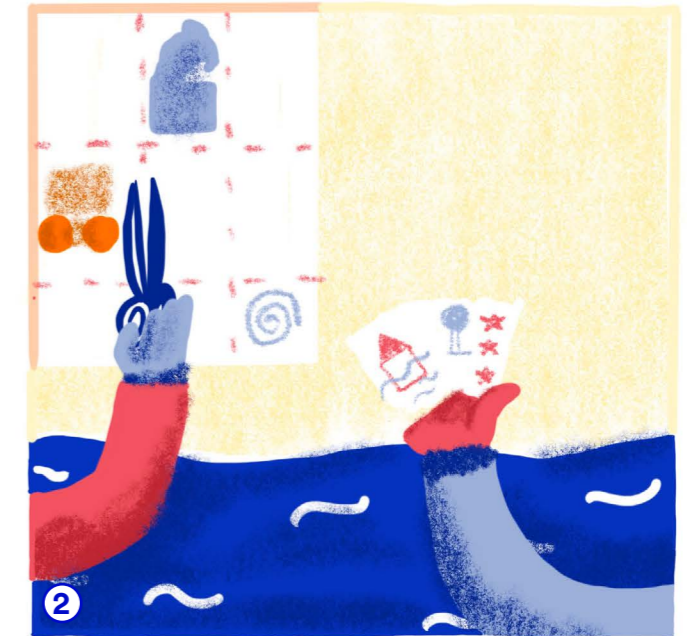
Deltares / Marjolijn Haasnoot, Rutger van der Brugge – On the future of the delta, adaptation paths and pivotal points (Future Academy 3, 19 January 2023). The adaptation pathway game was developed in collaboration with the Board of Government Advisors.

Requirements

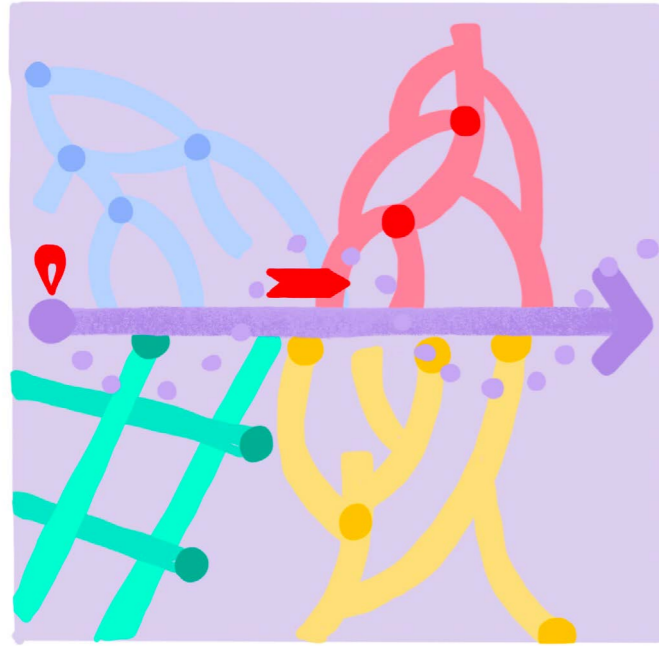
- Writing instruments
- Paper tickets
- Large sheet of paper
- Transparent paper

Steps

- 1 Formulate a joint long-term objective for an area of your choice. For example: healthy and safe living with a three-metre sea level rise.
- 2 Create game cards with unexpected events and trends, which at some point in time affect the feasibility of the chosen objective. For example: a dyke breach in 2067, drought in the eastern part of the country, population shrinkage or, on the contrary, growth due to migration.
- 3 On a large sheet on the y-axis, write four to six different strategies to achieve this objective. Of these, at least two strategies should be robust and at least two strategies should be flexible. Robust strategies are insensitive to changing circumstances. Flexible strategies are easily adaptable to changing circumstances and have relatively low costs.
- 4 Then draw routes from the strategy to the long-term goal, these are the adaptation paths. In doing so, consider the following:
 - a) Are there strategies that are expected to be sustainable over a 100-year period? If so, draw a horizontal line from the y-axis to the end.
 - b) Are there strategies that are no longer sustainable at some point? If so, draw an end line.
- 5 Draw a game card. What does this mean for the strategies?
 - a) From strategies that are no longer tenable, can you switch to one of the other strategies and draw a circle at the intersection, like a metro transfer point.
 - b) Repeat step 5a several times.
 - c) If no strategies remain that seem sustainable in the long term, add new strategies or adjust the goal.
- 6 Draw the final version of the adaptation path diagram on a white sheet. Present the adaptation path diagram to the group.
- 7 Check with the group whether the others also see the adaptation paths this way, and if not are other paths conceivable? What information is still unclear?



② Futures ecologies



Using ecological thinking, speculative design and storytelling to create the most concrete stories and images of the future.

What and why?

There is a big blind spot in our future thinking: our visions of the future are either dystopian or, on the contrary, full of techno-fixes, wishing that future technology will solve all our problems. Our future thinking lacks a relational worldview that assumes interdependence and relationships on earth.

Using the method of 'Futures ecologies', you narrates that explore what future societies could look like, if we design based on co-creation and regeneration with all organisms within the Earth system. The basis of this method is seeing the future as an 'ecology'. Four viewpoints are important here:

- 1) Relational and entangled; we imagine the future as something constantly being created by all kinds of organisms.
- 2) Multiple and plural; we represent multiple perspectives and narratives and imagine multiple futures.
- 3) Connected to past, present and future; Futures ecologies connect generations and make explicit our role as ancestors for future generations.
- 4) Personal and embodied; Futures ecologies connects stories with personal experiences and makes them tangible and real for individuals.

Within this method, knowledge and approaches from ecology, speculative design and storytelling are used to create the most concrete stories and images of plural, diverse futures.

When?

This method helps you to think relationally, starting from interconnectedness. And to awaken creativity by making alternative futures imaginable and discussable.

The specific storytelling method comes from 'science fiction storytelling', developed by Brian David Johnson to create a science fiction story where you create a future then place a protagonist in it. You come up with a scenario in which you tell what life will be like in 2100 if a certain development continues in an extreme manner. You do this to get ahead of the impact of developments.



This can be very factual information, the point being that you then turn this into a story and appeal to different senses to make the story imaginable. Exploring the future is based on the Manao Scenario Building method by Wendy Schultz, to maximise the difference with the present.

How?

The method consists of five steps:

- Future meditation
- Making webs of the future
- Identify entanglements
- Making future stories
- Backcasting to the present

Developed by whom?

Wondermash / future ecologist
Marjolein Pijnappels – Futures ecologies
(Future Academy 8, 13 July 2023).

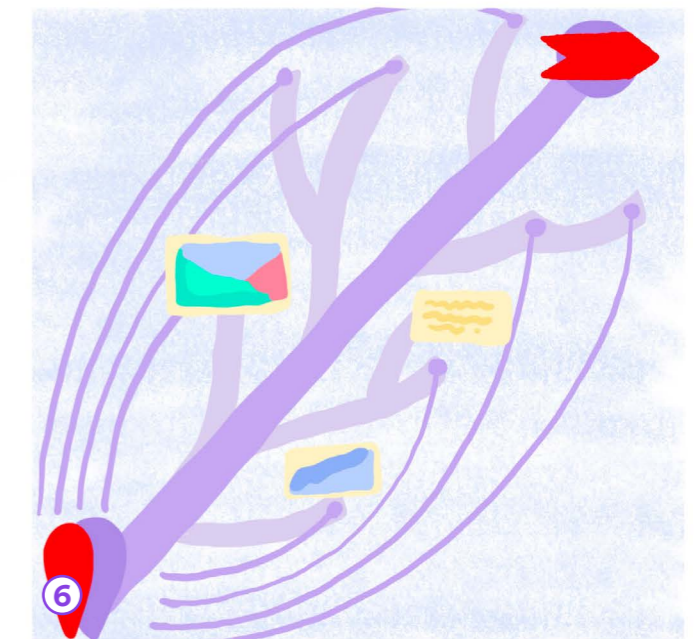
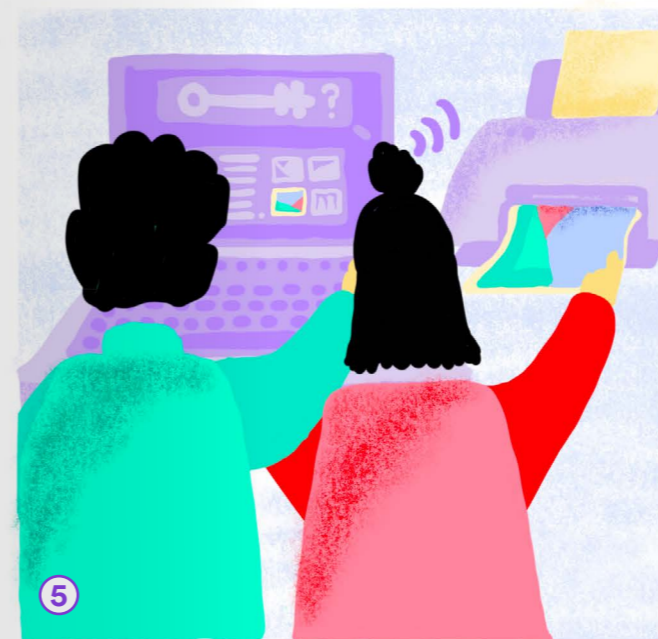
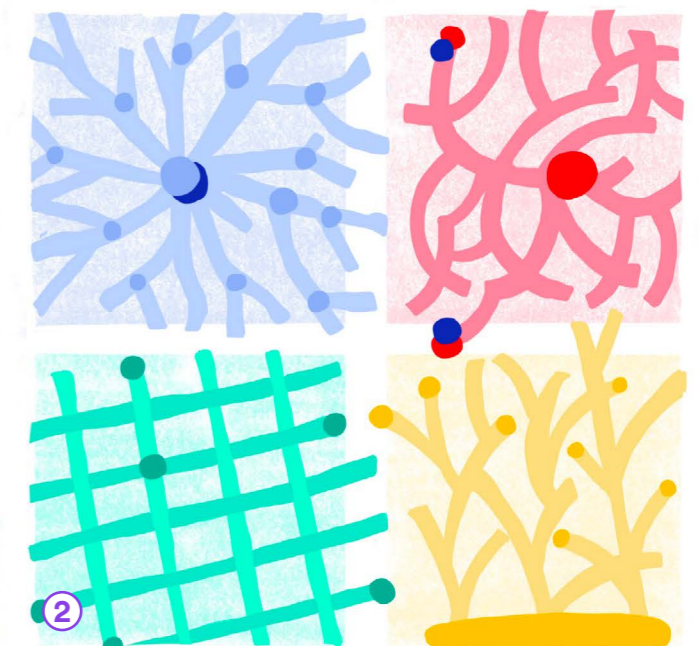
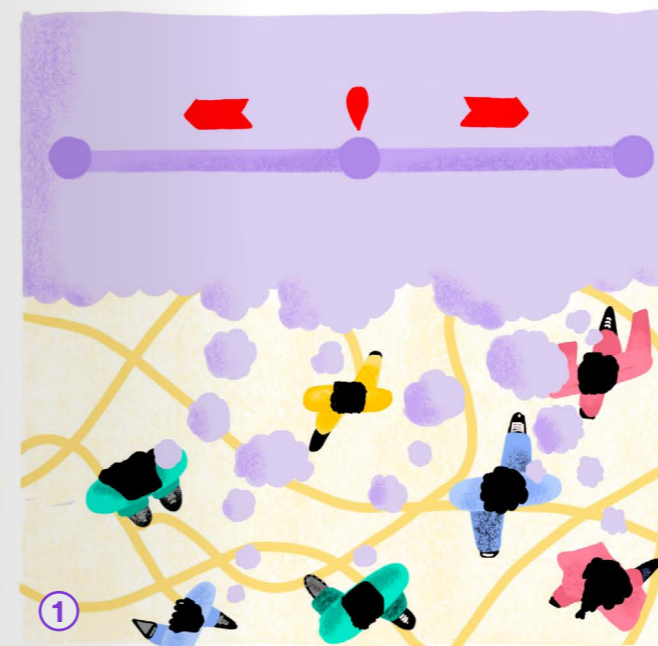
Requirements

- Writing instruments
- Large sheets of paper

Steps

- 1 Future meditation:** To get ready for this method, someone from the group guides the rest in the 'future meditation' by guiding the group by voice and asking them to walk through space. From the present, imagine the life 100-year-old person now. Compare this with the life of someone born now and living 100 years from now. By imagining these different lives of two centuries, it becomes clear how life can change. You then break up into groups of two or more people.
- 2 Making webs of the future:** With your group, choose a particular development (e.g. migration or climate change). Formulate a status quo around this development for the year 2100 and write it down in the middle of a large sheet of paper. This status quo forms the future image of that development. Around it, write down the primary consequences of that development. For each consequence, you then write down secondary and tertiary consequences, creating a kind of web.
- 3 Identify entanglements:** Put the various webs of the future on the table. Based on this, someone draws up a cross-impact matrix. In it, the main consequences of the developments from the different webs are noted. The clashing impacts are identified that entangle the webs of the future.

- 4 Creating future stories:** Break into groups again and, using these clashing consequences as ingredients, create a future story around the development chosen in step 2. Describe this as 'a day in the life of...!', using the following six questions:
 - Introduce the main character + world
 - Formulate a problematic event
 - Reaction of the protagonist
 - Everything goes to hell
 - The brilliant solution
 - The outcome
 Utilise different senses in your story: what does the main character look like, what does the environment look like, etc. To avoid creating a story based on yourself, you can make another organism – such as an animal, plant or the soil – the protagonist of your story.
- 5 Visualise the story:** This can be done by creating a drawing, a series of drawings (by hand or digitally) as in a comic strip, a collage, a photo adaptation or a short film. Let your imagination be guided by key words from the story you made in step 4.
- 6 Backcasting to the present:** As a final step, reason from the future story back to the present: what needs to happen within the chosen development to get to that future? Share your insights with the other groups.

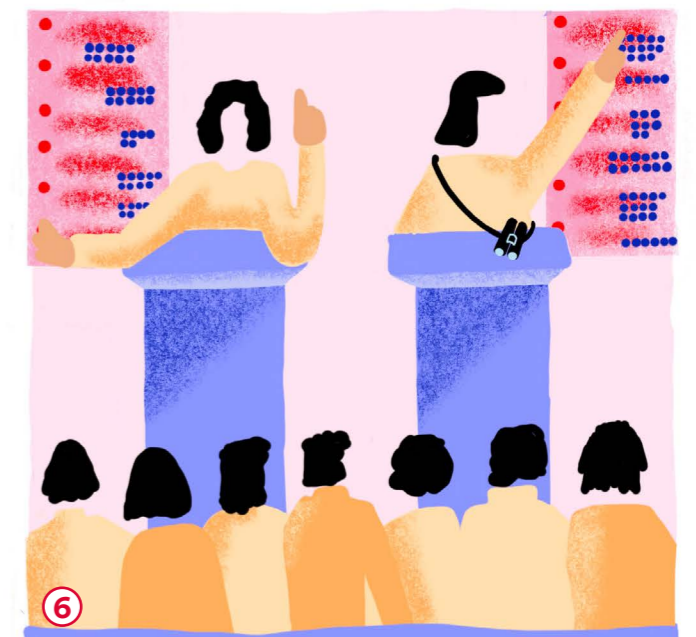
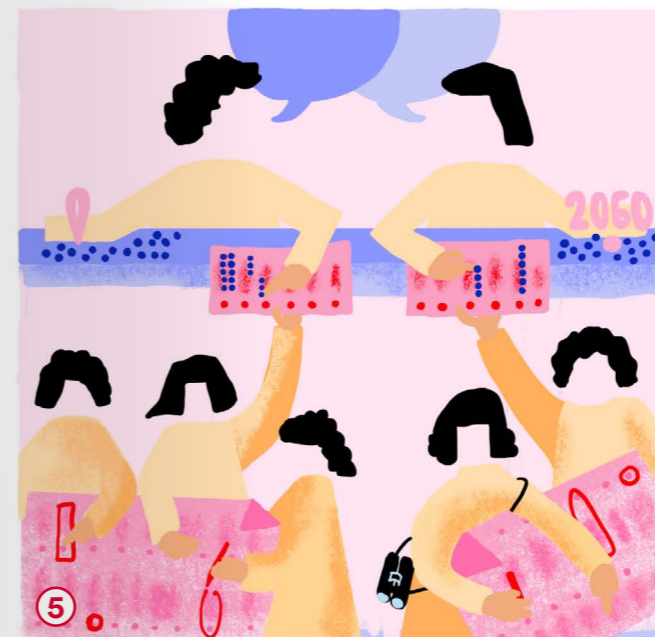
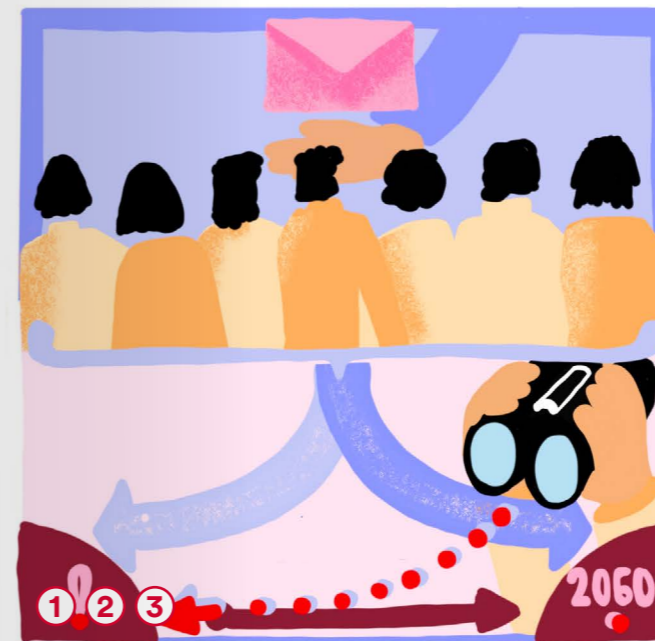


Requirements

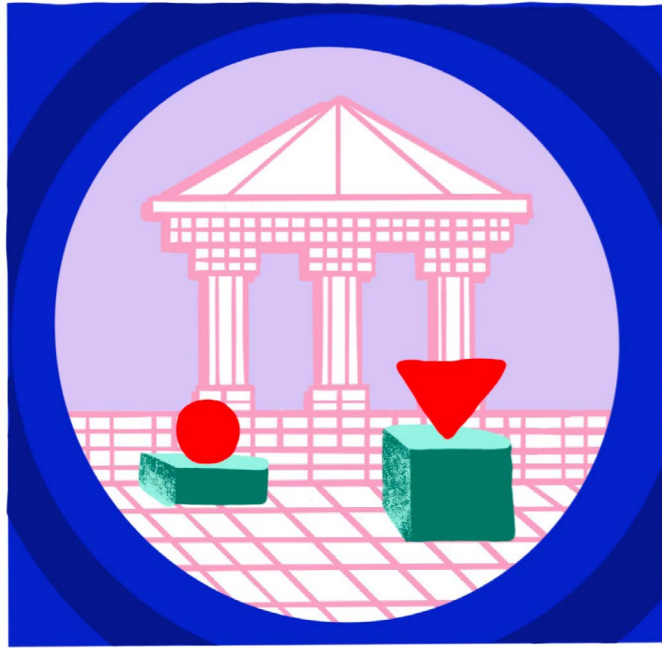
- Writing instruments
- Paper
- At least eight people

Steps

- ① Start with a group of at least eight people and choose a complex social issue you want to use this method to solve. For example: the housing shortage within the context of climate change.
- ② Participants get the message that the Netherlands does not look the same as it does now. For example: it is two degrees warmer on average in the Netherlands, the sea level has risen one metre and 20 million people live there.
- ③ **Plenary start:** one of the participants steps forward as neutral leader and divides the remaining participants into two groups. The group of the current generation remains in the here and now, the group of the imaginary future generation is transported to the year 2060. They remain the same person but are temporarily in a different era. To mark the temporal transition, they are given an object, e.g. binoculars, to look back from 2060 to the present.
- ④ **Session 1:** the two groups of generations are separate and each group formulates eight policy proposals around the chosen complex social issue from either its current or future perspective. This is followed by a break during which the neutral leader merges the two lists of policy proposals.
- ⑤ **Session 2:** The two groups are separate. From the compiled list of at least 16 proposals, each generation chooses six. Sixty points are then distributed among those six proposals by a spokesperson designated by each group. A break follows.
- ⑥ **Session 3.1:** The two groups are brought together and spokespersons from both generations put forward the choices of the selected policy proposals and the distribution of points.
- ⑦ **Session 3.2:** The two groups are separate and following these presentations, the generations deliberate on the selection and scoring.
- ⑧ **Session 3.3:** The two groups of generations are brought together and the spokespersons put forward the final version of the policy proposals and scoring. The two generations then engage with each other to reach consensus.



④ Museum of the future



Creating an object or describing a moment from the future that marked a turning point in time. From there, look back at the transitions that led to that object or moment.



What and why?

Peter Pelzer (associate professor of planning) and Wytske Versteeg (writer and political scientist) identify four ways in which the future is made tangible in the present. They call these imaginative logics, resulting in four ideal types:

- 1) The **feasible** imaginative logic presents a future as desirable and attractive. This logic can lead to collective action and inspiration. Think of visions, such as the Second Memorandum on Spatial Planning. The aim is to inspire and incite collective action. Another example of a feasible logic is Panorama Netherlands by the Board of Government Advisors.
- 2) **Contrasting** logic emerges, for example, in scenario thinking. By juxtaposing different futures, we learn about their bandwidth. Which futures are possible, given all kinds of uncertainties?
- 3) **Disruptive** imaginative logic, on the contrary, tries to establish a picture of the future that questions the dominant discourse: shouldn't we go in a completely different direction? It opens up alternative schools of thought.
- 4) And **procedural** logic is not about setting out a future, but about creating conditions to think about that future yourself. Its main function is to internalise the future and relate to it.

By thinking on the basis of the four different imaginative logics, you come to a better understanding of the future and become aware that the appropriate imaginative logic depends on the context. In the policy world, work is often done according to the feasible and contrasting imaginative logics – while more disruptive and procedural thinking could also be used. Or perhaps combinations are possible?

When?

You can use the 'Museum of the Future' method if you don't want to work with words or language, but with your hands and making something visual. You can use each of the four imaginative logics in the Museum of the Future.

How?

Making something tangible, in this case a museum piece, brings the distant future close and makes it conceivable.

Developed by whom?

Utrecht University / Peter Pelzer, Jesse Hoffman, Futuring and Museum of the Future (Future Academy 2, 8 December 2022).

Literature

Hoffman, J., Pelzer, P., Albert, L., Béneker, T., Hajer, M., & Mangnus, A. (2021). A futuring approach to teaching wicked problems. *Journal of Geography in Higher Education*, 45(4), 576-593.

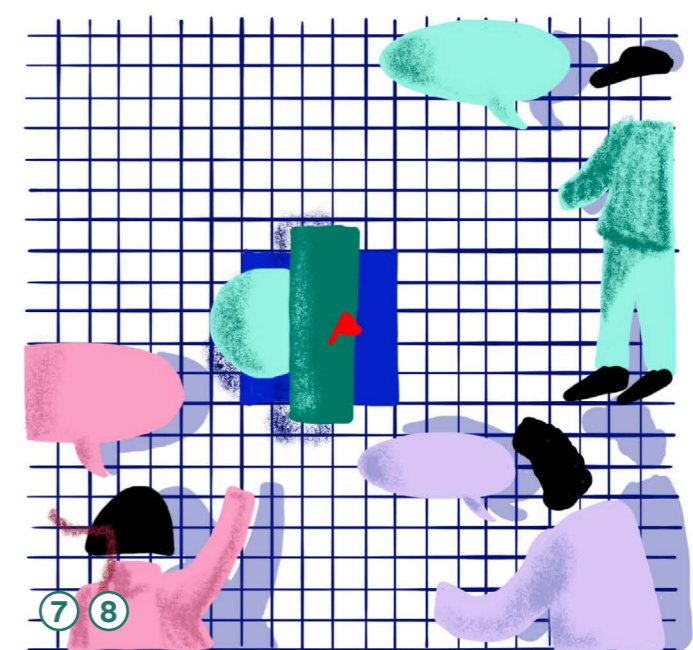
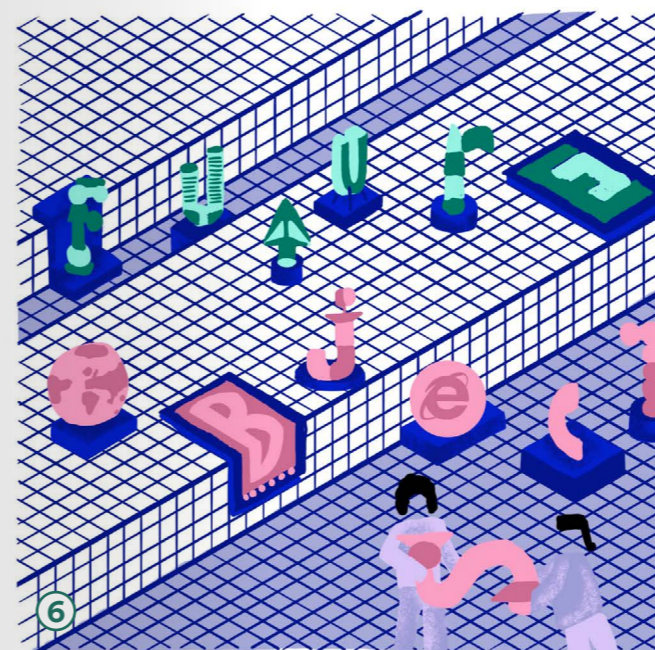
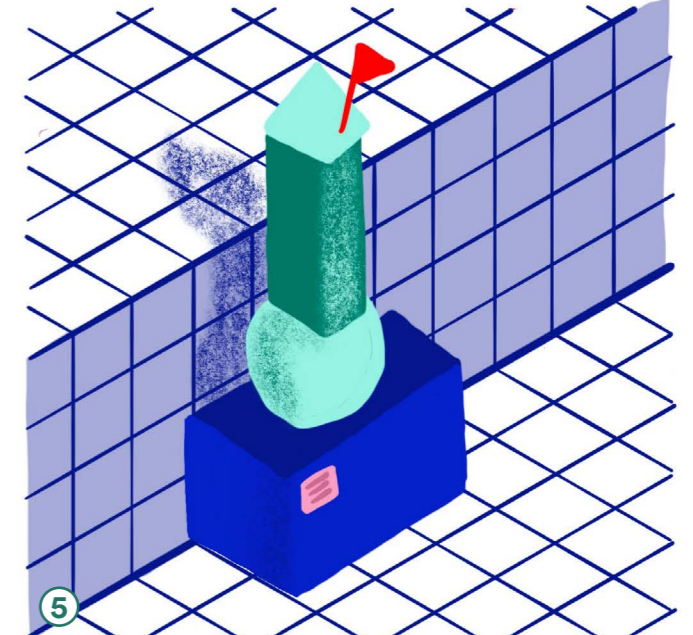
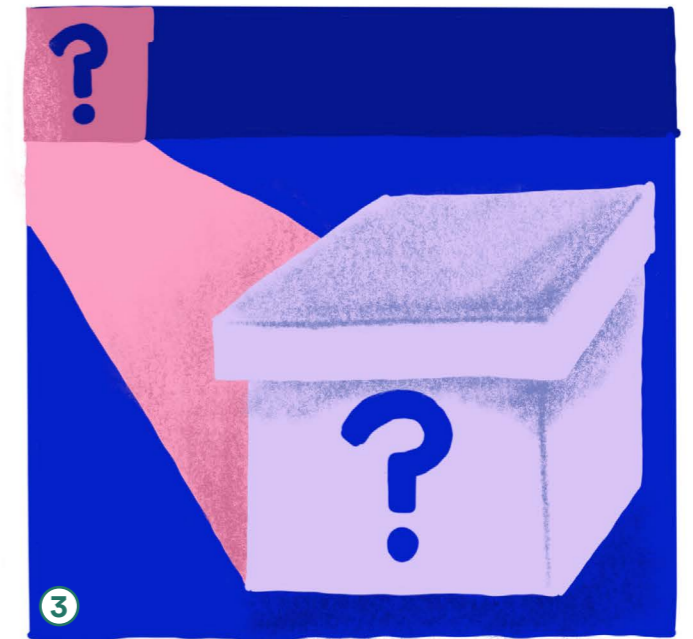
Pelzer, P., & Versteeg, W. (2019). Imagination for change: The post-fossil city contest. *Futures*, 108, 12-26.

Requirements

- Writing instruments
- Material to create a 3D representation (e.g. clay, cardboard, styrofoam)

Steps

- ① Start the method by holding a minute's silence as a group to imagine you are taking a journey into the future a hundred years ahead.
- ② Next, form a pair. Together, think about what kind of future you hope to live in then. What does that future look like? What will happen? Who will be in that future? Who is not? What do you hear, see, feel or smell?
- ③ What object, event or person has played a crucial role in arriving at this vision of the future and deserves a place in the Museum of the Future?
- ④ Work together and depict your important object, event or person in 3D, e.g. with clay, cardboard or other materials.
- ⑤ Come up with a good title and a description (like on a museum sign).
- ⑥ Put your object somewhere in space, in a spot in the 'Museum of the Future'.
- ⑦ Tour of the museum. Tell the other participants how you came up with this object and why it is so important for your imagined future.
- ⑧ Reflection (plenary): what did you learn from this exercise? What can you take from it into your daily work?



⑤ Natural future perspective



Based on a better understanding of the natural system – and the related tasks and opportunities for economy and society – jointly sketch a positive picture of the future.



What and why?

The ‘connecting natural future perspective’ is a method in which, based on a better understanding of the natural system – and the related tasks and opportunities for the economy and society – a positive picture of the future is collectively sketched. It is an invitation for further discussion, deepening and broadening. A picture of the future that puts the natural basis and natural systems first as a healthy foundation for the economy and society. The future vision – like any vision – is not meant to be a static end result. It aims to inspire and detach from current (partial) issues and, in doing so, above all, to connect systems and sectors: a common, desired story about the future we want to shape together.

At the end of 2019, Wageningen University & Research released the future perspective ‘A natural future for the Netherlands in 2120’. This future perspective paints a picture of what the Netherlands will look like in 100 years if you put the natural system and nature-based solutions at the heart of shaping a future-proof Netherlands. It is more than just a map: it is the start of a connecting story (narrative) with clear guiding principles and a translation to different subareas. Possible strategies and measures are proposed for the various subareas, but also emphasise mutual connections. This method helps to further shape transition processes.

When?

This method can actually be used at any time. It can be used as a basis in new collaborations or area processes, but also to bring together or secure existing processes or projects in an overarching, consistent story. Such a perspective is an excellent opportunity to have constructive discussions about where we want to go together and who wants to play what role in this. The story can be enriched each time.

How?

Just as Netherlands 2120 is not a blueprint, there is also no blueprint for the process of shaping a connecting natural future perspective. There are, however, some key basic attitudes and ingredients, which help to shape it. The most important basic attitude is a positive view of the future; this is followed by the basic attitude of systems thinking. Focus on proposing desirable systems and spatial coherence. The main basic ingredients are a good understanding of the natural systems, the regional qualities (not only spatial-physical, but also socio-economic/cultural) and the major tasks/challenges. Much knowledge already exists, but mainly needs to be brought together.

Developed by whom?

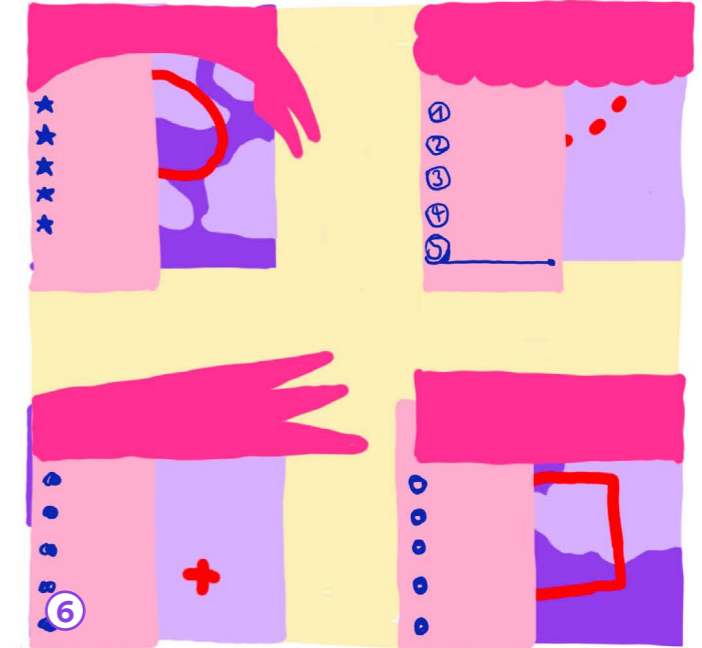
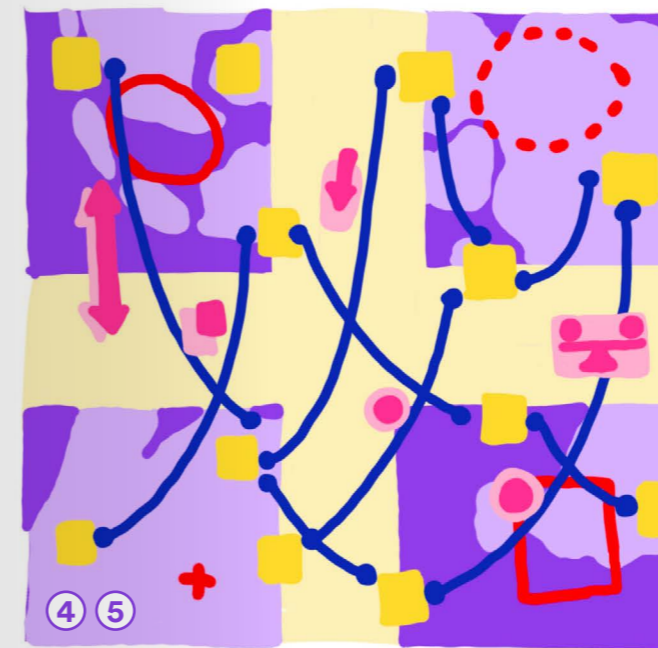
WUR (Wageningen University & Research) / Bertram de Rooij, Michaël van Buuren, Tim van Hattum, Martin Baptist, Stijn Reinhardt in cooperation with many other researchers from various disciplines.

Requirements

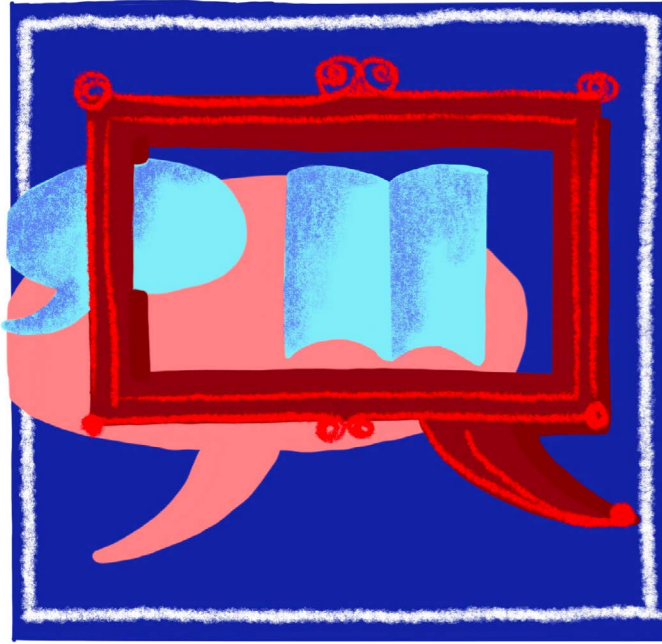
- Sketching materials (markers)
- Soil or geomorphological map of an area printed on paper
- Topographic map or aerial photograph of an area printed on paper
- Transparent paper to put over the paper
- Post-its
- Playing card set with measures

Steps

- ① Choose an area for which you want to sketch the perspective.
- ② As a group, see what knowledge is around the table and what necessary knowledge may still be missing, then try to supplement it.
- ③ As a group, delve into the area's natural system. What types of soil does the area have? How does it function in terms of soil and water, also with regard to climate, biodiversity and land use? What are possible subareas and how do the areas interact in terms of landscape structures and natural systems?
- ④ Determine for the area as a whole as well as for the subareas separately what the major tasks are, both spatially and socio-economically, culturally, etc. You can first do this individually by writing a task per post-it and share and place it on the map together.
- ⑤ Determine together how the different tasks are related. What choices are there to be made? What dependencies are there? What implications do certain choices have on the possibilities of other tasks?
- ⑥ Together, formulate a headline for the future of the area. This headline gives clear insight into the prioritisation of the area, the choices made and which qualities have taken shape in the future. This is the basis for your narrative.
- ⑦ Then work out up to 5 basic principles along which this future will take shape.
- ⑧ Then delve further into the area and see which spatial-physical measures come together. To do this, use a set of playing cards with possible measures collected in advance. Measures can also eventually be combined or supplemented; after all, each measure is tailor-made.
- ⑨ Sketch the translation of these measures on the map and also try to depict the set of measures in context in a bird's eye view.
- ⑩ Reflect together on the choices made or yet to be made. Who or what is necessary to arrive at this perspective. What should already be done differently tomorrow? What would you need from the surrounding area? What do the choices made mean for other adjacent areas? And what collaborations are necessary?



⑥ Reframing



The 'Reframing' method helps ask how we as a society can and want to shape our future. Stories play an important role in this.



What and why?

Futures research is often used to anticipate the changes coming our way. But with the choices we make today, we also create certain futures and rule out others. We shape the future itself. Designers can play an important role in exploring and giving direction to the future. The 'Reframing' method helps ask how we as a society can and want to shape our future.

Stories play an important role in this. As human beings, we need stories to understand ourselves, each other and the world around us. They enable us to make decisions and cooperate effectively. However, deeply embedded stories within a society can also reinforce the human tendency to justify existing systems and resist change. They limit our ability to accept and understand new ways of thinking. An important role for designers in systems change is therefore to explore alternative narratives that give new meaning to the world and our place in it.

When

Over the years, the Reframing method has been used on a wide range of social issues, for example mobility, education, psychiatry and the food system.

How?

The method consists of a number of steps that bring structure to designing for complex social issues. During this process, governments, organisations, citizens and other end-users are often closely involved. Going through all the steps in the method usually takes several months to a year. However, it is also possible to go through the main thinking steps of the method in one day.

Developed by whom?

The Reframing method was originally developed at TU Delft and is described in the book *Vision in Design*. The method is applied in practice by Reframing Studio. Recently, the method was applied in the Water Safety Landscapes project. During the Toekomstatelier 2023, it was used in one of the cases supervised by Femke de Boer and Minke Dijkstra.

Literature

Boer, F. de (2023). Reframing societal narratives. In: *Mobility | Society, Society seen through the lens of mobilities*. Matthijs van Dijk and Lowie Vermeersch (eds.). Lars Müller Publishers.

Hekkert, P. & Dijk, M. van (2011). *Vision in Design, A guidebook for innovators*. BIS Publishers.

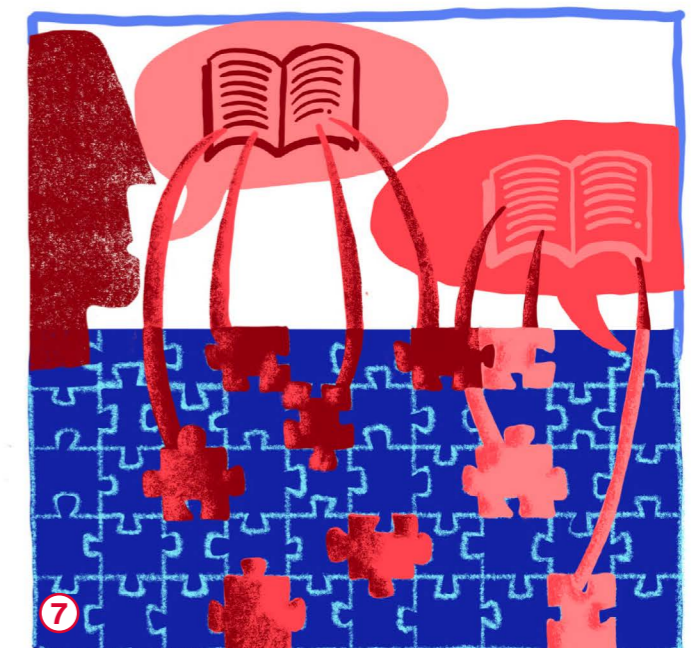
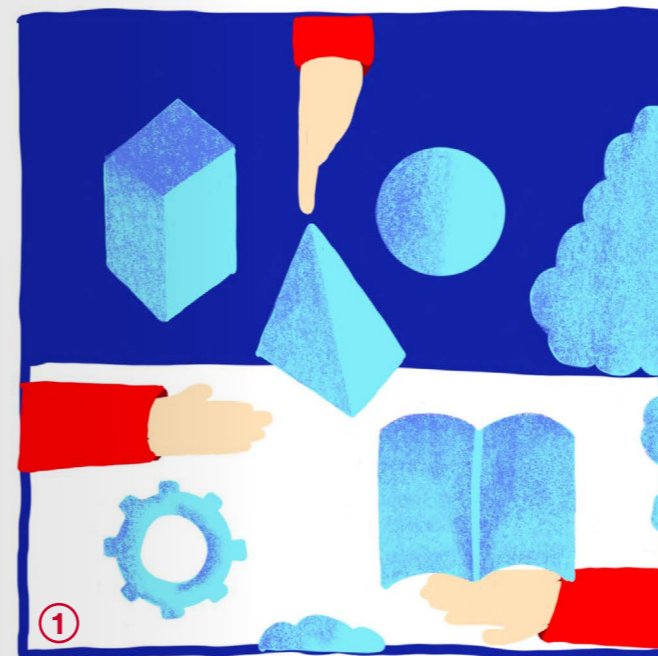
Reframing Studio & Deltares (2022). *Toekomstige narratieven rondom waterveiligheid*. Programma Kennis voor Keringen.

Requirements

- Writing instruments
- Large paper
- Post-its
- Any relevant futures studies

Steps

- ① Start by deconstructing the current situation. In deconstruction, you successively map out the features and characteristics of the current design, how the design is perceived by different users, and the conditions and beliefs that led to the current design. Through this step, we become more aware of our preconceptions so that we can look to the future without preconceptions.
- ② Then map the future social, economic and spatial context around a given design challenge. Although the future is by definition uncertain, it is possible to recognise important undercurrents in society. For example, map the building blocks for these undercurrents using literature and experts and write them on post-its.
- ③ Explore where you see opposing trends in your exploration of the future. A society is an extremely complex system, full of interdependencies and constantly changing. Therefore, contradictory forces are always present. To deal with this complexity and ambiguity, the main opposing forces are contrasted in a framework.
- ④ Explore which narratives you see emerging in the future. By recognising different undercurrents and understanding how they interact, we can discern new narratives emerging in future societies. Different narratives reflect the different values and interests that coexist in a society.
- ⑤ You then define your position. The Reframing method places a strong emphasis on taking responsibility. Therefore, before you can think about future designs, you determine which narratives and values you want to reinforce and which, on the contrary, you find undesirable.
- ⑥ Then design future concepts that fit your vision of a desirable future. These concepts make your vision of the future tangible and liveable.
- ⑦ The final phase focuses on shaping the transition from the now to the future. Determine what steps you can take in the short and medium term to move towards your desired vision of the future.



7 Spatial exploration



This method helps to explore different desirable futures of the Netherlands from a spatial, qualitative and narrative perspective. The values-driven scenarios give more insight into important choices you can make right now.



What and why?

'Spatial exploration' helps to explore different desirable futures of the Netherlands from a spatial, qualitative and narrative perspective. The values-driven scenarios give more insight into important choices you can make right now. The scenarios are thus not a goal in itself, but a means, for example, of making choices transparent to policymakers.

In Spatial exploration 2023, the Netherlands Environmental Assessment Agency developed scenarios for the planning of the Netherlands in 2050. This main report presents four spatial futures: Globally Enterprising (a future scenario in which large, international companies take the lead), Fast World (even further increased digitalisation makes distances disappear), Green Country (lots of space for nature) and Regionally Rooted (communities take the initiative in their own living environment). For each scenario, detailed maps of the corresponding 2050 Netherlands were created based on spatial modelling and design research. These scenario maps visualise the consequences of different choices.

When?

These scenario studies can be used for the formation of visions (environmental visions, investment agendas) and transition governance (pathways to future-proofing):

- No regrets: robust policy options
- Preventing lock-ins: encouraging adaptivity (flexibility and timeliness)
- Providing building blocks for a vision
- Area-specific spatial conflicts and synergies
- Crash tests: reflection on concrete policy intentions in the light of the four scenarios
- Conditions: preconditions for feasibility, practicability

How?

The values-driven scenarios are based on workshops, essays on the future, designs and model calculations; thus making different futures imaginable, comparable and discussable.

Developed by whom?

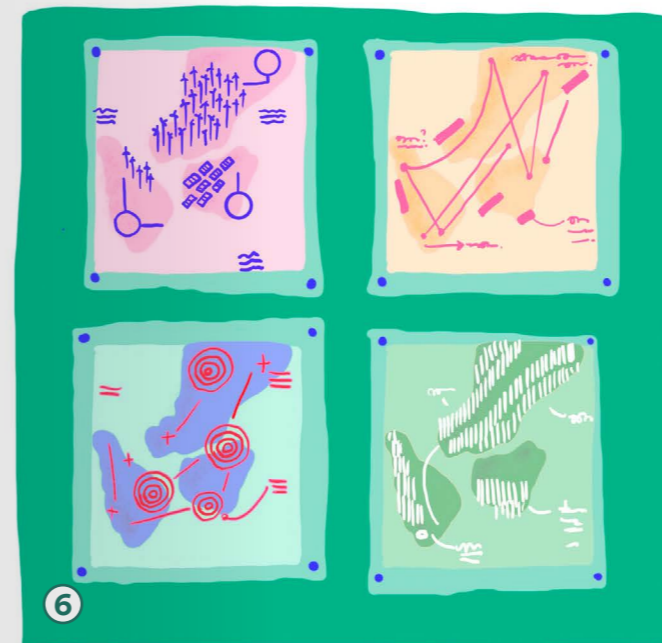
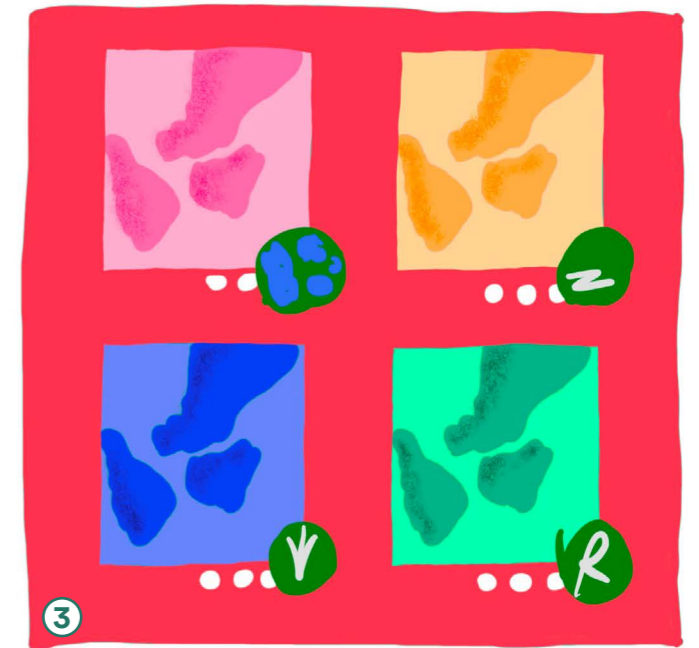
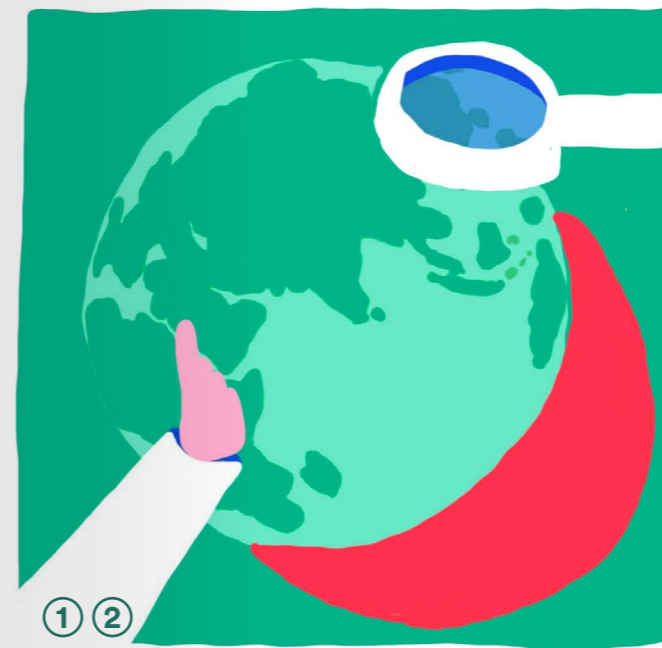
PBL (Netherlands Environmental Assessment Agency) / David Hamers, Rienk Kuiper, Ed Dammers, et al. – Spatial explorations (Future Academy 1, 3 November 2022).

Requirements

- Writing instruments
- Map or aerial photo of an area printed on paper
- Transparent paper to put over the paper

Steps

- ① Choose an area for which you want to start thinking about the future.
- ② Divide the four PBL scenarios among four different groups. Apply the scenario to the area.
- ③ Start from the question: Inspired by the scenario, how could this area develop towards 2050? What spatial consequences will that have? What economic consequences? What social consequences? And what ecological consequences?
- ④ Sketch those answers together on a large-format map (at least A3).
- ⑤ Discuss with each other: What is needed to achieve this future? What opportunities and what obstacles do you identify?
- ⑥ With your group, present the results to the other groups.
- ⑦ Reflect together: Where is there overlap and where do the scenarios complement each other? Which choices fit in one place and which in another? And which choices do you make earlier or later?



⑧ Time and design journey



A total experience of the future. When you really want to find a solution, you need to empathise as much as possible. By making it empathic, you can better understand the task and start designing for the future.

Web link to the aftermovie of the time and design journey 'Will We All Become Climate refugees?'



What and why?

A bus trip to Not Rotterdam in the year 2093 attempts to bring the future closer, so that we actually start acting now: can we prevent what happened to us then? You can use this method for a complete experience of the future that shows you which values are really important to you. Practice with letting go of valuables, habits and behaviour – before we start designing and developing.

When?

Experience teaches us. Verveeld en Verward believes that if you really want to find a solution, you have to empathise as much as possible. Issues like climate change and what the Netherlands will look like in 2100 are almost impossible to grasp. By making it personal, by experiencing what climate change could do to your immediate environment, by making it palpable, you can better understand the task and start designing for the future.

How?

Verveeld en Verward developed a bus journey through time, from the future to the here and now. We started in Rotterdam anno 02093, fleeing from the water as climate refugees on a two-hour transit to Not Rotterdam – beyond the new water border, above NAP, on the river Maas, in Limburg. After a local welcome with open arms, we began the return journey, to the here and now, anno 02023. This second half of the trip was all about the formation of vision towards design issues.

Moreover, the bus trip also had an overarching message and concluded with the observation that 'the climate refugee' is not recognised.

During the bus journey, participants have to say goodbye to their loved ones each time and have a conversation with each other about this. This ritual is inspired by Buddhism. In this way, Buddhists practice letting go: suppose you only have a few months to live, what is actually important? Loss is a palpable part of disaster. Climate refugees also discuss what skills come in handy in emergencies; for instance, knowledge of edible plants, knowing how to keep calm and being able to give first aid are mentioned as useful skills.

Developed by whom?

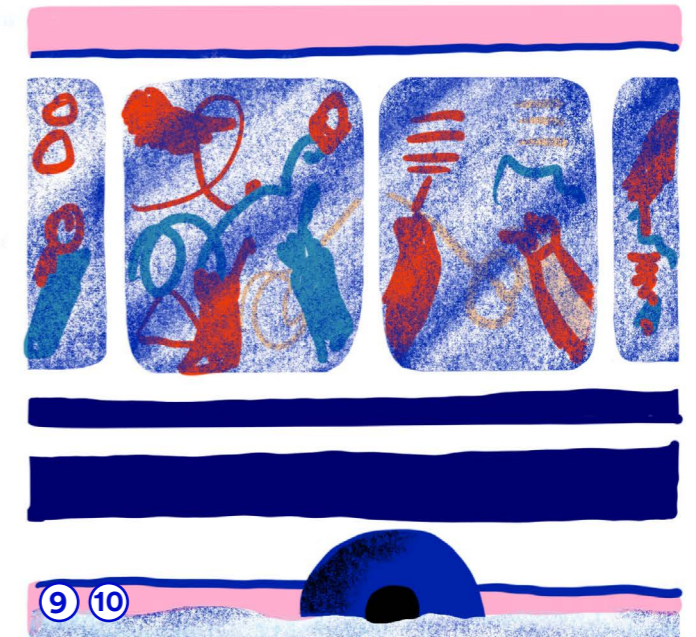
Verveeld en Verward / Dorine Baars, Jonas Martens – Time and design journey: climate (in) justice (Future Academy 4, 16 March 2023).

Requirements

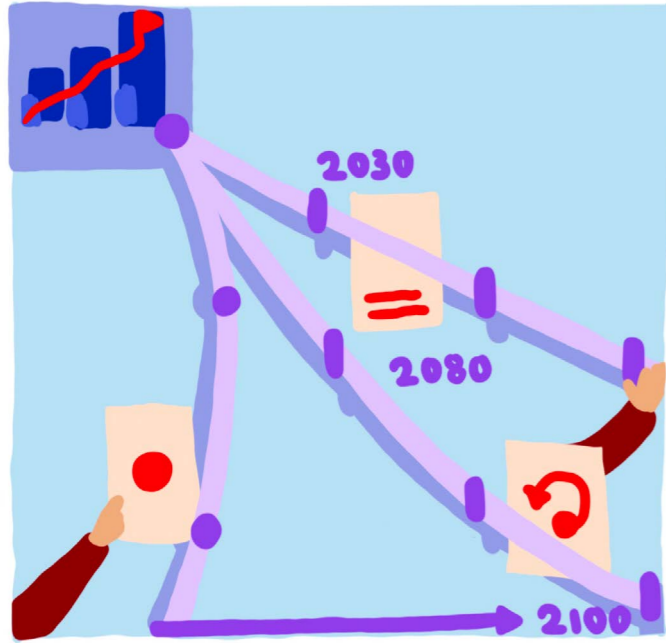
- Pen and erasable pen for on glass
- Guided physical journey (experiential/ performance)
- 12 tickets (small pieces of paper)
- Fellow travellers

Steps

- ① Participants receive an envelope at home containing a letter with information, a travel ticket and an information flyer with 12 tickets.
- ② On these cards, write down your 12 precious items that you may take with you on the bus trip, divided into 4 categories: people, places, plans and objects.
- ③ Leave together at an agreed time and an agreed place.
- ④ Make groups of 4 and hand in 3 phones per group so that you have 1 phone left to follow the (pre-recorded) news items.
- ⑤ During the bus journey, say goodbye to your loved ones at the designated times so that you have 1 loved one left when we arrive at the destination.
- ⑥ Get off the bus and cover the last stretch to the location on foot. Find your way by using a map and compass.
- ⑦ Leave your last precious item when you arrive at the destination.
- ⑧ During the return trip, reflect with your group on the issue of climate (in)justice.
- ⑨ Visualise your ideas to counter this inequality by drawing them on the windows of the bus with an erasable pen. Questions that might come up: how to involve society more in the issue of climate (in)justice? The piece of land of Not Rotterdam is not big enough; so who decides who gets to come along in an emergency? How fair is it that we were on the bus?
- ⑩ Tell each other what you take away from this time and design journey and what you learn from leaving behind loved ones.



9 Timelines for the Netherlands



Looking at the past, you find out that ideas about a desirable future have changed a lot over the past century. Discussing thematic links reveals not only how events influence each other, but also how preferences for desirable futures have changed.



What and why?

Many people have a fixed view of the future of the Netherlands, feeling that things just go the way they do, and that they have little influence over it. In this workshop, we address this challenge. Looking at the past, we find that ideas about a desirable future have changed a lot over the past century. At first, for instance, most people were enthusiastic about making inner cities accessible to cars. Today, many people prefer a car-free centre with space for greenery. We also show how citizens have influenced spatial development: as voters, by taking the initiative, or by protesting.

When?

The workshop will discuss developments that have influenced the current geography of the Netherlands, the challenges for the future geography of the Netherlands, and the ways in which the Netherlands can be designed to address these challenges in the future. We first dive into the past and make a timeline from 1900 to the present. Participants depict events and stick them on the timeline. Discussing thematic connections reveals not only how events influence each other, but also how preferences for desirable futures have changed. Citizens have influenced spatial development in the past: as voters or by protesting. And they can also exert that influence in the future.

Participants then discuss the major spatial issues that are playing out now and will play out in the future. The workshop leader takes stock of what the participants know about the biggest challenges for the geography of the Netherlands.

Talk about the fact that different futures are possible in terms of the geography of the Netherlands, that they depend on events in the future and choices that are made. As a citizen, you can influence this, for example by voting or taking action.

How?

To support administrators and policymakers in making choices about the design of the Netherlands, the Netherlands Environmental Assessment Agency has drawn up four scenarios. The leader assigns each group a scenario and a corresponding timeline for the future up to 2100. Using cords, the scenarios are depicted. Finally, the participants compare and reflect on the timelines for the future of the Netherlands. The method consists of four parts:

- Part 1: Creating a timeline of the past
- Part 2: Reflecting on the timeline of the past
- Part 3: Creating timelines for the future
- Part 4: Reflecting on timelines for the future

Developed by whom?

Developed by Utrecht University (PtS) / Jaimy van Dijk, Tim Favier, Peter Pelzer, Tine Beneker, in collaboration with the Royal Dutch Geographical Society (KNAG) for secondary geography education. The method has been adapted for workshop application.

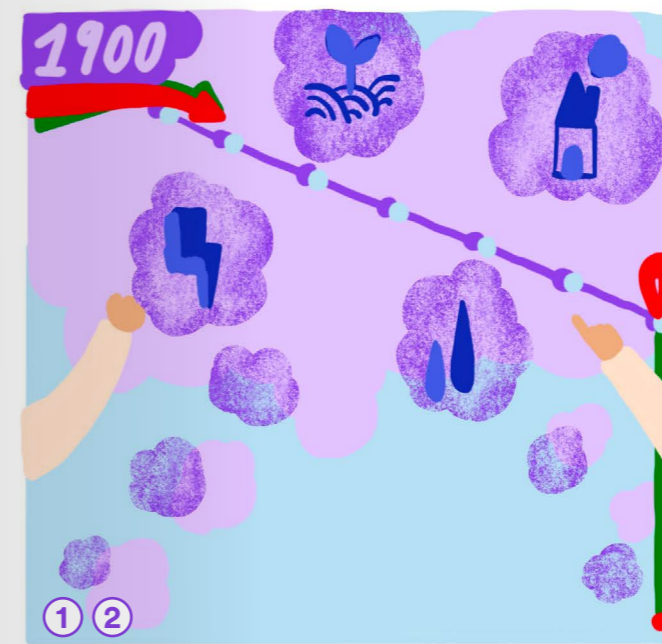
Requirements

- Writing instruments
- Cord
- Tape or adhesive tape
- Printed worksheets ([download link >](#) see also QR code on previous page)

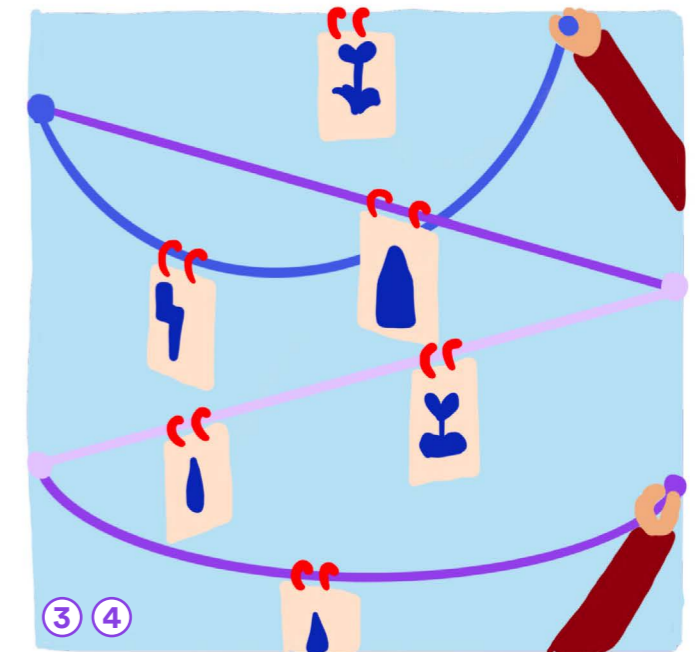
Steps

- ① As a warm-up, the leader of the group asks the participants the question: How did your grandfather or grandmother live when they were your age: What did a day in their life look like? Where did they live, in what kind of house? What kind of work did they do? What did they eat? What did they do in their spare time? What kind of things did they have? What was different from now?
- ② **Part 1 - Making a timeline of the past:** Make groups so that each of the four themes can be represented – the groups choose a theme:
 - 1) Housing and transport
 - 2) Water safety
 - 3) Agriculture and nature
 - 4) Energy
- ③ Participants are given the printed worksheets corresponding to the theme. They read the information and do the assignments, starting with the oldest event. They make events concrete by drawing atmospheric pictures or maps, or with advertisements and protest slogans.
- ④ In between, the leader stretches a timeline in space from 1900 to the present; each time at 10-year intervals. Participants hang worksheets on the timeline.
- ⑤ **Part 2 - Reflecting on the timeline of the past:** Participants form a new group in which each theme is represented. Each group looks at the worksheets, finds a central thread for each theme and writes down relationships.

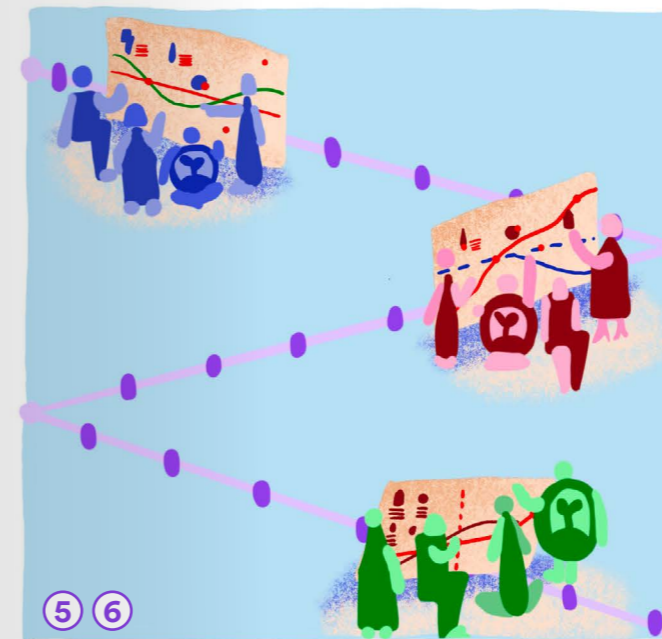
- ⑥ The leader asks the following questions in plenary: What stands out in the themes when we look at the timeline from the past to the present? Give an example of a change in thinking about the design of the Netherlands per theme. What prompted that change?
- ⑦ **Part 3 - Making timelines for the future:** As a warm-up, participants think for two minutes and then name three challenges for the design of the Netherlands, such as sea level rise.
- ⑧ The leader hangs up several cords that make it clear that there are multiple timelines for the future. They are timelines up to the year 2100, again in 10-year increments between 2030 and 2080. These timelines match the scenarios of the Netherlands Environmental Assessment Agency (see 'Spatial exploration 2023': Global Entrepreneurial, Fast World, Green Country, Regional Rooted).
- ⑨ Form another four groups – with a mix of themes in each group. Each group chooses a scenario.
- ⑩ The leader gives participants the corresponding worksheets. They then make their own selection of events concrete again.
- ⑪ **Part 4 - Reflecting on the timelines for the future:** The worksheets are hung on the timelines. Each group presents the timeline they created in one minute. What are the advantages and disadvantages within this scenario? What developments are desirable? What steps do you already see in society in this direction? And how can you influence this yourself?



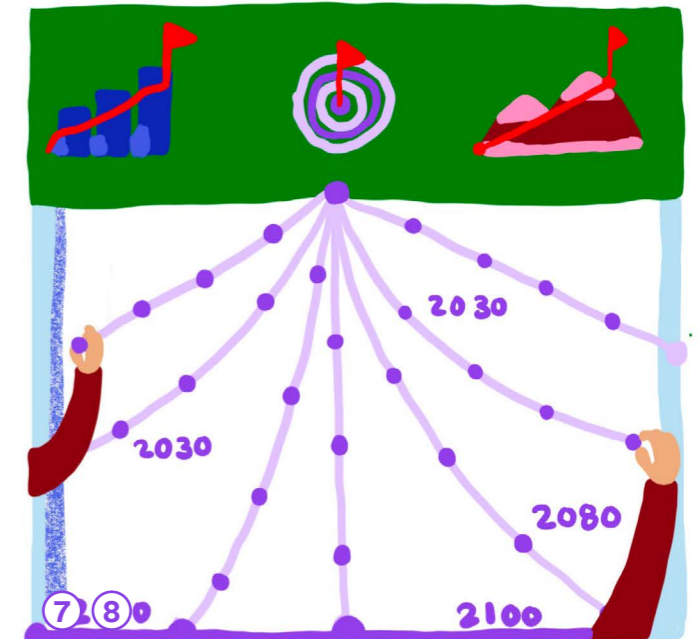
① ②



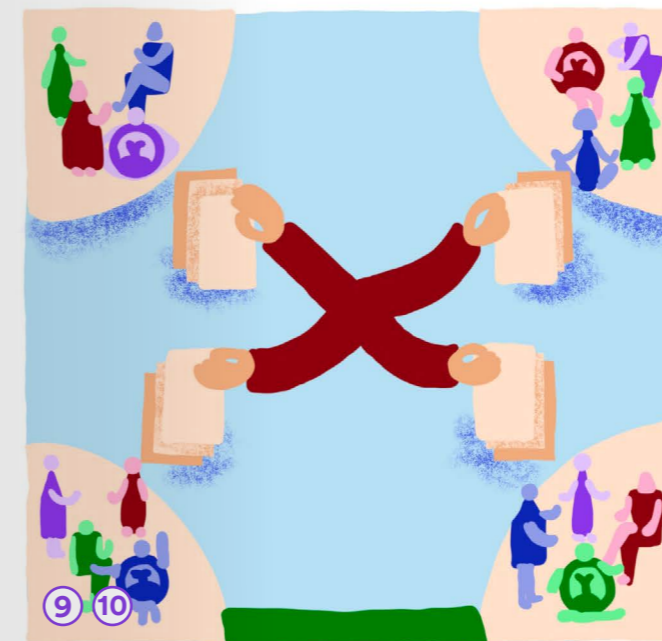
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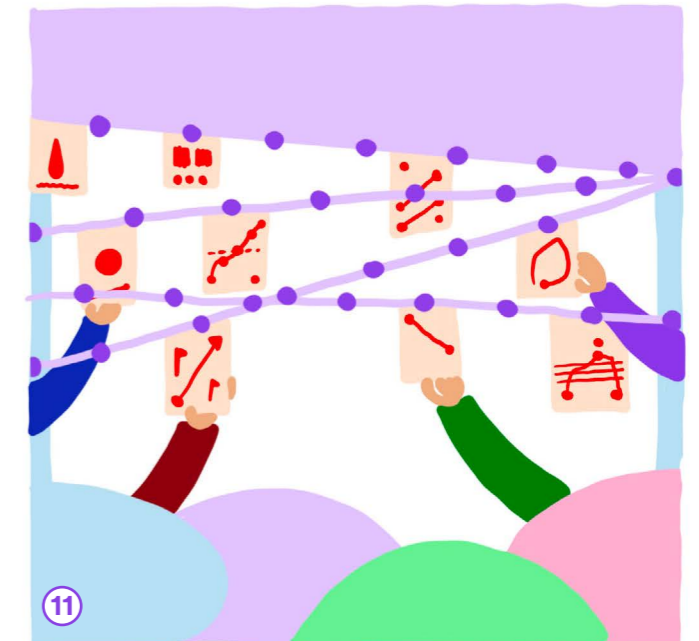
⑤ ⑥



⑦ ⑧

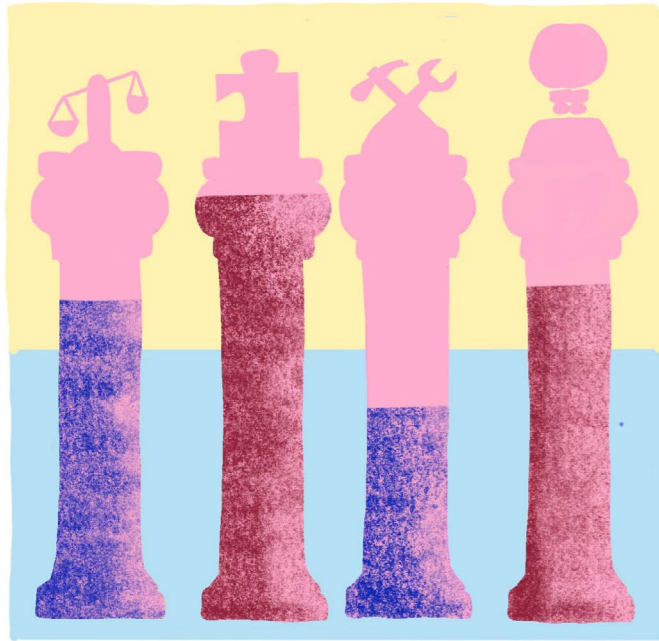


⑨ ⑩



⑪

10 Future matrix



Using four columns, the future matrix helps to structure thinking about the long-term future and to reason back to what needs to be done now.



What and why?

This 'Future matrix' stems from the Board of Government Advisors' agenda: 'The 22nd century starts now'. The Board of Government Advisors uses the period 2021-2024 to literally look a century ahead. Not in search of attractive vistas, but rather to reason backwards: what should we do now. Broadly composed Future Workshops form the basis for this.

The NL2100 programme focuses on design-based future thinking and action. Design as a way to explore the many possible futures of our country and to investigate how we should deal with them now. In short, designing as a way of thinking and acting.

The purpose of the Future Workshops NL2100 is threefold:

- Exploring long-term perspectives and development directions for the Netherlands in 100 years, to arrive at concrete policy recommendations and regional elaborations for the short term.
- Developing a methodology and concepts around spatial, integrative future thinking and applying this methodology to public policy.
- Creating a broad, social movement of future thinkers that contributes to a positive view of the spatial future of the Netherlands.

When?

The future matrix helps, using four columns, to structure thinking about the long-term future and reason back to what needs to be done now. Initially developed for spatial issues, the method can also be applied to other types of issues.

How?

The four columns are: **Painful truths; Solution-oriented thinking; Tools for now; Knowledge urgencies**. For each column, aspects of the (spatial) issue can be filled in. An aspect need not necessarily appear in all four columns. In an integral approach to a spatial issue, different rows can be added, for example: energy, water and food. Or, housing, agriculture and industry.

Developed by whom?

Board of Government Advisors / Jannemarie de Jonge, Paul Kersten, Saskia Naafs, et al.

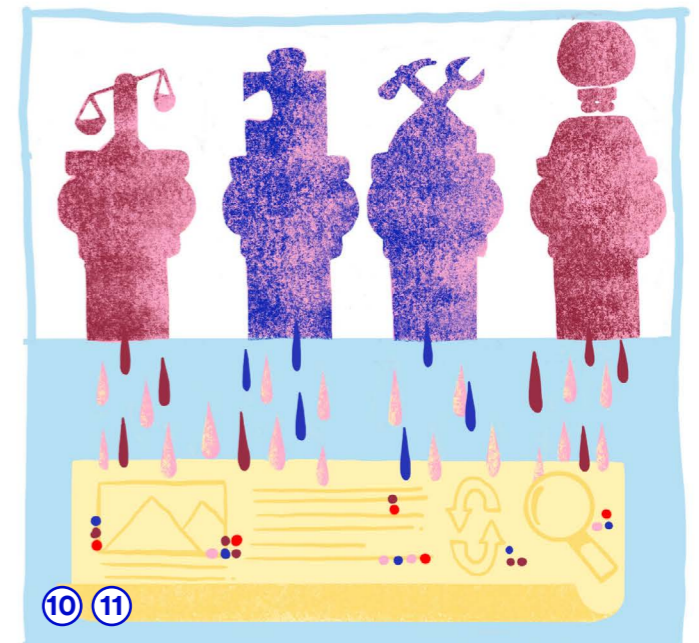
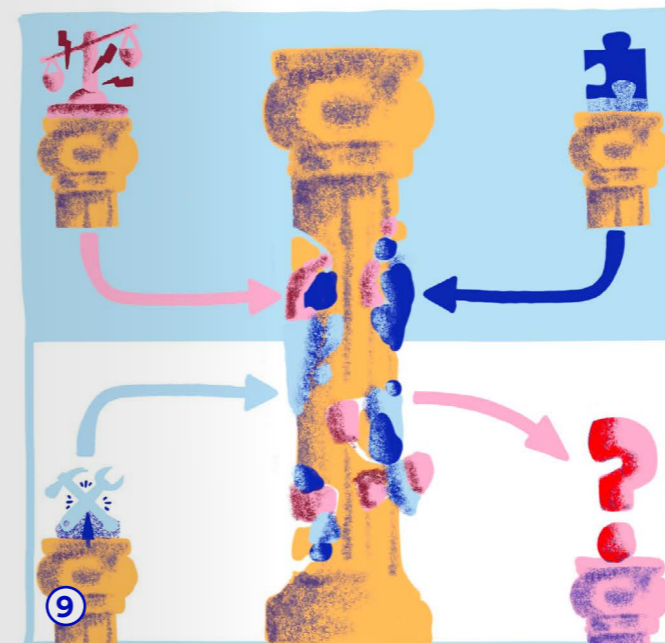
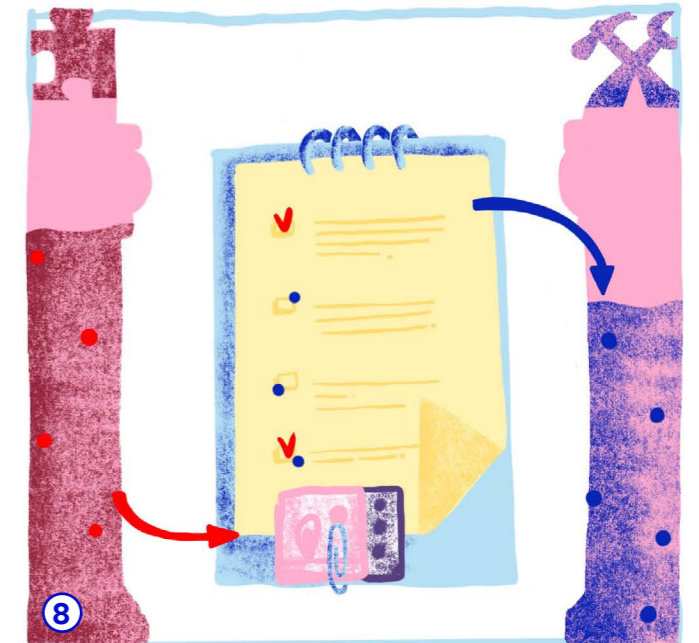
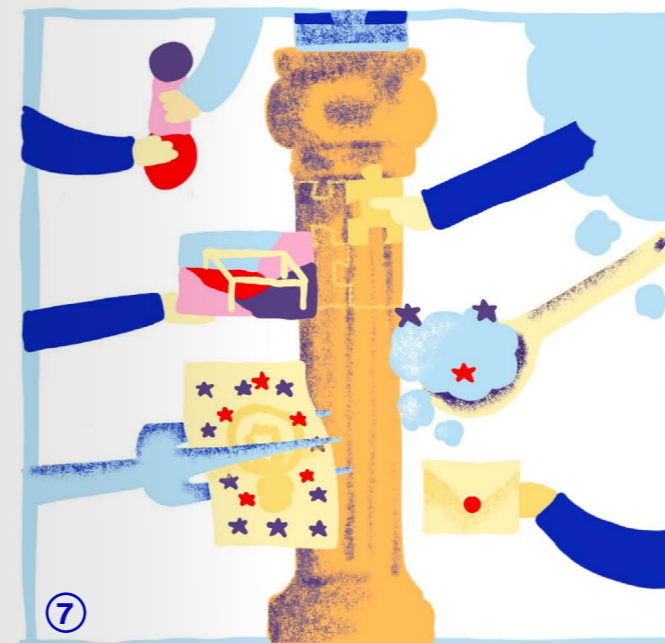
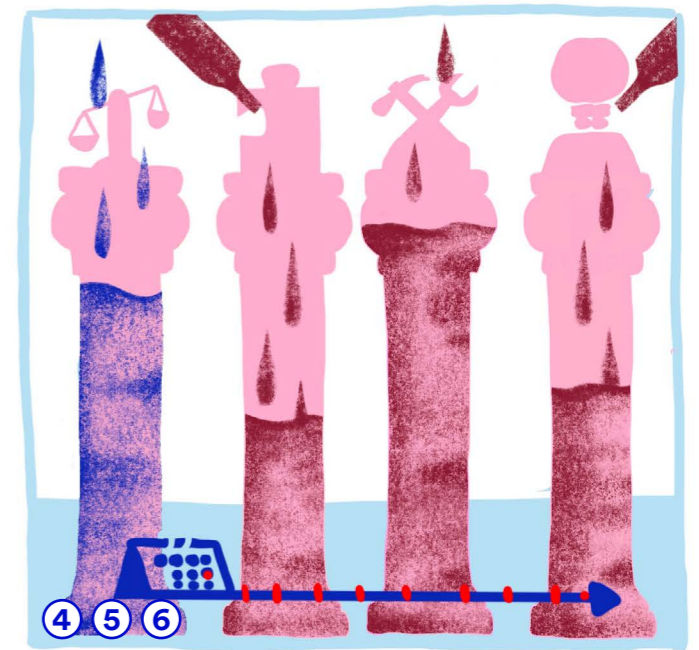
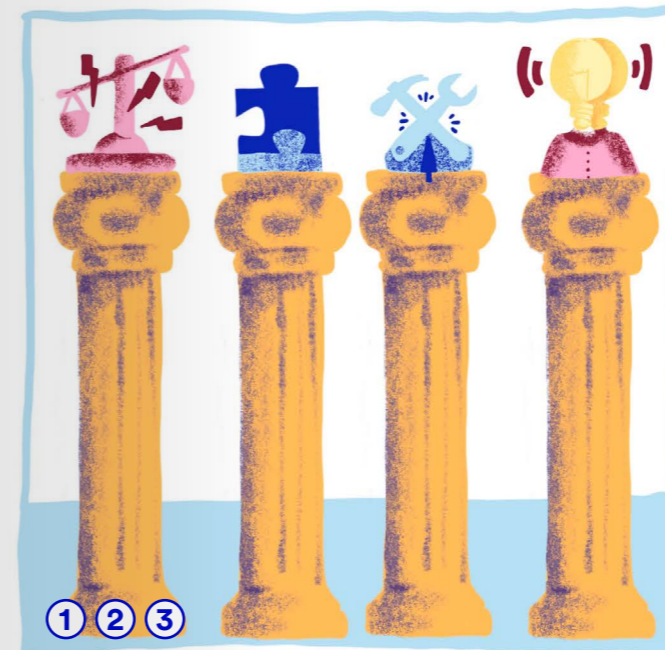
Requirements

- Writing instruments
- A large sheet of paper
- Post-its

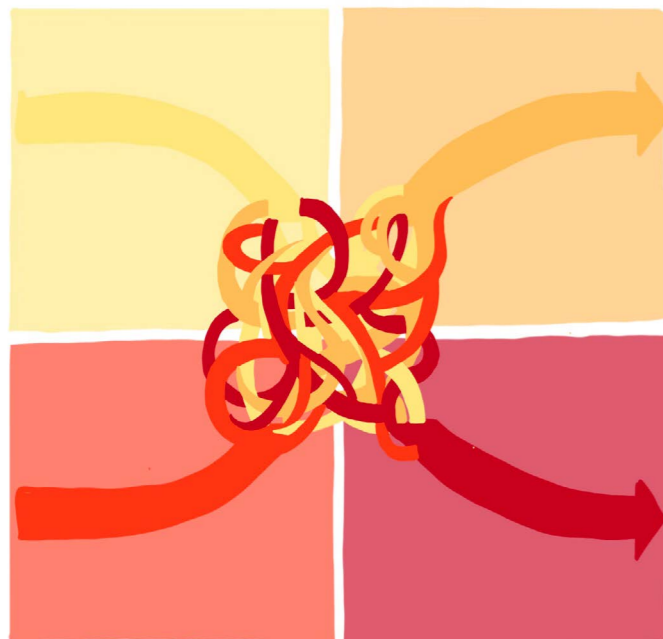
Steps

- 1 Choose a (spatial) issue and gather a (preferably interdisciplinary) group of people who have something to do with this issue.
- 2 Designate a chairperson to convey the steps to the group and conduct the plenary feedback round at the end.
- 3 Draw four columns on a sheet of paper and consecutively title the columns: **Painful truths**; **Solution-oriented thinking**; **Tools for now**; **Knowledge urgencies**. Optional: to further structure the thinking around a spatial issue, you might choose to add rules, e.g. per theme.
- 4 Hang or put the sheet in a clearly visible place where everyone in the group can get to it.
- 5 Fill in, possibly per theme or topic of your choice, the column as far as possible for the (spatial) issue. Each group member is free to provide input on the matrix. You decide whether to collect the input plenary or individually. The order in which the matrix is completed may be random.
- 6 The **Painful truths** column is based on a long-term view rather than current bottlenecks. Ask the question: what will go wrong if we don't do anything (differently)? Let science and facts guide this.

- 7 The **Solution-oriented thinking** column is fuelled by imagination and imaginative thinking. Make use of design thinking and acting, combining tasks and integrating solutions to fill in the column.
- 8 The input in the Solutions-oriented thinking column can be tested in concrete situations in the **Tools for now** column. Try to formulate the choices we can make now. In doing so, distinguish between no regret measures, preventing lock-ins (path dependency) and adaptive measures.
- 9 Fed by the input from the previous columns, the **Knowledge urgencies** column can finally identify where answers cannot yet be found or where new questions arise.
- 10 Once the input has been collected from the group, the group proceeds to plenary feedback on the completed input, led by the chair, to clarify any ambiguities.
- 11 The knowledge urgencies may lead to further research on (new) issues and to scheduling a follow-up.



11 Transition thinking



With this method, you gain insight into transitions using the X-curve. The X-curve shows with the ascending line the build-up of the new system and with the descending line the dismantling of the existing system.

Web link to white paper 'Houvast voor duurzame vernieuwers. Vier perspectieven op transitiedenken en doen'



What and why?

By definition, when we think about the future, we are dealing with the phenomenon of 'transition'. A transition is a fundamental change at the level of a collective regime; the 'regime' is defined as a set of rules we have internalised in skills, preferences, way of looking at things. Resistance to transition is strong and more institutionalised than ever. We do feel the need, but the potential for change is elusive; that is where design power comes in. The challenge is to make the future attractive so that we aspire to it.

When we delve into the theory and methodology of 'Transition thinking', we are confronted with the so-called 'X-curve', also called decision-making matrix for transitions. Practising with the X-curve will give you insight into the desired transition of a given system. There are a variety of types of change processes in transition theory, such as 'accelerate' or 'phase out'. The X-curve shows with the rising line the build-up of the new system and with the descending line the phase-out of the existing system. Practising with this method teaches you to become better at transition thinking and gain a better understanding of different values and perspectives: what one person sees as building up is viewed by another person as winding down.

When?

There is a gap between knowing the transition issues and acting on them. To summarise the complex system and to have a structured conversation about the underlying movements, you can use the X-curve. After all, we are used to looking for the solution mainly in something new, and less in stopping something; with the X-curve, you gain insight into both.

How?

In a transition, new things are developed (build up and build forward) and at the same time things have to go (convert and phase out). You can apply the X-curve to issues where there is a need for system change. When choosing a system, it is important to clearly define it. This prevents the system from being open to multiple interpretations and ensures that all participants understand it the same way.

Developed by whom?

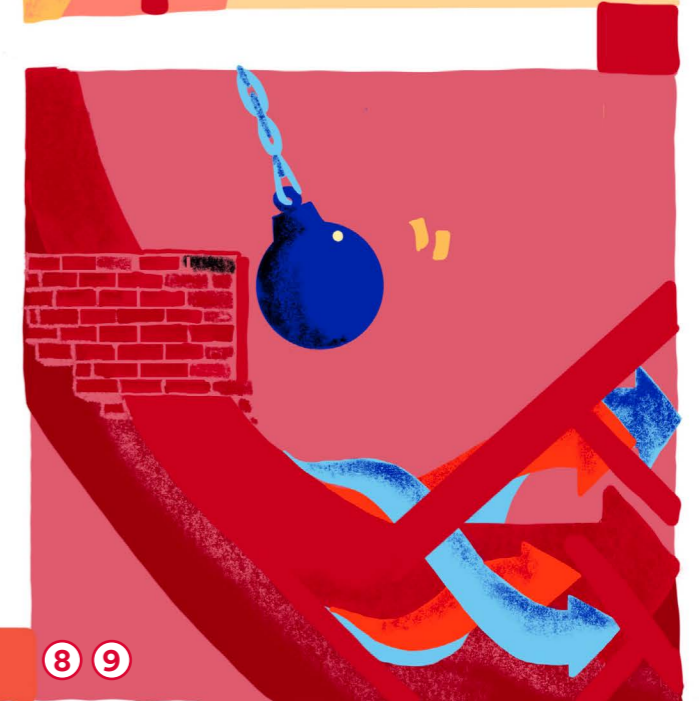
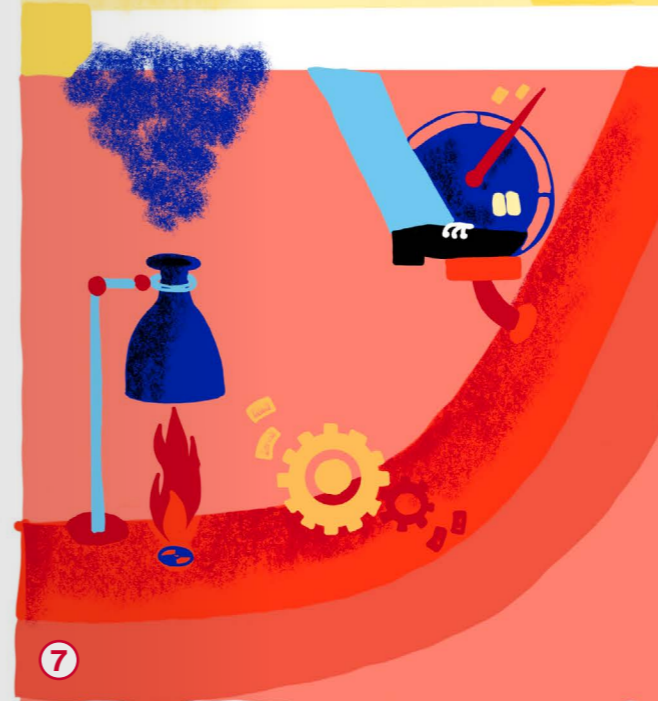
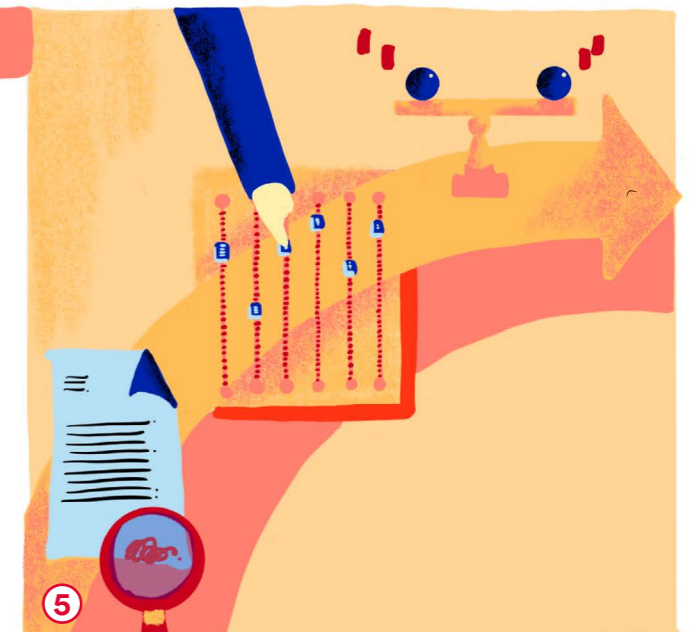
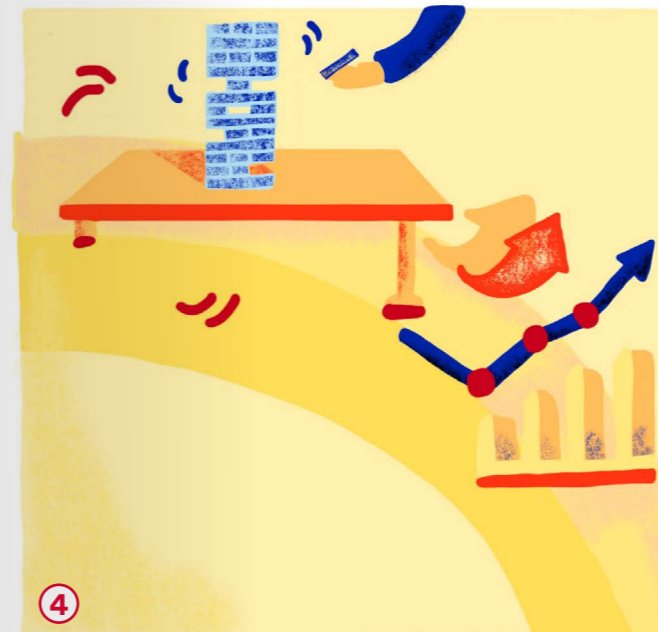
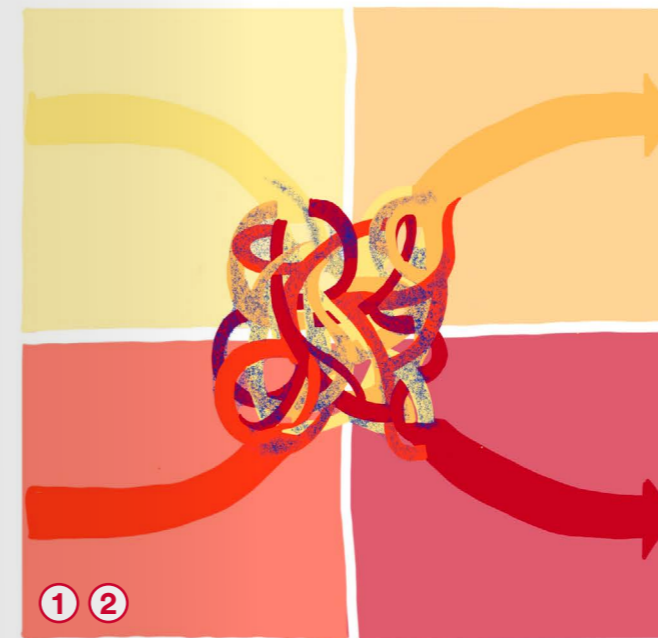
Drift + EUR (Erasmus University Rotterdam) / Derk Loorbach – Transition thinking (Future Academy 6, 11 May 2023).

Requirements

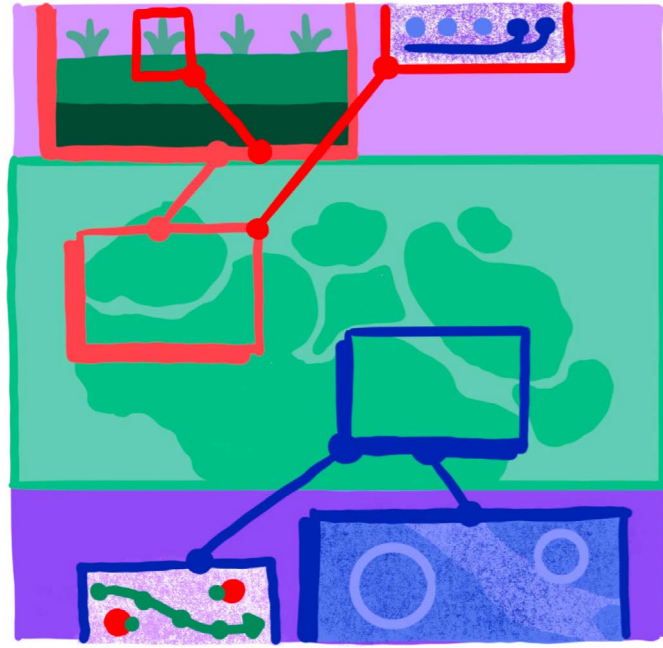
- Writing instruments
- Large paper to draw the X curve on
- Post-its

Steps

- ① Break up into groups and draw the X-curve on a (large) sheet of paper; a cross with the four quadrants of 'conversion' (top left), 'phase-out' (bottom right), 'building up' (bottom left), 'building forward' (top right).
- ② Choose a desired transition and name it using a clearly defined system (e.g. if you focus on a sustainable food system, choose a delineation such as 'Agriculture and food production in the Northern Netherlands' or 'Consumption in major cities and associated global food chains').
- ③ You can reduce any transition to a few key questions; write your answers to the following questions on the post-its. What is the desired picture of the future? What are the values, principles, structures, cultures and practices of the future? Draw/describe these at the top right of the X-curve.
- ④ What transition dynamics towards that future do you see or are needed? Go through the questions below and stick post-its into the corresponding quadrants.
- ⑤ **Building forward:** what are guiding principles, new values? How can we enshrine these in standards, laws and regulations?
- ⑥ **Building up:** what deserves more support, scale, highlighting, investment, professionalisation?
- ⑦ **Conversion:** what needs to be adapted, changed, redesigned or adjusted?
- ⑧ **Phase-out:** what do we want to phase out and say goodbye to? How can we facilitate this?
- ⑨ Which organisations/groups/networks can drive this dynamic? What is our own role? Link specific actors to specific actions within the dynamics. Explain the completed X-curve to the other group(s).



12 Decision making based on water and soil



You apply this method if you want to know what decision making based on water and soil means for the long-term future plans for a particular region. The method leads to design thinking which creates various 'what if' scenarios to explore the bandwidth of possible futures and create a development strategy.



What and why?

The Board of Government Advisors does not want to set a dot on the horizon, but to explore the entire horizon with scenarios for at least a hundred years ahead. In doing so, the Board takes the layers approach as its starting point: first get the subsoil in order, then the networks and finally occupation.

Rutte IV's coalition agreement included the sentence: 'Water and soil become guiding factors in spatial planning'. The parliamentary letter 'Decision making based on water and soil' of 25 November 2022 led to questions about what this means in concrete terms for policy and implementation when thinking about the future. Therefore, the Board worked on a set of guiding principles as guides for making recommendations and its own research. Thinking on the basis of decision making based on water and soil helps us become aware of the systems and the features that are interconnected when it comes to landscape issues. To know how a region's water system came about and to understand the development of the landscape, you have to look back centuries. Applying this method helps us to regard it as normal to think at least 100 years ahead again.

When?

This method provides a guide for use in projects, programmes and policy development from the perspective of decision making based on water and soil.

You apply this method when you want to know for a certain region what decision making based on water and soil means for long-term future plans. The method leads to design thinking which creates different 'what if' scenarios to recognise the range of possible futures and create a development strategy.

How?

Taking the water and soil system as the starting point for spatial interventions requires a fundamentally different attitude and approach. It means not just doing the present better but also asking the question: are we doing the right thing? In many places, a transition is needed to sufficiently restore the coherence and natural functioning of the water and soil system as a basis for the development of an area. To encourage this course of action, the Board developed a practice guide with a six-step approach:

- 1) Analyse the subsoil
- 2) Look far ahead and to the big picture
- 3) Bring tipping points into focus
- 4) Involve all area features and plans
- 5) Explore the future with scenarios and design variants
- 6) Create a development strategy

Developed by whom?

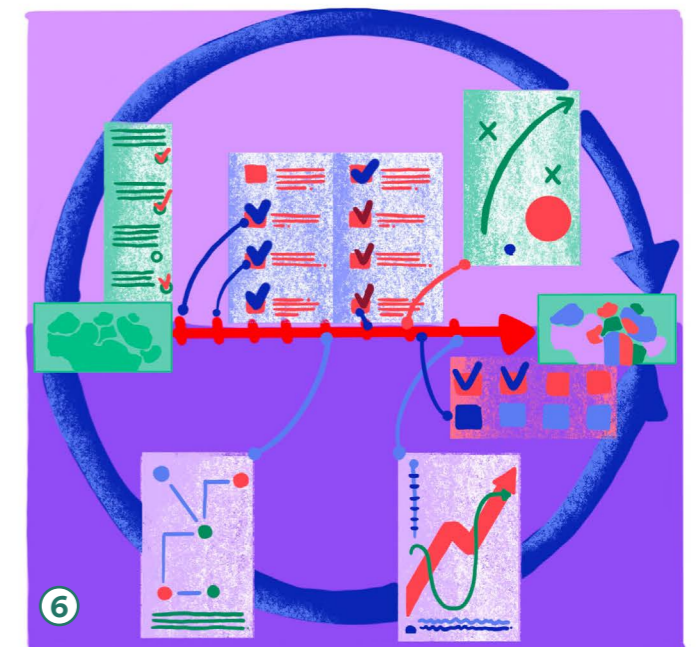
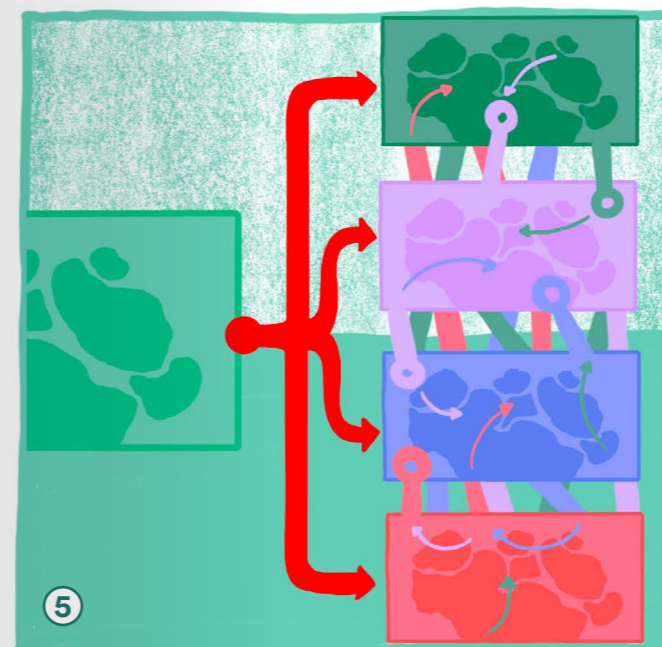
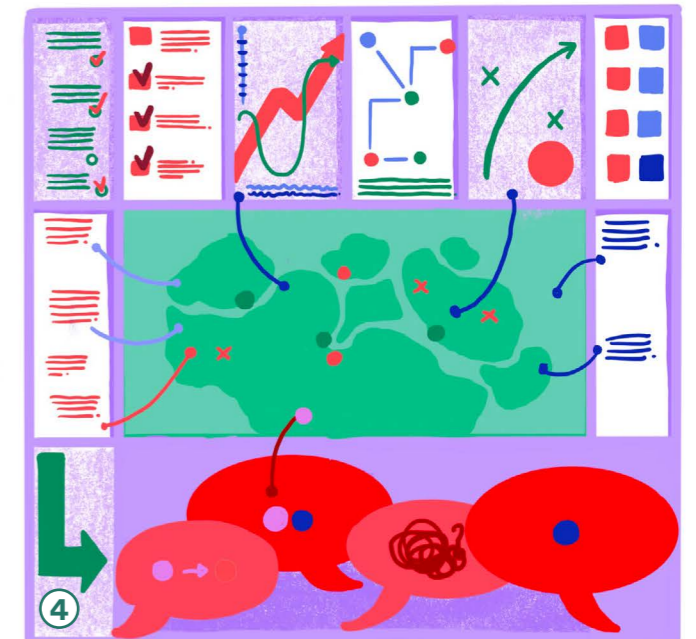
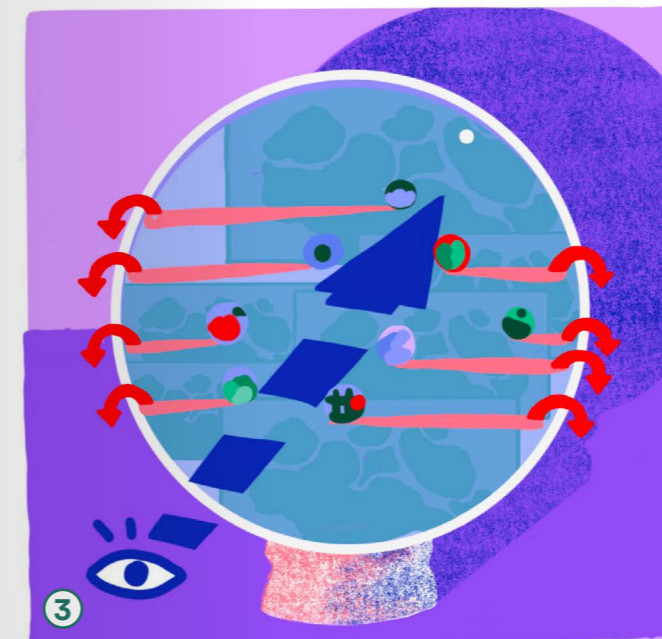
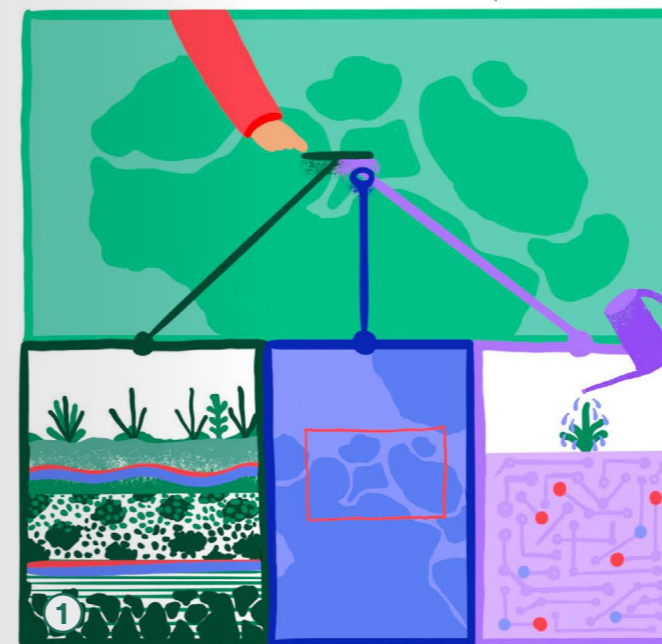
Board of Government Advisors / Jannemarie de Jonge, Matthijs Willemsen, Tertius Hanekamp, et al. – Decision making based on water and soil (Future Academy 5 with Wouter Veldhuis, Shera van den Wittenboer and Matthijs Willemsen, 6 april 2023).

Requirements

- Writing instruments
- Sheets of sketching paper
- Maps showing topography and altitudes of the area
- Maps showing landscape cross sections of the area

Steps

- 1 Choose an area and analyse the subsurface:** a) Describe and map the subsurface: geomorphology, soil, relief, water system. b) Zoom out and describe your area as part of a bigger picture. c) Analyse in what ways the natural system has been modified and provided with artificial components.
- 2 Look far ahead and at the big picture:** a) Describe the specific, area-related impacts of climate change, such as desiccation, land subsidence, salinisation or sea level rise. b) Describe possible developments of the area surrounding the plan area, looking at the relevant scale level, often this is the landscape ecological system (e.g. catchment area), with a zoom out to the landscape type (e.g. river area or high sandy soils).
- 3 Bring tipping points into focus:** a) Describe tipping points with system consequences, such as more frequent closure of flood defences, failure of sewer systems, end of free drainage channels and so on. b) Describe tipping points for uses, such as reduced shipping due to low water, end of agriculture or salinisation.
- 4 Involve all area features and plans:** a) Describe and map area characteristics. b) Create overview and alignment with existing policies. Identify tasks, policies, ambitions and plans. c) Engage with stakeholders to identify what meanings they assign to area features, what they are proud of and what worries them.
- 5 Explore future scenarios:** a) Explore the range of possible futures or vistas. To do so, explore a number of 'what if' scenarios. b) Use the exploration to nurture social dialogue and then bring focus to the scope of possible futures. c) In further elaboration following the dialogue, look for smart combinations (multifunctionality, hybrid forms, crossovers).
- 6 Create a development strategy that incorporates the previous steps:** a) Create a development strategy that incorporates the outputs from the previous steps. b) Link the present to the conceived possible futures through steps in time marked by moments of choice and tipping points, called adaptation paths. c) Think in terms of time periods and life cycles of functions. Align these and include them in adaptation paths (temporal planning). And make reasoned trade-offs appropriate to the water and soil system. d) Ask whether a proposal, measure or project will not lead to regret in the longer term, or whether it is sufficiently flexible. e) If possible, adapt the administrative and organisational structure to the layout of the water and soil system.



Colophon

This Handbook of Future Thinking is based on eight lectures and working sessions on future thinking and is supplemented by four other proven methods of future thinking.

Future Academy 1

3 November 2022: PBL (Netherlands Environmental Assessment Agency) / David Hamers, Ed Dammers – Spatial exploration

Future Academy 2

8 December 2022: Utrecht University / Peter Pelzer – Futuring and Museum of the Future

Future Academy 3

19 January 2023: Deltares / Marjolijn Haasnoot, Rutger van der Brugge – Future of the delta, adaptation paths and pivotal points

Future Academy 4

16 March 2023: Verveeld en Verward / Dorine Baars, Jonas Martens – Time and design journey: climate (in)justice

Future Academy 5

6 April 2023: Board of Government Advisors / Wouter Veldhuis, Matthijs Willemsen, Shera van den Wittenboer – Decision making based on water and soil

Future Academy 6

11 May 2023: Drift + EUR (Erasmus University Rotterdam) / Derk Loorbach – Transition thinking

Future Academy 7

22 June 2023: Reframing Studio / Femke de Boer – Water safety narratives

Future Academy 8

13 July 2023: Wondermash / Marjolein Pijnappels – Futures Ecologies

Thanks to all speakers and participants of the lecture series forming part of the Future Academy.

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Cover

The cover shows the 'Wunderkammer for future thinking'. A Wunderkammer or cabinet of curiosities is a cabinet or room that displays a collection of objects. The concept was particularly popular in the 16th, 17th and 18th centuries - during colonial times when objects, plants and animals were brought back from distant lands. As a symbol of accumulating and arranging knowledge, but also as a status symbol. In the here and now, we are facing major changes - think climate change, the energy transition, the agricultural transition and the transition to a circular economy. These transitions constitute so-called 'wicked problems' whose solutions cannot be unequivocally predicted. We will therefore have to train ourselves in future thinking. The 'Wunderkammer for future thinking' depicts the manual for future thinking and contains objects and tools that invite you to start working on the future.

We are facing major transitions – think climate change, the energy transition, the agricultural transition and the transition to a circular economy – which call for systemic changes. These transitions constitute so-called *wicked problems* whose solutions cannot be predicted unequivocally. Therefore, more than ever, we will need to train ourselves in future thinking. The Board of Government Advisors advises the state on spatial quality and advocates looking 100 years ahead with the motto 'the 22nd century starts now'. Looking far ahead to then reason back: what should we, or should we not do now? To learn how other organisations deal with long-term thinking, the Board launched the Future Academy in 2022.

This 'Handbook of Future Thinking' brings together methods from the sessions of the Future Academy and makes future thinking accessible to a wide audience.