

# A Playbook for the WOAH 100th Anniversary Participatory Foresight Project

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World Organisation  
for Animal Health

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**A Playbook  
for the WOAAH 100th  
Anniversary Participatory  
Foresight Project**

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# Introduction

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25 January 2024 marked the 100th anniversary of the World Organisation for Animal Health (WOAH). The Organisation started with a small collective of 28 Members, operating in a less complex landscape for animal health and for the transmission of infectious animal diseases. Today, WOAH addresses a diverse and larger membership of 183 Members. Over the decades since the Organisation was founded in 1924, efforts and programmes have been established to respond to increasing complexity and disruption to animal health and welfare.

While the Organisation can reflect on and celebrate its 100 years of operation, what can it do to act in the present with the future in mind, and to anticipate what comes next? This question was the impetus for the 100th Anniversary Participatory Foresight Project, where a diverse group of people from within WOAH's network of expertise employed the foresight methods of horizon scanning, scenario building and scenario exploration.

This project was designed as a capacity-building opportunity for Delegates and experts in WOAH's network; partners and collaborators were also invited to participate. Over 300 people from WOAH's network were invited to participate in a series of online immersive workshops, and over 90 interested individuals registered from across the globe. From this population, 50–60% of the participants consistently contributed throughout the project.

# Acknowledgements

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This playbook is dedicated (with gratitude) to all participants who collaborated on this project. Thanks to your enthusiasm, creativity and trust, the project imagined alternative possible futures for animal health and welfare, along with helpful insights into how different WOAHA members perceive present and emerging changes.

We are also grateful for the support of WOAHA leadership, who used some of the project's scenarios during the 91st General Session of the World Assembly, in the Forum entitled, 'Is WOAHA Ready for the Future?' This Forum was designed to create a space for reflection on WOAHA's role in possible futures. This opportunity for critical, forward-looking reflection assisted WOAHA and its Members to agree that the Basic Texts and current governance structures should be revised for agility, resilience and future-readiness.

The Forum fostered a participatory environment that engaged a diverse and intergenerational group of individuals in exploring emerging futures that are influencing decision-making for WOAHA and its Members.

Thank you as well to team members at Jigsaw Foresight Ltd - Wendy Schultz, Victoria Ward, James Stevens, Peter Humphrey, Laura Humphrey, Trish O'Flynn, Charles Ebikeme, and Jordi Serra del Pino - for their commitment to delivering (and frequently exceeding expectations around) the design and facilitation of this project and the co-writing of this playbook with Tianna Brand, Foresight Advisor, WOAHA. This could not have been accomplished without the team. Finally, thank you to the German Federal Ministry for Economic Cooperation and Development (BMZ) for financially supporting this project.

# Overview of the 100th Anniversary Participatory Foresight Project

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This playbook illustrates how to engage in foresight, specifically as WOAAH did in the context of its 100th Anniversary; however, the employed methods can be adapted to any context. With that said, it is crucial to clarify why organisations choose to use foresight methods (or enact foresight-fuelled projects) and what the intended outcomes are prior to starting.

While foresight methods are accessible and engaging, they are not all ‘fun and games’: their usual purpose is serious reflection on decision-making for actions across the short-, medium- and long-term. Before any related project begins, spend time on defining what its objectives may be, clarifying why foresight methods are useful and what is desired from them.

In the case of the 100th Anniversary Participatory Foresight project, one of the aims was directly related to capacity building for WOAAH Members. Participants in the project workshops applied foresight methods in an inclusive and participatory manner. The objective was to further cultivate situational awareness of some changes, opportunities or disruptions that are present and/or emerging both within and outside of the animal health and welfare domains, thus informing decision-making and strategic planning for WOAAH and Veterinary Services.

Another aim of the project was related to communications: that is, to use resulting insights to highlight complex changes and influencing factors on animal health and welfare as part of WOAAH’s 100th year anniversary celebrations. The objective was to underline that WOAAH’s mandate has evolved over the past century and will continue to do so in the face of today’s complexity and uncertainty.

During the course of the project, an opportunity presented itself to use the foresight scenarios in another context and with a different objective in mind. At the 91st General Session of the World Assembly of Delegates and its Forum, entitled ‘Is WOAAH Ready for the Future?’, three of the foresight scenarios were used to spark discussions around implications for WOAAH, its Members and its governance structures and processes, and in particular, its Basic Texts to meet the demands of the twenty-first century.

It is important to disclose that the 100th Anniversary Participatory Foresight project took 18 months from conception, including the procurement of services of futures researchers and foresight practitioners, the on-boarding of participants and service providers, project design and delivery. Having said that, foresight methods and workshop contexts are adaptable; just be aware that energy needs to be spent on the aims and outcomes of using foresight as well as being realistic about the resources – temporal, financial, human, technological and physical – that are available and widely accessible.



In terms of the project's resource requirements, it is important to keep in mind that the associated workshops were held online with simultaneous translation in English, French and Spanish. Furthermore, each workshop theme, along with corresponding methods and agendas, were repeated twice at different times and dates to accommodate participants in different time zones. This resulted in two workshops on 'sense-making', two workshops on 'scenario building' and two workshops on 'adaptive actions'.

Finally, the project team used a number of applications to collect and organise information as well as to conduct engaging online workshops. Initial domain mapping work was conducted using Kumu; Slack was used to collect articles and other sources of information from horizon scanning; and Notion was used to organise the horizon-scanning results. Zoom was used as the virtual meeting platform for all online workshops, and the Miro digital whiteboard was used to create participatory workspaces in which participants could review and rate data, jot down their own comments and connect ideas.

The three phases and outputs of the project are outlined in **Figure 1**.

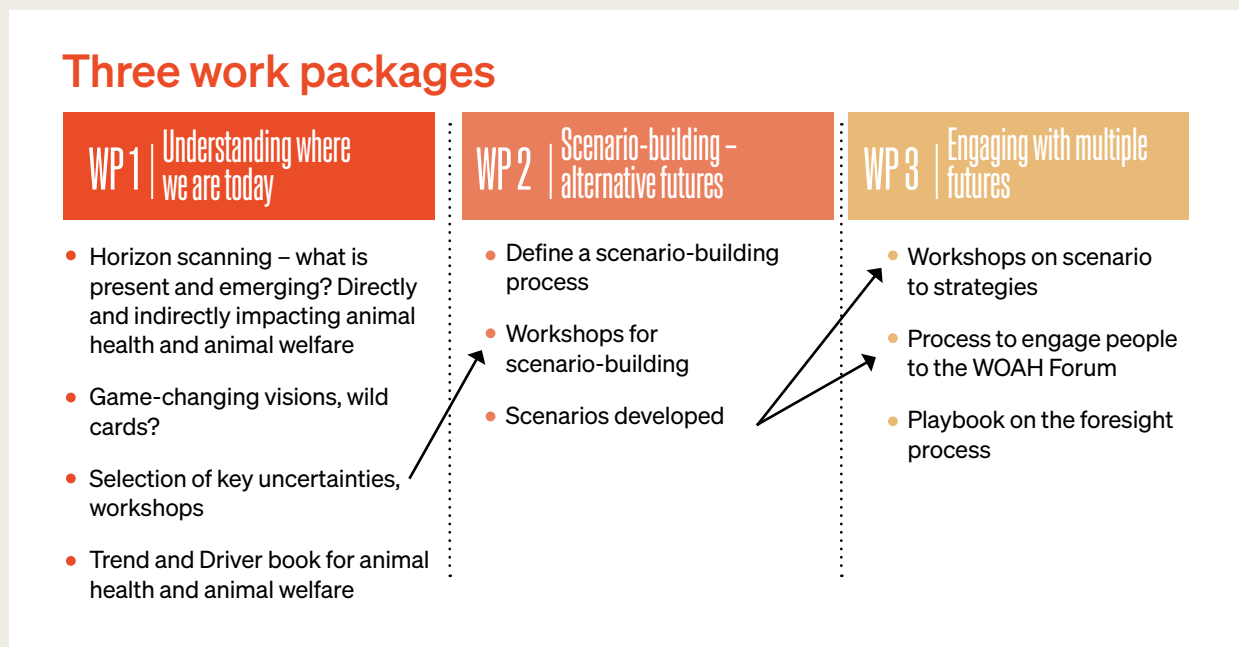


Figure 1. Phases and work packages (WP) of the WOAHA 100th Anniversary Foresight Project

The playbook presents the concepts and methods used during the various phases of the project:

- An overview of the horizon-scanning approach (see [page 9](#));
- The steps and instructions used for the sense-making workshops (see [page 15](#));
- The steps and instructions used in the Mānoa method for participatory scenario building (see [page 24](#));
- The frameworks and instructions used to explore potential Adaptive Actions and innovative solutions as responses to the scenarios (see [page 34](#));
- The approach used for the Forum 'Is WOAHA Ready for the Future?' at the 91st General Session of the World Assembly of Delegates in May 2024 (see [page 42](#)).

# Using this playbook

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The 100th Anniversary Participatory Foresight project applied a number of foresight methods in a stepwise manner, wherein the results or outputs from one method contributed to a subsequent method. For example, the results of horizon scanning were used in the sense-making component of the project; subsequently, the results from the sense-making workshop were employed in the scenario-building workshops. The scenarios were then explored to identify actions or next steps that should be taken by an organisation in the face of the alternative possible futures imagined through foresight methods.

This is typically how projects using foresight play out. Having said that, some methods can be, and are, used in isolation, without the results subsequently contributing to another method. For example, horizon scanning can be used on its own, without necessarily going further than identifying emerging challenges and opportunities. But scanning data is best used by applying structured methods to make sense of patterns of change or extract insights from perceptions on how changes are evolving and affecting our systems. For example, for each change identified, the people involved can use futures wheels to map the cascades of impacts it might cause. Interactions between multiple changes can be explored in pairwise comparisons using a cross-impact matrix or explored systemically using causal mapping. Mānoa scenario building generates exploratory narratives about possible futures from scanning change data by combining futures wheels, cross-impact matrices and causal mapping.

While using this playbook, the reader is welcome to skip directly to any relevant section to learn about particular methods used as well as their outcomes for inspiration and potential design ideas for workshop agendas.

As a user of this playbook, it is also important to consider exactly what you want to do.

## **What are your aims and focus, what are you interested in learning or exploring?**

- *‘Our team is worried about oncoming change, and we want to get a sense of emerging challenges we might face.’*  
Go directly to **Horizon Scanning: identifying trends and emerging changes** (see [page 9](#)).
- *‘We feel inundated by changes! How can we begin to sort through which are the most critical?’*  
Go directly to **Sense-making: prioritising trends and emerging changes** (see [page 15](#)).
- *‘We need to explore the interconnected impacts and implications of the most critical changes; how can we do that?’*  
Go directly to **Scenario building: imaging possible futures** (see [page 24](#)).
- *‘In the face of multiple possible outcomes or potential futures, how do we devise adaptive actions and effective strategies?’*  
Go directly to **Adaptive Actions: exploring responses and strategies** (see [page 34](#)).
- *‘Can you offer a practical and relevant example of using foresight and futures thinking?’*  
Go directly to **Practical Foresight: stress-testing current assumptions** (see [page 42](#)).

# Tips for planning and launching a foresight-fuelled project

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Now that you know where you want to start and have defined objectives for your foresight activity, it is time to consider how you will engage in foresight, and with whom. Futures research and foresight projects are not solo endeavours. They work best with a group of people who offer a diversity of perspectives on time and change. To benefit from that diversity, facilitators should encourage all participants to contribute observations, insights, provocative ideas and imaginative explorations. The first step in all participatory foresight processes is creating a welcoming space for critical reflection and imaginative, exploratory thought.

## Here are a few guidelines:

- **Be clear on the aims of the foresight exercise**

These may be multiple, e.g. for reflection and learning, for critiquing assumptions, for the generation of innovation and ideas, or for strategy formulation; each of these aims could inform decision-making about whatever topic the foresight methods are addressing.

- **Consider the audience, languages and accessibility of materials used in the foresight process**

Keep the language plain; keep it short and simple; use imagery and visuals whenever possible; understand the strengths and limitations of both the venue and the timing of the foresight exercise; and build the agenda and process from these foundations.

- **Create a group**

You cannot force people to engage in foresight! If they are interested, they will come (even those who might be wary of trying something new or who are sceptical). The important thing is to consider and invite folks who bring a diversity of perspectives, expertise and culture to the process – such differences help expose hidden assumptions and value sets that can both constrain thinking and can generate creative synthesis and innovation.

- **Be mindful of physical and mental comfort**

For example, if a workshop is conducted online, take comfort breaks. In online settings, this includes taking short breaks every twenty minutes, allowing participants to look up and away from their screens for a minute, to focus off into the distance and rest their eyes. In person, allow time for people to stand up and walk around, offer water and refreshments and food, and be mindful of the room temperature and lighting.

- **Offer a clear agenda and outcomes**

Be clear at the outset what the agenda is, including the intended objectives for the session, the timings and any associated activities.

- **Adjust agendas and recombine methods as needed**

Be flexible in your use of foresight methods and activities, especially when pivoting from online workshops to in-person workshops, which may require adjusting the example agendas offered in this playbook.

- **Let everyone introduce themselves and their role**

The best foresight processes build both communities and knowledge: helping everyone connect helps support conversations and explorations. Give people more time in the first meeting to bond; have them introduce themselves and share stories and respect the time it takes to do that – it will make subsequent meetings easier as this establishes trust.

- **Help people cross the threshold into the participatory thinking and action space**

Use a warm-up activity that builds bridges between people and towards the workshop objectives. For example, the Adaptive Actions workshop opted to use the Polak Game since it addresses an individual's sense of agency regarding the future.

- **Offer a walk-through of a new concept or method**

When introducing a new concept or term, give an example; if it is a new method or tool, demonstrate it to demystify it. For example, when using futures wheels during scenario building, facilitators might lead the entire group through a quick practice trial of building a futures wheel.

- **Encourage people to help each other during break-out sessions**

This is especially important in online workshops, as people have varying levels of familiarity and ease with different software platforms. Ask participants who are comfortable with the software to assist those who are not, e.g. ask them to be 'Miro buddies' and help capture ideas on stickies for those who need help.

- **Allow people time to reflect, relate, ask and respond**

Build time into the schedule for participants to catch their mental breath – time to think, ask clarifying questions and record stray thoughts that might prove important later. As workshop facilitators, it is important to be comfortable with silence during this time.

- **Draw on their insights to sum up**

Assign a 'thread-gatherer' to knit together the story of key insights that have emerged over the course of the workshop, to acknowledge the contributions the participants have made.

- **Be clear about next steps**

Let people know how output will be summarised and shared, where they can submit additional ideas and feedback, and what the next steps in the project are.

- **Offer an outgoing threshold activity**

Help reinforce the sense of the 'special space' created by the workshop with an exit activity. One option is to repeat the warm-up to identify how thinking has changed, e.g. run the Polak Game again and compare results.

**Finally, offer feedback surveys after each** workshop to help guide the design team and facilitators on managing expectations, providing further details and facilitating discussions in subsequent workshops. Collect general feedback on foresight activities, identifying what worked well and what needs improvement.

**Example feedback queries could include the following:**

1. The workshop was well organised and easy to follow. (Use a 7-point Likert scale from 'strongly disagree' to 'strongly agree'.)
2. The information was clearly presented, and the exercises provided were helpful. The workshop was well organised and easy to follow. (Use a 7-point Likert scale from 'strongly disagree' to 'strongly agree'.)
3. The methods presented and used in this workshop will be useful to my work. (Use a 7-point Likert scale from 'strongly disagree' to 'strongly agree'. Use this if the foresight exercise is, or is in part, a capacity-building opportunity.)
4. What did you like most about the workshop? (Open-ended question)
5. What aspects of the workshop could be improved? (Open-ended question)
6. Solicit additional comments or (allow for participants to) expand on previous responses.



# Horizon Scanning: identifying trends and emerging changes

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We are all challenged by change. Changes generate turbulence and uncertainty, calling into question much that we take for granted. Change also expands what we can achieve if we make the most of its opportunities for transformation.

Horizon scanning reviews and collects a wide variety of change data in the form of articles, news reports, research project reports, government white papers, blog posts, interviews and other media. It is itself useful as a radar, alerting organisations to the emerging changes contributing to volatile and uncertain environments. Horizon scanning is also the essential starting point to well-evidenced futures thinking and provides change data as input for all other foresight methods.

Horizon scanning begins with framing, which entails a conversation (or several conversations) with stakeholders or clients of the foresight work that defines their questions, concerns and aims to focus the scanning process. Typical questions include the following: What is the primary topic or topics? Why are we concerned about how change might unfold? What problem or challenge are we addressing? What is the time horizon that concerns us? Another useful approach to framing is to engage stakeholders in creating a map of the primary topic or topics and its related elements.

Animal health and welfare were the focus topics of this project, and the topic system map used those two elements as a starting point. Other elements included in the map depicted WOA's key activities as well as topics related to its work in animal health and welfare ([Figure 2](#)).

The system map depicting WOA's domain and roles evolved from conversations with WOA staff and members. It was visually mapped using Kumu, a web-based application to visualise the components of a topic or domain, and their critical interconnections and intersections. System mapping can also be accomplished using simple pen and paper, PowerPoint or digital whiteboards like Miro; the point is to depict the systemic context in which the primary topic of interest exists.

These types of maps are essential for the setup and general management of a horizon-scanning process. Mapping helps to define the parameters or boundaries of the scanning search. The elements of the topic map can also be used to tag or organise the data emerging from the scanning process, highlighting which changes might be most relevant to given topic components. A topic map also helps communicate the project focus to the scanning team. The system map is, however, not static: as the horizon scanning continues and regular reviews and analysis of the scanned material take place, the map should also be reviewed and revised as necessary to reflect the evolving research focus.



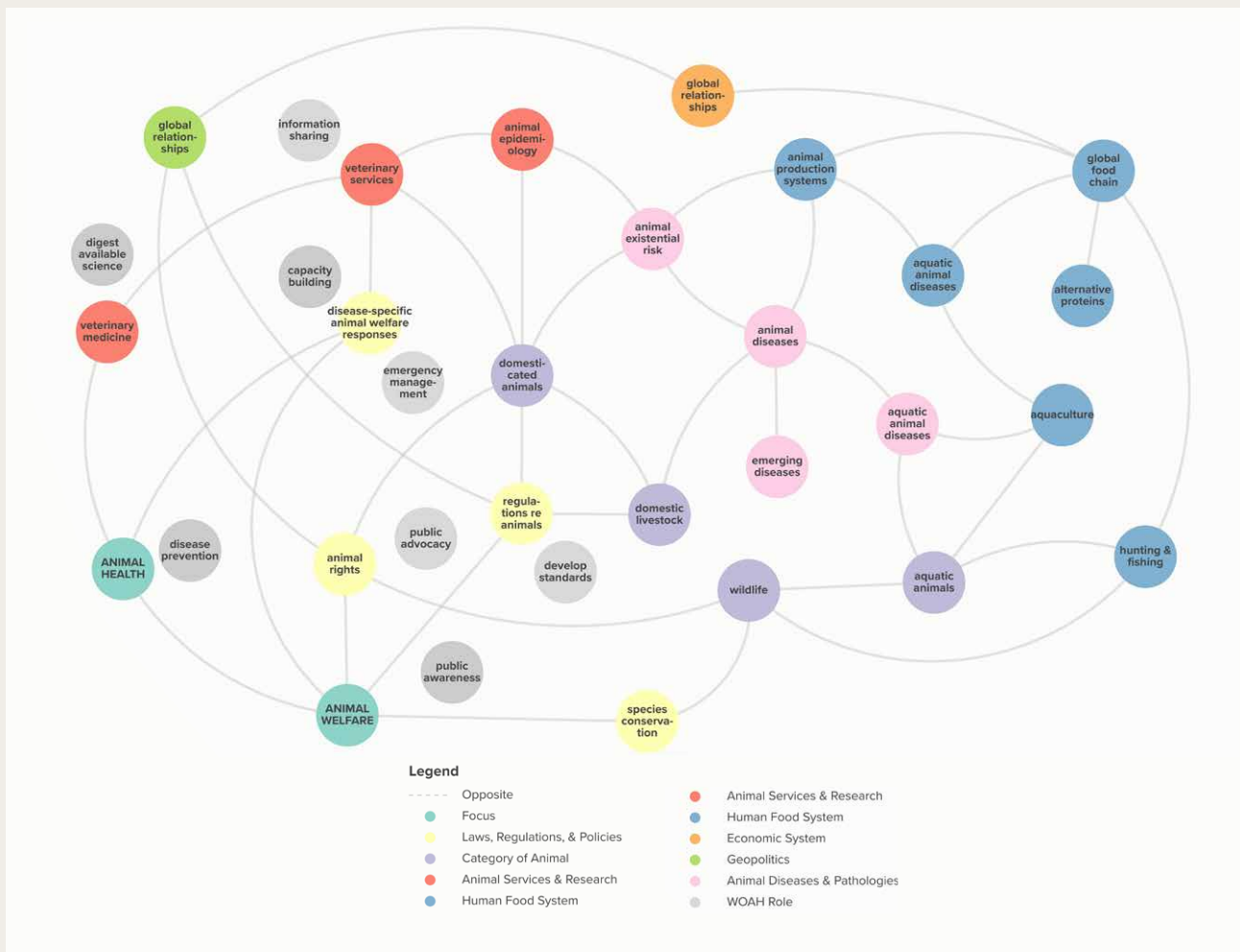


Figure 2. *WOAH Animal Health and Welfare Operating Context – Systems Map* (open web page for larger image)

After mapping the current state of the focus issue, the next step is heightening awareness of change, notably through the following questions:

- What changes do we and our team currently track?
- What emerging changes have we noticed?
- How do we identify, monitor and document trends and emerging changes?
- What methods do we use to organise and make sense of emerging change?

Horizon scanning tracks two primary kinds of change: 1) *trends*, that is, existing changes that people are observing, collecting data on and quantifying; and 2) *emerging changes*, that is, the nascent development of completely new ideas or behaviours.

An analogy in spotting early change would be epidemiologists trying to identify ‘patient zero’, the first case in an epidemic or pandemic. Continuing this analogy, epidemiologists often keep their eyes and ears open for emerging or surprising data points: data that may seem out of the ordinary. A good example is the evolving conversations within scientific and health communities about what came to be known as COVID-19. No matter the domain in consideration, the point is to keep watch for something ‘new’: new business models, policies, scientific discoveries, innovations or maybe a viral meme that can be traced back to a wild idea popping up in conversation, social media or scientific seminars.

To find changes, people must consider a diverse variety of sources while keeping in mind that change has a life cycle, a pattern of emergence along an S-curve (**Figure 3**). A single new idea, behaviour or worldview emerges that captures growing attention from a community of interest – whether it be scientists, fashion designers, teenagers or political philosophers – and then starts to draw the attention of other communities, of the wider public, in journal articles, in social media, in the news. As the change proliferates through the human system, it prompts reactions and responses in the economy, in social life, in the natural environment, and in the political and regulatory sectors. Finally, it becomes so widespread and commonplace that people take the change for granted as ‘the new normal.’

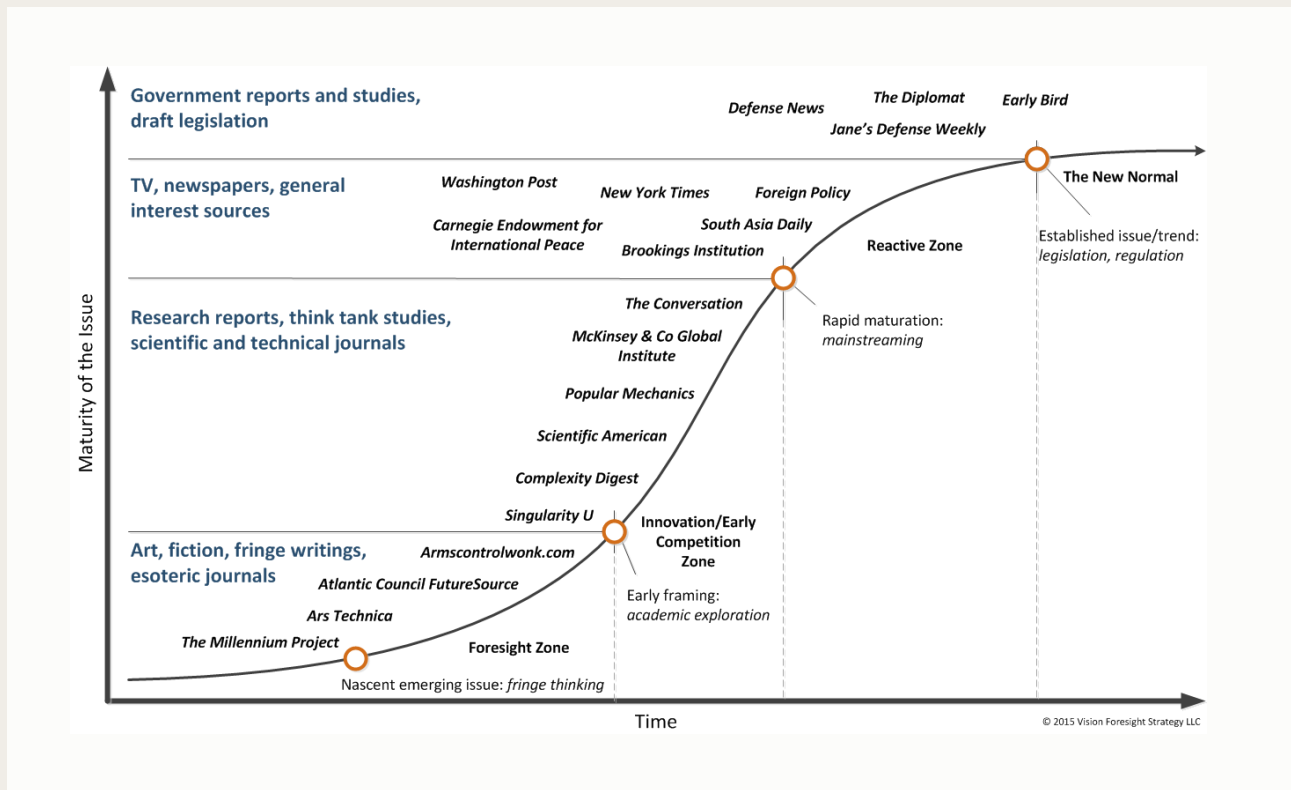


Figure 3. Example from a defence and security project that defines where to look for changes in the horizon-scanning process, sorted along the S-curve of emerging change (Dr Richard Lum, Vision Foresight Strategy LLC, 2015)

With this understanding of the life cycle of changes, and in the context of the domain or topic system map, scanning can begin. Horizon scanning comprises five basic steps:

1. Identify a diverse range of potential scan sources (**Figure 3**);
2. Design a framework or taxonomy to organise your scan data (STEEP/PESTLE/EPISTLE, etc.);
3. Establish a process and timetable to review and discuss the data you collect, and its potential relevance to your stakeholders, operations, responsibilities and topics of interest;
4. Initiate the database with three to five state-of-the-art overviews of key issues arising from changes (a ‘scan of existing scans’);
5. Confirm what you think are interesting emerging changes by collecting more examples of their occurrence.



In this project, the initial tag identified the origin of the reported change using the 'PESTLE-V' taxonomy. As scanners added changes to the database, they specified the sector from which a given change originated:

- **Politics:** shifts in political parties, platforms, policy formulations, voting patterns, issues critical to the electorate, etc.;
- **Economics:** changes in economic growth, new business models, new product or service sectors, shifts in commodities or ownership patterns, etc.;
- **Society:** shifts in demographics, migration, behaviours, culture, etc.;
- **Technology (including science and innovation):** emerging discoveries and scientific insights, new observations and data, new scientific disciplines, innovations and novel applications of existing technology, etc.;
- **Law:** new laws and regulations, new ways of applying existing laws and regulations, etc.;
- **Environment:** changes in the actual natural environment (as opposed to changes that might affect it) such as species extinction, changing weather and precipitation patterns, shifting ecological niches, increased frequency of earthquakes, etc.;
- **Values:** shifts in social priorities and worldviews within and across human communities.

Good horizon scanning ideally watches for changes emerging in all these categories. Changes can also emerge from the overlap of activities across two or more sectors.

The complete set of tags built into the scanning database for the project included:

- **PESTLE-V:** changes emerging in politics, economics, society, technology, law and regulations, the environment, or values;
- **Change S-curve (level of change maturity):** emerging (early signals, ideas still debated, few cases or observations); advancing (growing awareness and understanding, converging agreement, more occurrences); resolving (widespread public awareness, conceptual convergence, everyday occurrence);
- **Potential impacts:** potentially enabling animal health and welfare; potentially disrupting animal health and welfare; potentially both enabling and disrupting these;
- **Article keywords:** these help the researchers, as well as readers, quickly understand the change topic and how it relates to the domain map;
- **Domain map:** elements of the WOA domain map (see **Figure 2**) that the change might impact.

The scanning database currently contains 606 logged change items and is accessible for reading, review and use in discussions (**Figure 4**). Setting up a well-organised and accessible scanning database helps handle the large amounts of data that ongoing scanning uncovers.

# WOAH Animal Health & Welfare Scanning Database

SCOPE: Map emerging changes, trends, and drivers directly and indirectly affecting animal health and welfare.

TABLE VIEW PESTLE V S CURVE WOAH DOMAIN STAKEHOLDERS +

Aa Title	Article Keywords	Domain Map	PESTLE V
<a href="#">The 'Vertigo' of the Food Sector within the Triangle of Climate Change, the Post-Pandemic World, and the Russian-Ukrainian War</a>	Circular economy Blue Food	Global Food Chain Global Relationships Food systems in transition	Economic
<a href="#">What the platypus could tell us about climate change</a>	Climate Change	Animal Existential Risk Species Conservation Animal Welfare	Environmental
<a href="#">Ethical arguments concerning human-animal chimera research: a systematic review</a>	Gene Editing	Animal Regulations Animal Rights	Values
<a href="#">A quirk in animal pregnancy could help humans kill cancer cells</a>	One Health Gene Editing	Human Diseases Animal Health	Technological

Figure 4. WOAH Scanning Database

Every team-based horizon scanning activity should include regularly scheduled team meetings to discuss, clarify, cluster and tag the changes found. The scanning meeting [Miro board](#) provides an example of how this project organised team scanning discussions. Each week the project team reviewed the emerging data against the WOAH domain map, to ensure the horizon scanning was identifying changes with potential to affect all the system components (Figure 5).

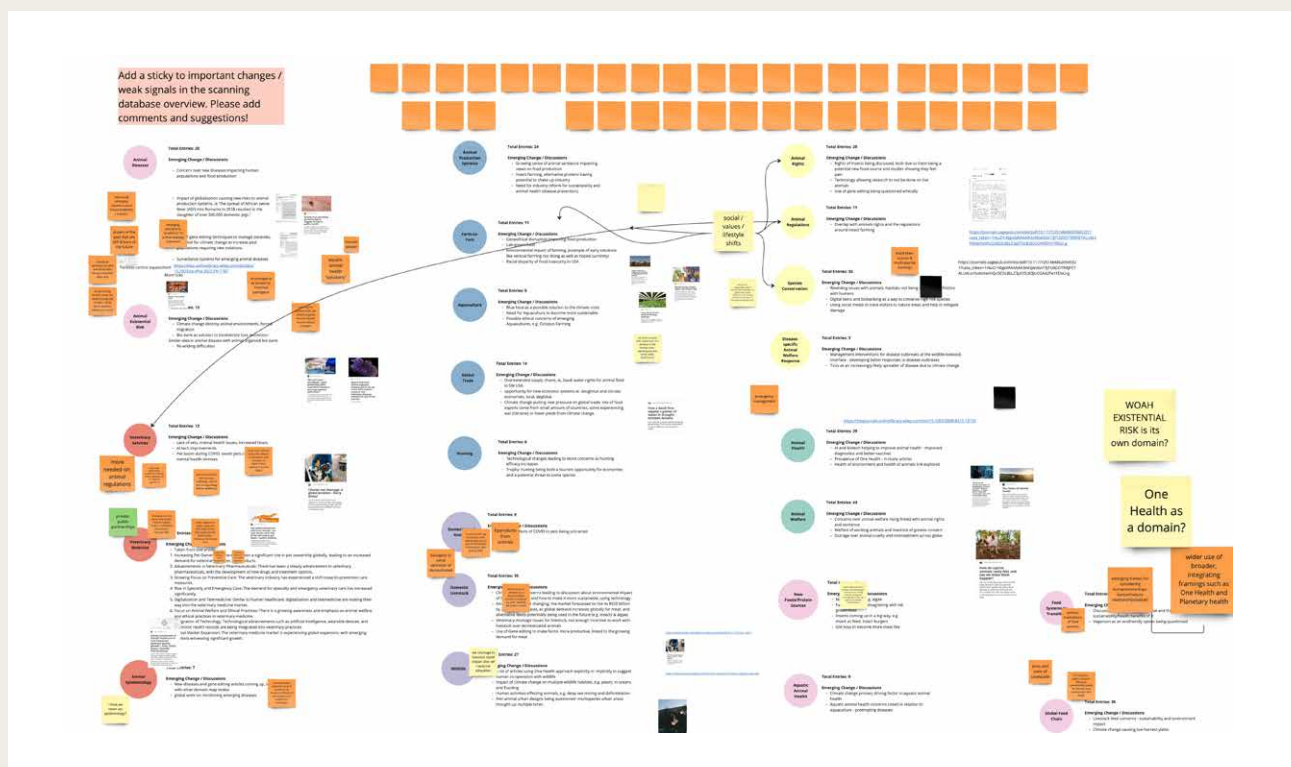


Figure 5. WOAH Scanning Review Session – [Miro Discussion Board](#) (open webpage to see larger image)

For storing and tagging scanned materials, this project used Notion software. Notion offers a multiview database where article summaries, links, reports and comments created by scanners were also collected (Figure 6). A basic scanning database might also be built in Excel; for more complex projects, multiple bespoke horizon scanning and futures research platforms are available.

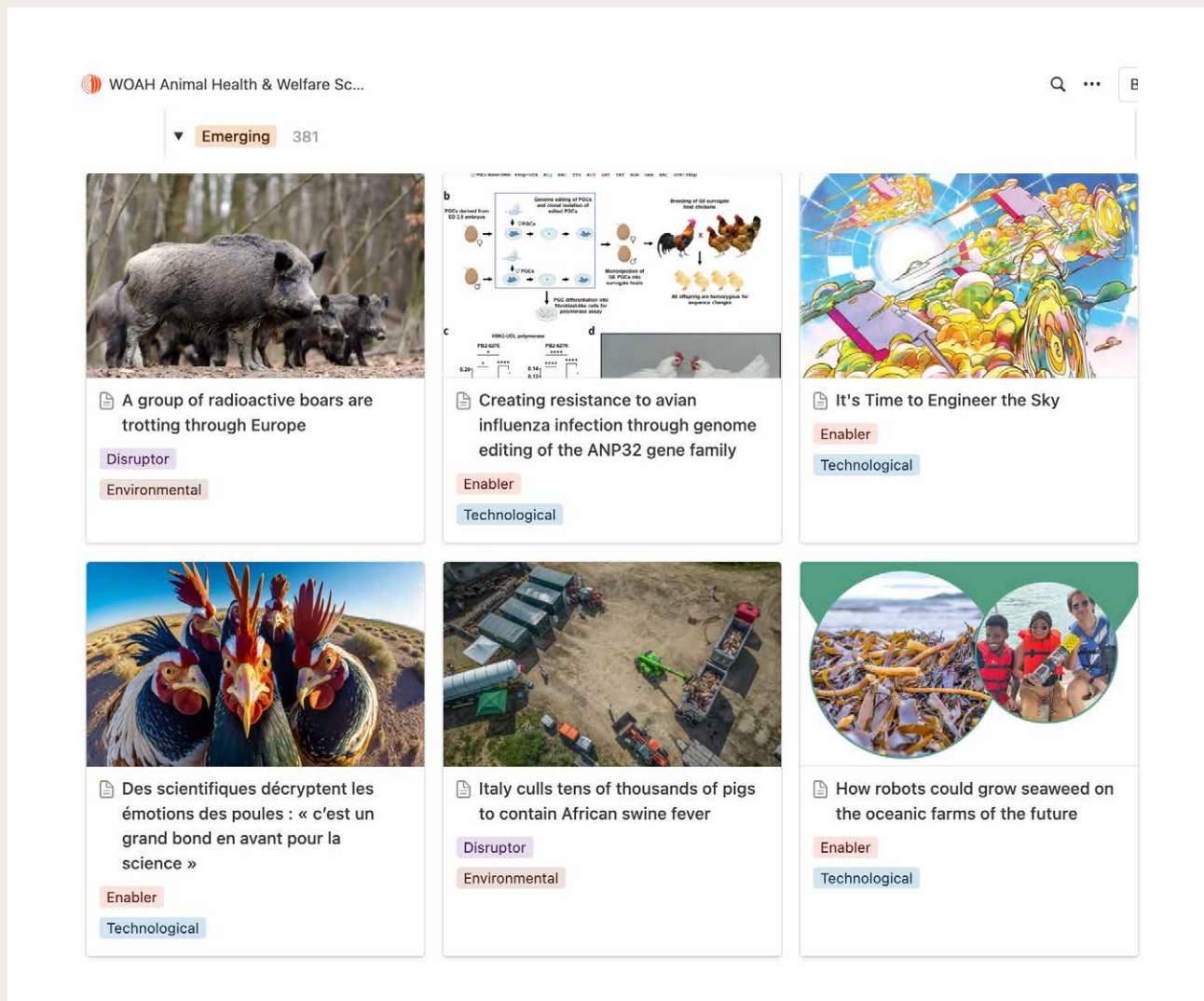


Figure 6. WOA Scanning Change Cards on Notion – [Scanning database](#)

Finally, it is important to disseminate scanning findings on a regular basis. The best outcome for a scanning process is heightened awareness of incoming changes. Broadcast the scanning findings throughout the organisation: share periodic reports; hold 'lunch and learn' sessions to discuss changes and their potential impacts on the organisation; connect with other organisations engaged in foresight and futures work to share outcomes and perspectives; feed scanning data into other foresight methods (futures wheels, scenario building); or write blog posts to keep people interested. Work to attract interest in emerging change and support conversations about its possible short-, medium-, and long-term impacts and strategic implications.

# Sense-making: prioritising trends and emerging changes

The following figure (Figure 7) illustrates the process used in the project for WOAAH, showing how scanning activities in the preceding section connect with the activities of the sense-making workshops.

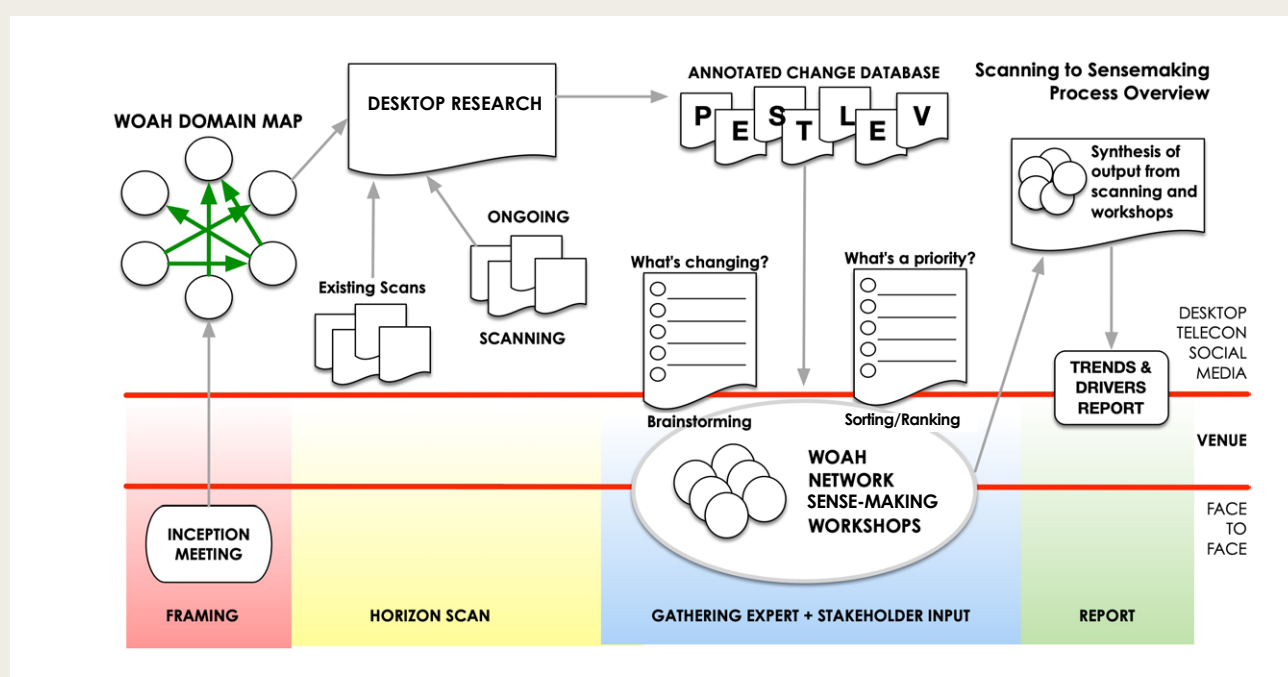


Figure 7. Roadmap of the project sense-making process

## Purpose of sense-making workshops

The sense-making workshops were designed to:

- Allow workshop participants to describe what they see as changes from their geographical and professional contexts;
- Provide a 'high-level view' of the landscape of change and introduce workshop participants to the range of changes from the horizon scanning that affect animal health and welfare generally, and WOAAH's mandate more specifically;
- Enable workshop participants to engage with the horizon scanning results and then identify, sort and prioritise the scanning data; provide an opportunity for participants to include any local trends or emerging changes they consider both highly important and highly uncertain as people with regard to WOAAH and its work.

# Structure of sense-making workshops

The following pages offer details of the design and structure of the sense-making workshops, including the step-by-step agendas for the three different parts of the workshops. Feel free to use these agendas in whatever ways that might suit the sense-making activities you want to explore. For a more detailed sense of the workshop activities and participant engagement, consult the following Miro boards that capture the workshop structure and output. You can also find a template below that allows you to re-create similar workshops on Miro.

- Results of Sense-making Workshop 1 [Miro](#)
- Results of Sense-making Workshop 2 [Miro](#)
- Workshop [Miro board template](#)

Making sense of emerging change for an intergovernmental organisation like WOAHA demands diverse perspectives. The two three-hour sense-making workshops were held online using Miro boards and were scheduled to suit participants in different time zones. These participants represented widely diverse roles and connections relative to WOAHA and were also widely distributed geographically; moreover, the facilitation supported breakout group discussions in English, French and Spanish.

The two sense-making workshops invited participants to first reflect on the changes they themselves were seeing in their work and communities. The participants had been sent the 45 key changes selected from the scanning data for advance reading; the project team also reviewed the 45 changes with the participants during the workshop when introducing the workshop activities.

These discussions enabled participants both to engage with the changes from the horizon scanning research, and to fill in gaps with regard to changes that they observed in their own local and professional contexts.

For illustrative purposes, the sense-making workshops consisted of three parts: collecting local changes, prioritising the 45 key changes identified by scanning, and mapping potential impacts of priority changes onto the WOAHA domain system map.

## Part 1: Collecting local changes

As the first foresight workshops in the project, the sense-making workshops opened by introducing participants and orientating them to the overall design of the 100th Anniversary Foresight project. As part of the introductory activities and learning about the group's geographic diversity, participants were asked 'What changes are you seeing locally?' (**Figures 7a, 7b and 7c**). In response, they added stickies to a world map to identify emerging changes, contradictions, inflection points, hacks, disruptions and game-changers they themselves had observed where they lived and worked.



Share what you are noticing out in the world where you are: could be your own experience, organisation or network. Be specific and give examples.

IMAGINE yourself as a local change journalist - what would you report on today?



**PROMPTS:**

**CONTRADICTION** - opposing forces at play simultaneously

**INFLECTION** - a major turning point or new paradigm

**HACK** - invention, bricolage, social innovation around tools and technologies

**EMERGING CHANGES** - behaviours that are becoming more pronounced

**DISRUPTION** - change that ripples through industries, practices, assumptions and experiences

**GAMECHANGERS** - technologies, functions and ideas being pushed to new limits



Figure 7a. Sharing changes seen locally



Figure 7b. Details of changes noticed locally



Figure 7c. Details of changes noticed locally

## Workshop Agenda Part 1: Collecting local changes

This agenda depicts the first hour of the three-hour online sense-making workshop. Each exercise could be expanded to broaden discussions, especially if face-to-face rather than online.

Time	Task or Subject	Facilitation Details
15 min.	<b>Facilitation Team pre-meet</b>	Sign in, set up, test technology and software (Miro digital whiteboard, breakout groups, etc.).
5 min.	<b>Facilitator introductions</b>	Welcome the participants, introduce the facilitation team, introduce the Miro workspace.
5 min.	<b>Participant introductions</b>	Ask participants to locate themselves on the world map and share their name, location and affiliation.
5 min.	<b>Project introduction</b>	Introduce the objectives of this workshop in the context of the overall project.
10 min.	<b>Foresight 101</b>	Offer a high-level summary of the foresight process, focused on methods to scan for changes and for sense-making activities.
20 min.	<b>Breakout: gather, compare and contrast local changes</b>	<p>Facilitate mixed breakout groups collecting local changes on the Miro world map. What changes are you seeing where you live and work? They may take many forms, e.g.:</p> <p><b>CONTRADICTIONS:</b> opposing forces at play simultaneously</p> <p><b>INFLECTIONS:</b> major turning points or new paradigms</p> <p><b>HACKS:</b> inventions, bricolage or social innovations around tools, technologies or behaviours</p> <p><b>EMERGING CHANGES:</b> novel behaviours that are becoming more widespread</p> <p><b>DISRUPTIONS:</b> changes that ripple through industries, practices, assumptions and experiences</p> <p><b>GAME CHANGERS:</b> technologies, functions and ideas being pushed to new limits</p>
15 min.	<b>Plenary: review of local changes collected</b>	The facilitator screenshares the world map of changes and highlights five to eight changes for open discussion.
10 min.	<b>BREAK</b>	Encourage people to get up and step away from the computer. Play music/break slides.

## Part 2: Prioritising changes

In preparation for the workshops, 45 emerging changes from the scanning database were chosen by the project and workshop designers. The selection of these changes from the database started with over 100 changes tagged as 'emerging' and representing a mix of PESTLE-V categories. This first cut of roughly 100 changes was then narrowed down to 45: those changes seen as potentially most relevant to the animal health and welfare community while including a good mix of critical, globally significant and outlier changes.

The selected 45 changes were written up as 'change cards' that summarised each change, included relevant article citations, and raised provocative questions to help spark conversations. These 45 changes are detailed in the publication '[Key Certainties and Uncertainties in Animal Health and Welfare – Using Horizon Scanning and Sense-making to Consider Drivers of Change](#)'.

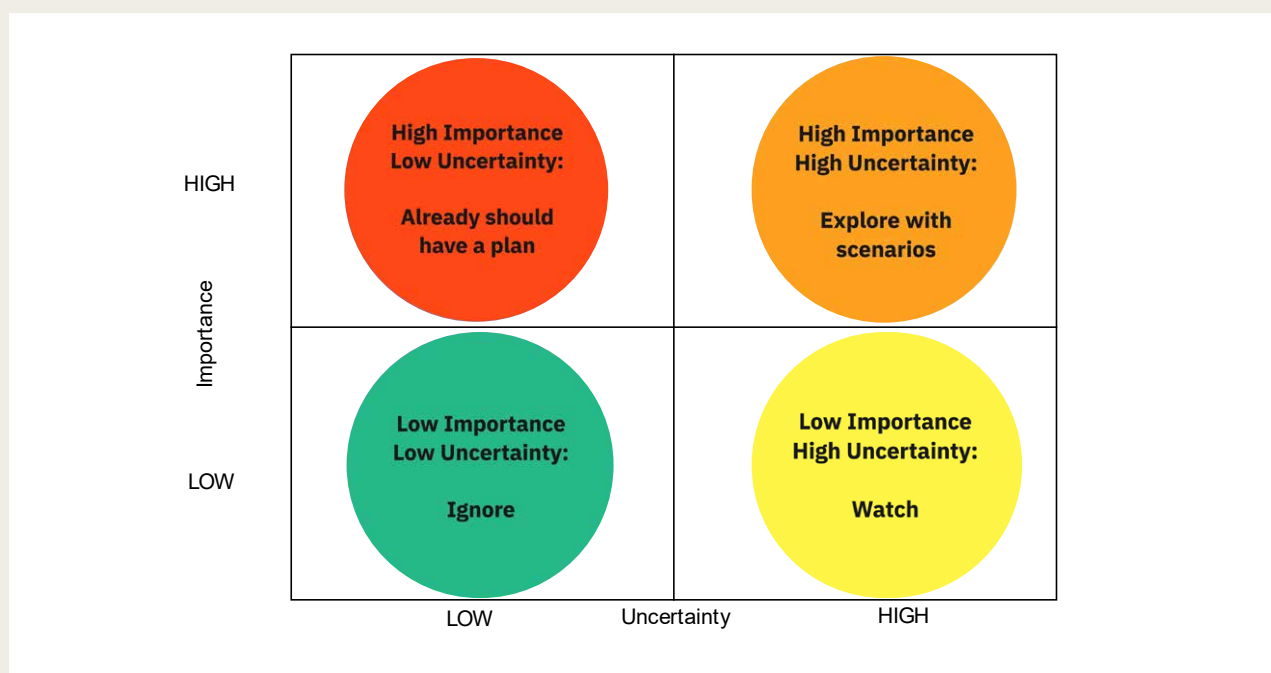


Figure 8. Uncertainty/Importance Matrix

The second task in the sense-making workshop involved asking participants (in the same groups) to review the 45 change cards based on the description of each change and the discussion questions included. Participants were asked to consider the 45 changes in terms of emerging uncertainties, possible future outcomes and implications for WOA. The Change Uncertainty and Importance Matrix (Figure 8) provided a scoring mechanism to help prioritise the changes:

- If a change's uncertainty level was low (that is, it was likely to happen and its outcomes were well-understood) and it was thought to be of low importance to WOA, it could be ignored. Participants who felt this way about the change tagged it with a *green dot*.
- If a change's uncertainty level was high, but it was currently of low importance to WOA, it was flagged as in need of being watched. The uncertainty of how it might play out could mean that its potential impacts on, and importance to, WOA might evolve over time. Participants who felt this way about the change tagged it with a *yellow dot*.



- If a change's uncertainty level was low (that is, it was likely to happen and its outcomes were well-understood) and it was thought to be of high importance to WOA, then the organisation should *already have a plan* to address it. Participants who felt this way about the change tagged it with a *red dot*.
- If a change's uncertainty level was high and it was thought to be potentially of high importance to WOA, then the organisation should acknowledge its potential for different outcomes and impacts and *explore it with scenarios*. Participants who felt this way about the change tagged it with an *orange dot*.

During this workshop, the breakout groups discussed each change and voted on its priority as a group; in smaller workshops or discussions it might also work to let participants vote individually (Figure 9).



Figure 9. Voting on priorities

## Workshop Agenda Part 2: Prioritising change

This agenda depicts the second hour of the three-hour online sense-making workshop. Each exercise could be expanded to broaden discussions, especially if workshops are held face-to-face rather than online.

Time	Task or Subject	Facilitation Details
30 min.	<b>Breakout: change prioritisation</b>	<p>Facilitator introduces the uncertainty and importance matrix, the change cards, and the dot 'voting' mechanism for categorising each change: <i>ignore</i>, <i>watch</i>, <i>should have a plan</i>, or <i>explore with scenarios</i>, as explained above.</p> <p>Participants reconvene into their previous breakout groups. Individuals nominate changes to consider, discuss as a group and then categorise – or 'vote' – using the coloured dots system corresponding to the uncertainty matrix. Each breakout group repeats this process for as many changes as time allows.</p> <p>It is important to note that letting groups choose which changes they want to discuss, rather than distributing changes across the available groups, may mean that some changes are not addressed. This acts as an implicit first filter of prioritisation. Any changes with no priority dot votes were not considered interesting or significant enough to discuss.</p>
15 min.	<b>Plenary: review of categorising/ voting and discussion</b>	<p>The Facilitator screenshares the Miro board showing the changes and the voting results, then reviews the voting outcomes. First, where did participants primarily agree on categorising the change, whether <i>ignore</i>, <i>watch</i>, <i>plan</i>, or <i>explore</i>? Highlight those changes that earned the most explore votes. Second, consider changes where participants broadly disagreed on the category, and discuss – for example, why did a change earn an <i>ignore</i> from some people, while others voted <i>watch</i>, or <i>plan</i>, or <i>explore</i>? Why did categorisations differ? Note if the resulting discussion affects the overall categorisation of the change. Finally, the facilitator highlights those changes seen as the most dynamic, that is, those with the most votes for the action 'explore with scenarios'.</p>
10 min.	<b>BREAK</b>	<p>Encourage people to get up and step away from the computer. Play music/break slides. Facilitators also use this break to duplicate a set of <i>dynamic</i> changes selected, to be used in the next part of the workshop (impact mapping).</p>

### Part 3: Impact mapping

In the third and final section of each sense-making workshop, participants were presented with the changes they had selected as ‘High Importance – High Uncertainty’ and were asked to place them on the domain map of WOA responsibilities and interests, considering where they would have the greatest initial impact (Figure 10). The aim was to connect these most significant changes back to their daily work and visualise connections with WOA and beyond.

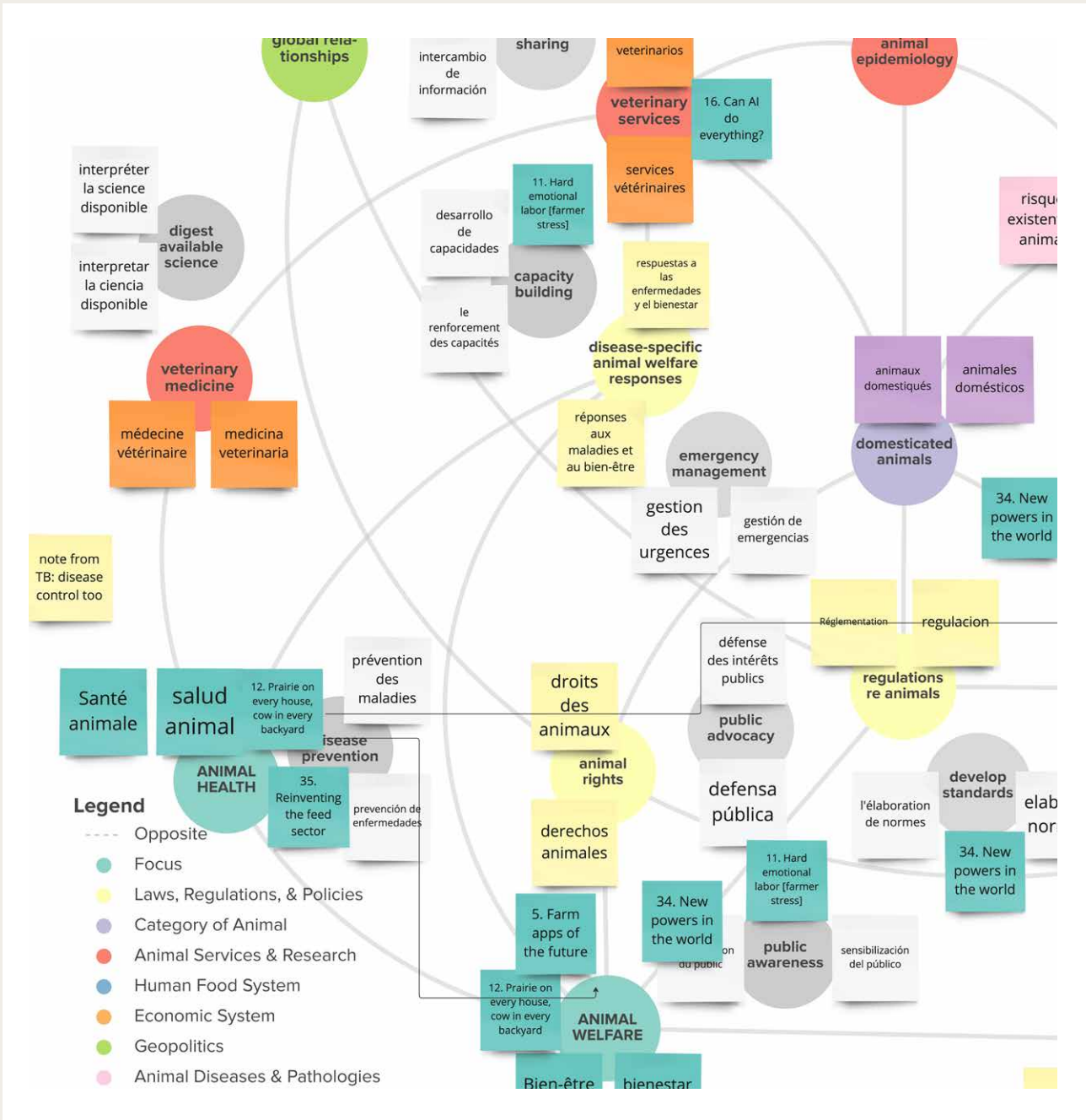


Figure 10. Impact Mapping

## Workshop Agenda Part 3: Impact mapping

This agenda depicts the third hour of the three-hour online sense-making workshop. Each exercise could be expanded to broaden discussions, especially if workshops are held face-to-face rather than online.

Time	Task or Subject	Facilitation Details
5 min.	<b>Interim overview and Q&amp;A</b>	Check for energy levels among the group, satisfaction with the pace of activities, understanding of the flow of activities, and where we are on the agenda; recap what steps we have completed.
15 min.	<b>Introduction to System Map</b>	Facilitator briefly introduces the approach to systems mapping topics, describes the WOA domain system map and its role within the project.
20 min.	<b>Plenary exercise: annotating Systems Map with dynamic changes</b>	<p>During the break, the facilitation team has duplicated all the changes voted 'high importance – high uncertainty' onto stickie notes, to create a grouping of the <i>dynamic</i> changes, and made them available above the domain system map.</p> <p>Facilitator selects one of the <i>dynamic</i> 'high importance – high uncertainty' change stickies from the prioritisation results to use as an example, and places it on the domain system map to indicate where it is likely to affect the system first.</p> <p>Facilitator then opens the floor to suggestions about where the other priority changes might impact the system first and encourages participants to place changes on the map themselves.</p> <p>The placement of each change is then briefly discussed by the group.</p>
5 min.	<b>Closing</b>	Facilitator closes the session by asking for brief feedback and comments from the participants.

The outputs of this phase of the project then served as inputs for both the [Scenario Building](#) workshops which followed and, later, the [Adaptive Actions](#) workshops. In addition, the 45 changes and their associated workshop discussions informed the publication '[Key Certainties and Uncertainties in Animal Health and Welfare – Using Horizon Scanning and Sense-making to Consider Drivers of Change](#)', as well as materials for engagement around 100th anniversary events.

# Scenario Building: imagining possible futures

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## Purpose of scenario-building workshops

The scenario-building workshops were designed to:

- Allow workshop participants to connect with how they feel about emerging changes, their impacts, and the potential futures that might result;
- Learn to think through potential cascades of impacts arising from individual changes;
- Systemically explore how futures emerge from the collision and interconnection of multiple changes and the impacts they create, both good and bad;
- Depict the details and emerging stories that arise from colliding changes, and consider how daily life, work and organisations like WOAHA might change in the context of different futures.

## Structure of scenario-building workshops

The following pages offer details on the design and structure of the scenario-building workshops, including the step-by-step agendas for the four different parts of these workshops. Feel free to use the agendas in whatever ways suit scenario-building activities that you wish to organise.

For a more detailed sense of the workshop activities and participant engagement, consult the Miro boards that capture the workshop structure and output. In addition, there is a template to re-create similar workshops on Miro. For this activity, a link is also provided to the 'Writers' Room' Miro board, which illustrates how the facilitators constructed the narratives and stories for each of the five scenarios.

- Participatory Workshop Boards
  - Workshop Miro board template – [Miro](#)
  - Results of Scenario-Building Workshop 1 – [Miro](#)
  - Results of Scenario-Building Workshop 2 – [Miro](#)
- Scenarios Sense-making & Writers' Room – [Miro Board](#)

Scenarios of alternative futures offer a creative and critical thinking space to reflect on the potential for different possible outcomes to emerge from patterns of change. Their uses include contingency planning, strategy formulation, innovation and creative design, and reflective critique of present conditions. Scenarios are used to challenge our assumptions about the continuity of 'business as usual' and to consider how the turbulence of change might disrupt what is taken for granted today.



The scenario-building workshops drew on the output of the sense-making workshops to create key resources for the Adaptive Actions workshops. Out of the numerous scenario-building methods available, the project team chose the Mānoa method. Change is not binary: it is not an either/or proposition. The present we experience evolved from multiple overlapping changes and their colliding and interconnecting impacts. The Mānoa approach to scenario building reflects that understanding of multiple overlapping changes and offers opportunities to explore such interconnections across critical changes and the impact cascades they generate.

Fifteen of the change cards prioritised as important and uncertain during the sense-making workshops were selected as input for the Mānoa method. This generated five sets of three critical changes to explore. Since the Mānoa method builds scenarios from a minimum of three different changes and their impact cascades, it yielded five different scenarios that each described alternative futures. The stories of these five alternative futures can be found in the [annex](#) and include the three specific changes that drove the emergence of each scenario.

For illustrative purposes, the scenario-building workshops consisted of four parts: reflecting on how we feel about the future and learning about the Mānoa scenario-building method; generating three futures wheels depicting impact cascades from three different changes; interconnecting the change impacts to weave emerging details of a possible future; and sharing the emergent scenario stories.

## Part 1: Feelings about the future

This part of the workshop opened by welcoming participants back, re-introducing the facilitation team and participants, and initiating an icebreaker exercise (**Figure 11**) that asks them to characterise their relationship to the future. How do they currently feel about it: *Anxious?* *Concerned?* *Cautious?* *Curious?* *Excited?*

The facilitator then introduced the Mānoa scenario-building method and walked participants through an example.

**Find your name on a stickie and place it in the area that best describes your current relationship to the future.**

**Anxious**  
Uncertainty worries me as does thinking about the future, along with my images of what the future may look like

**Anxieux/Anxieuse**  
L'incertidumbre me preocupa, tout comme le fait de penser à l'avenir, ainsi que les images que je me fais de l'avenir.

**Ansioso**  
la incertidumbre me preocupa, al igual que pensar en el futuro y las imágenes que tengo de él.

**Concerned**  
Understanding that the future cannot be known, but rather may shaped by actions in the present, I am open to seeing how this might be possible.

**Préoccupé/Préoccupée**  
Je comprends que l'avenir ne peut être connu, mais qu'il peut être façonné par des actions dans le présent, et je suis ouvert à l'idée de voir comment cela pourrait être possible.

**Preocupado**  
entiendo que el futuro no se puede conocer, pero que se puede moldear con acciones en el presente, y estoy abierto a ver cómo esto puede ser posible.

**Cautious**  
I am hesitant to intervene, interfere, or influence things that could have an impact on the future, but I am interested in being guided through.

**Prudent/Prudente**  
J'hésite à intervenir, à interférer ou à influencer les choses qui pourraient avoir un impact sur l'avenir, mais je suis intéressé par le fait d'être guidé.

**Cauteloso**  
Soy reacio a intervenir, interferir o influir en cosas que puedan tener un impacto en el futuro, pero me interesa que me guíen.

**Curious**  
I am interested in exploring the ways in which I can navigate futures and to hone my intrinsic anticipatory skills in the work that I do.

**Curieux/Curieuse**  
Je souhaite explorer les façons dont je peux naviguer dans l'avenir et perfectionner mes compétences intrinsèques en matière d'anticipation dans le cadre de mon travail.

**Curioso**  
Quiero explorar las formas en que puedo navegar por el futuro y desarrollar mis habilidades intrínsecas de anticipación como parte de mi trabajo.

**Excited**  
I am excited by the possibilities change creates! I see the value of exploring our potential futures today and want to learn how to incorporate this thinking into my area of responsibility.

**Enthousiaste**  
Je suis enthousiasmé/e par les possibilités que le changement crée ! Je vois la valeur de l'exploration de nos futurs potentiels aujourd'hui et je veux apprendre à incorporer cette pensée dans mon domaine de responsabilité.

**Entusiasta**  
Me entusiasman las posibilidades que crea el cambio. Veo el valor de explorar nuestros futuros potenciales hoy y quiero aprender a incorporar este pensamiento a mi área de responsabilidad.

Figure 11. Icebreaking exercise

## Workshop Agenda Part 1: Feelings about the future

This agenda depicts the second hour of the three-hour online sense-making workshop. Each exercise could be expanded to broaden discussions, especially if workshops are held face-to-face rather than online.

Time	Task or Subject	Facilitation Details
15 min. prior	<b>Facilitation Team pre-meet</b>	Sign in, setup, test technology and software (Miro, breakout groups, etc.).
5 min.	<b>Facilitator introductions</b>	Welcome participants, re-introduce the facilitation team and introduce the Miro workspace for this workshop's activities.
5 min.	<b>Feelings about the future – continuum/ check-in (icebreaker)</b>	Facilitator should share the screen and ask participants to locate their names on a stickie (digital post-it note) and place it (with help from facilitators if necessary) on the continuum of feelings about the future (see <b>Figure 11</b> ). Keep it quick and energetic: their name, affiliation and their relationship with the future (feeling about the future).
5 min.	<b>Project progress review</b>	Provide an update on project progress, along with a description of the primary task of building scenarios.
10 min.	<b>Explanation of Mānoa Method</b>	Briefly explain the Mānoa scenario-building method.
25 min.	<b>Plenary: Mānoa Method practice session</b>	Methodically guide participants through the process of Mānoa scenario building using a workspace pre-populated with three key changes. Encourage participants to contribute either on the Miro board or in Zoom chat and audio.
10 min.	<b>BREAK</b>	Encourage people to get up, step away from the computer. Play music/break slides.

## Part 2: From changes to impact cascades

In this part of the workshop, participants were split into breakout groups of four to six people; each workspace on the Miro board had three pre-chosen change cards, each placed at the centre of a futures wheel.

These three changes each represented a **different PESTLE-V category**. The Mānoa approach emphasises that the flagged changes should come from different sectors of human and natural activity, in order to generate a diverse range of impacts, disruptions and transformations with broad effects on our world. These futures are meant to maximise difference from the present: they should offer a counterpoint to business-as-usual assumptions.



Figure 12. Details of a Futures Wheel

### Create a futures wheel based on each change

Participants then considered each assigned change one by one (Figure 12). They brainstormed five to seven primary impacts of each change, being specific: they considered the impact of the change on daily life and work. Next, for each primary impact associated with a given change, participants brainstormed an additional three secondary impacts. Finally, if any tertiary impacts arose in their discussion, they listed those as well. In the final step, participants looked for connections – did any of the impacts support or link to each other? The facilitators reminded participants to be specific and detailed in describing impacts, and to push their descriptions to extreme, if logical, conclusions to depict cascades of change over thirty years.



## Workshop Agenda Part 2: From changes to impact cascades

This agenda depicts the second hour of the three-hour online sense-making workshop. Each exercise could be expanded to broaden discussions, especially if workshops are held face-to-face rather than online.

Time	Task or Subject	Facilitation Details
5 min.	<b>Introduce participant groups and workspaces</b>	Remind participants to focus on their assigned three changes, while remaining free to pull in details from other highly important and certain changes. Emphasise disruptions and transformations: changes that mark a rupture from the present.
20 min.	<b>Participants complete first futures wheel</b>	<p>Each group works its way through the cascades of impact from the first change, using the futures wheel template. Facilitators can help capture input to stickies if necessary.</p> <p>Conversation should be light and lively, refraining from the analytical. Encourage disagreement: brainstorm rather than discuss. Different participants may offer seemingly contradictory impacts, and this is fine; the actual changes we observe on a daily basis present different outcomes and contradictions depending upon where they occur, and to whom.</p> <p>Participants should feel free to incorporate other changes, e.g. assume ongoing climate change and/or technological advances: we are building up a mosaic of details.</p> <p>Encourage participants to include impacts that are positive as well as negative. Keep in mind that problems are not being solved here, nor are predictions being made: the exercise instead represents an exploration of possibilities.</p>
15 min.	<b>Participants complete second futures wheel</b>	Repeat as above (participants should require less time after getting used to the task).
15 min.	<b>Participants complete third futures wheel</b>	Repeat as above (participants should require less time after getting used to the task).
10 min.	<b>BREAK</b>	Encourage people to get up and step away from the computer. Play music during the break.

### Part 3: Interconnecting impacts to weave futures

In the third section of the workshop, participants reviewed the futures wheels they generated for their three assigned changes (Figure 13). They then imagined a future time when each of the changes, and all their associated impacts, would occur at the same time, and explored how all those changes might collide. How would the impacts from one futures wheel interconnect with impacts from the other two? Specifically, they were asked to consider the following:

- How will all the impacts affect each other?
- What new patterns result?
- What new opportunities or threats might arise?

Participants were then invited to imagine living in a future world where all changes and their impacts exist simultaneously, and to think about how life would be different. Finally, they worked to characterise their emerging scenario with a few summary details:

- Imagine two or three headlines that sum up the tenor of the future;
- Create a slogan that captures the essence of the scenario, and
- Give the scenario a title.

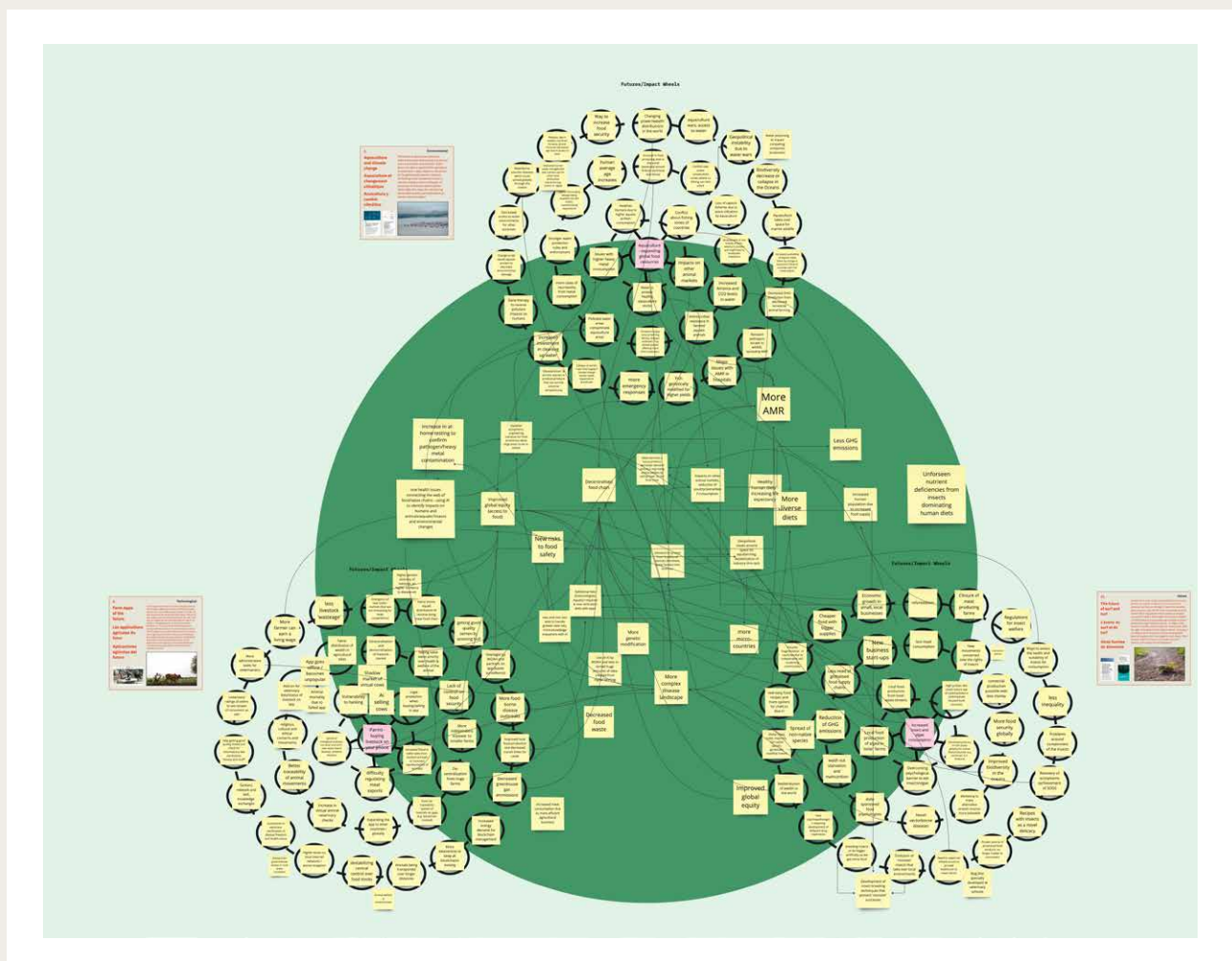


Figure 13. The three futures wheels for assigned changes

## Workshop Agenda Part 3: Interconnecting Impacts to Weave Futures

This agenda depicts the third hour of the four-hour online scenario building workshop. Each exercise could be expanded to deepen discussions, especially if workshops are held face-to-face rather than online.

Time	Task or Subject	Facilitation Details
5 min.	<b>Regroup &amp; set next task: Interconnections</b>	Check for participants' comfort with the rhythm of activities and their pace, then explain the next breakout group activity: interconnecting impacts and systems; exploring how critical actors and systems would respond to the new environment. Send participants back into groups.
15 min.	<b>Exploring interconnections</b>	In groups, Facilitators ask everyone to suggest how the impacts arising from all three futures wheels might combine to create new impacts, events, changes or surprises. Assume everything mapped on all three futures wheels is happening. What does this future look like? What else has changed? What new products, services, habits have emerged?
20 min.	<b>Answering WOAHA focus questions</b>	Guide participants towards WOAHA interests via the question prompts within the Miro worksheet. What does this very different future environment mean for WOAHA and its concerns? E.g.: In this future, what do Veterinary Services look like? What are the most extreme animal health and welfare crises in this future? What is the biggest shift that has occurred with regard to humans' relationship to animals? What is the role of WOAHA in this future?
20 min.	<b>Imagining events, buzz, artefacts, metaphors and naming this future</b>	To get a feel for life in this imagined future, the Facilitator invites participants to suggest news headlines, social media memes, and common new artefacts/products/services. To start creating a basis for the scenario's narrative, participants are invited to describe a few tensions, risks and opportunities as well as interesting initiatives that have arisen. Participants can also imagine a range of characters who live in this future. The point is to describe and collect as many prospective details as participants can imagine to help create a vivid story of this future. The Facilitator concludes by inviting participants to suggest a possible title or name for this future.
10 min.	<b>BREAK</b>	Encourage participants to get up and step away from their computers. Play music/break slides.

## Part 4: Sharing emergent scenario stories

The previous workshop activities created diverse scenarios that offer a glimpse of what life in very different futures might feel like: the experiences people might have in a world transformed by a specific set of changes, and the new demands and opportunities they might face in their professional lives. While not yet forming complete narrative scenarios, enough details emerged for participants to characterise the general ‘feel’ of life and work in the futures they have imagined.

This final section of the scenario-building workshop asked groups to share vivid details of their futures, focusing particularly on details that are very different from the present (Figure 14). The group reflected on the five different futures to identify common themes and the most unique differences.

The workshop ended as participants revisited their relationship with the future (see Figure 11, icebreaking exercise), after having explored changes and imagined very different future worlds.

**In this future, what...**

**Do veterinary services look like?**

- Better Data/Tech skills
- More digital? e-vet
- Need standards for bug vets and bug diseases
- More aquatic vets and related technicians
- Decentralised, more distributed
- Decreased need for terrestrial animal veterinary services
- More focused on understanding of the health complex
- More diversified
- More business advice than healthcare service

**Are the most extreme animal health & welfare crises?**

- Mass mortality events in bugs and algae cultures lead to loss of feed supplies for humans and animals
- Climate change effects: extreme weather
- Stamping out of AMR infected farms
- Animals being genetically modified for higher production
- More AMR leads to higher mortality in both humans and animals
- Containment issues of insects mean invasive species invade continents
- Genetically modified insects take over the world
- Collapse of supporting ecosystems

**Is the biggest shift in humans relationship to animals?**

- Improved respect for biodiversity and value on animal life
- Reduced meat animal conflicts if insects become food
- Improved respect for biodiversity and value on animal life
- Value shifts as people start to consume insects and question fish & insect rights
- 'Consumers' get closer to livestock, as food production is more local
- Improved respect for biodiversity and value on animal life

**Is the role of WOAH in this future?**

- WOAH using AI/humans to survive huge amounts of data created from digital farming practices
- Guidelines for more effective and healthier aquaculture and bug culture practice, and monitoring new zoonotic diseases from this
- Expansion of scope to include back-meat diseases (zoonotic diseases)
- Increased collaboration with member countries to enable equitable global development of new food sources
- Strong collaborative integration with other organisations in One Health, in particular on AMR
- Coordination, setting standards and higher-level oversight

**Manifestations of this future**

**FUTURE WOAH BULLETIN**  
What are the latest news headlines in this future scenario? Who's making the news?

- Beef stake auctioning for \$1000..
- Human sewage causes disease by polluting aquaculture
- Fish farms in Thailand collapse due to pollution
- Monster bugs slayed by AI driven spiders
- Where can you still go to the beach without swimming into an aquafarm?
- Farmed locusts escape and ruin surrounding ecosystems
- Farmed exotic spiders escape from facility
- Lower high protein. Algae species that will mix with early bug-like meals

**SOCIAL MEDIA BUZZ**  
What's the public talking about in this future scenario? Who are the new influencers?

- Influencers become advocates for insect/fish rights
- Angry livestock farmers
- Cookbooks for insect recipes
- High levels of good nutrients in fish from small island ventures
- save Bugs campaign
- Decline in insecticide use, replacing it with 'bug-free' body-quake high.
- Eating meat is expensive and a luxury, becoming a status symbol
- Influencers use AI bots
- AMR is a conspiracy!
- cricket smoothie with friends

**ARTIFACTS**  
What's the one thing no one can do without? Who is making it?

- seaweed delicacies are making a comeback
- insect feed for other livestock
- Local cattle trade app
- Bags of crunchy grasshoppers
- App to trace where your food really came from
- Chelating medication to flush the heavy metals out of your body

**WHAT DO WE CALL THIS SCENARIO?**  
Give it a descriptive, yet catchy name

- The new livestock: underwater, virtual, and tiny
- Apps, Bugs and Algae, saving the world one tiny byte at a time
- Maximising the world's food resources
- Food all over the place (decentralised and local)

Figure 14. Storyboard for building a scenario

## Workshop Agenda Part 4: Sharing emergent scenario stories

This agenda details the fourth hour of the four-hour online scenario-building workshop. Each exercise could be expanded to broaden discussions, especially if face-to-face rather than online.

Time	Task or Subject	Facilitation Details
5 min.	<b>Setting up Story Time</b>	Facilitator frames how participants will tell the stories of the emerging scenarios and asks participants from each group to describe how their story differs from the present. Each group nominates one participant to represent the group (or if preferred, the group Facilitator) and to summarise the future scenario created.
20 min.	<b>Groups share scenarios via headlines, artefacts</b>	Ask the group representative to remind the plenary of the three changes explored, while highlighting news events, memes, artefacts and the suggested title of the future story.
15 min.	<b>Debrief, additions, questions, discussions</b>	<p>Facilitator opens the floor to questions and comments, capturing key information on stickies on the Miro board.</p> <p>Rerun the 'Relationship to the Future' icebreaker from the start of the workshop: how have participants' placements on the continuum of feelings changed after exploring emergent futures? Are they more or less anxious, concerned, cautious, curious or excited? Have they shifted from anxious to curious? Or from anxious to excited?</p>
5 min.	<b>Build momentum to the end; next steps, and close</b>	Facilitators recap the workshop and describe how the scenarios will be used in subsequent workshops and WOA activities. Close the workshop by thanking participants for their contributions and indicate that the Miro boards will stay open for other commentary.



# Writing scenarios

While the scenario-building workshops provided storylines and some details for projected futures, the project team drafted the stories in a 'writers' room' on a [Miro board](#). The Facilitators who led each of the breakout groups were assigned to write up the draft scenario for their group (**Figure 15**).

Scenario writers were given the following basic instructions: Keep the text under 1,000 words in English (if possible) and write the scenarios as a journey from the present through time to 2050, taking into account the unfolding impacts depicted in the futures wheels. Sketch how projected changes would transform or disrupt systems, and what these impacts would mean for specific people and organisations, in specific places. What problems would arise? What innovations would arise, and how might they be used?

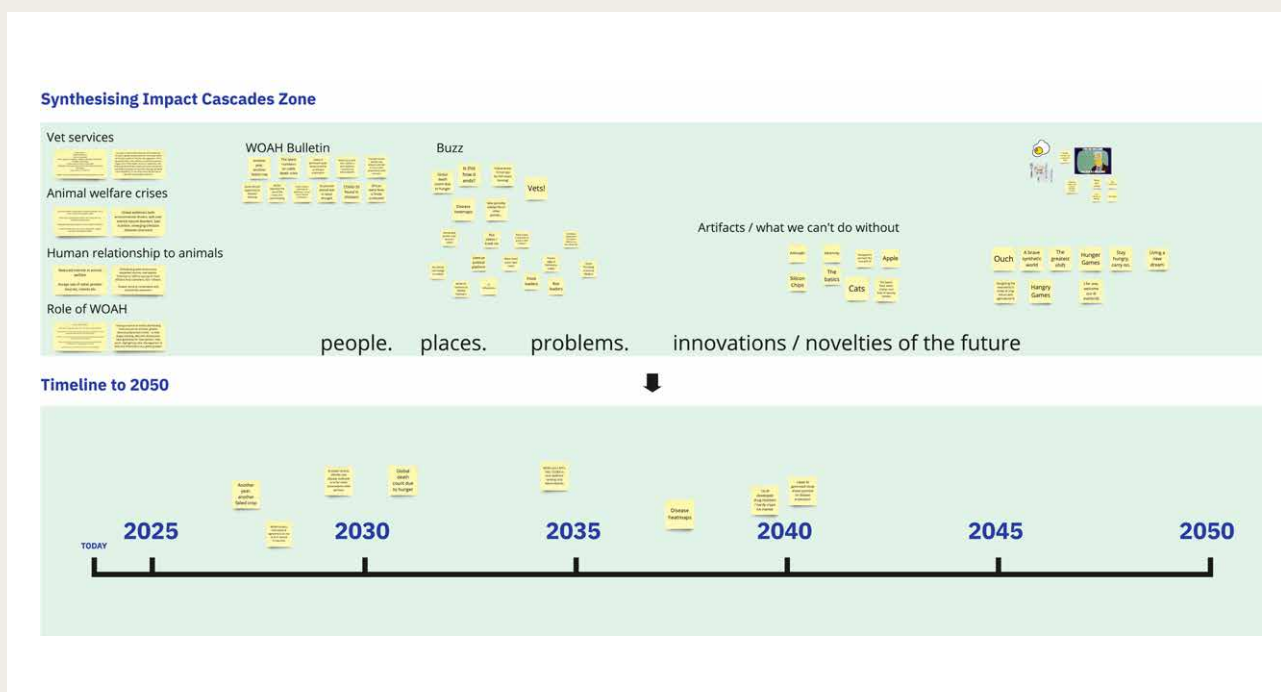


Figure 15. Story board set up for scenario writers

# Adaptive Actions: exploring responses and strategies



Figure 16. Adaptive Actions workshop example

## Purpose of Adaptive Actions workshops

The Adaptive Actions workshops were designed to:

- Explore the challenges posed by the different conditions of the five scenarios for national Veterinary Services and WOA;
- Focus more on suggesting Adaptive Actions for resilience than on formal strategy creation, as part of the overall project goal to build foresight capacity and thus cultivate situational awareness of existing and/or emerging changes, opportunities or disruptions;
- Reflect on how WOA staff and partners will adapt to changing conditions.

## Structure of Adaptive Actions workshops

The following section offers details around the design and structure of the Adaptive Actions workshops, including the step-by-step agendas for the three different parts of the workshops. Feel free to use the agendas in whatever ways suit the Adaptive Actions explorations you wish to organise.

For a more detailed sense of the workshop activities and participant engagement, consult the Miro boards that capture the workshop structure and output. In addition, there is a template to re-create similar workshops on Miro.

- Participatory Workshop Boards
  - Adaptive Actions Workshop [Miro](#) template
  - Results of Adaptive Actions Workshop 1 [Miro](#)
  - Results of Adaptive Actions Workshop 2 [Miro](#)

All the future scenarios pose challenges for national Veterinary Services and WOAAH. As we project ourselves into these futures, what are we doing to mitigate negative impacts, adapt to the conditions in these very different futures, or thrive alongside the new opportunities each future might present? What new resources and knowledge are required to do so? Who needs to be a part of the network or community (see **Figure 16**)?

For the Adaptive Actions workshops, the project team provided workshop participants with all five scenarios in advance of the workshops, along with four questions to consider:

- How would you adapt to this future?
- How would you mitigate the downsides of this scenario?
- How would you create opportunities from the upsides in this scenario in order to thrive?
- What should we be doing today to prepare for this future?

It is recommended to keep the wording of the questions or lines of inquiry simple. From the experience of the workshops, some participants were confused over the difference between terms like 'adapt' and 'mitigate'. An alternate question might be, 'What would you do in these circumstances?' Participants could then discuss mitigating any adverse conditions the future presents as a form of contingency planning.

Another prompt useful for initiating adaptive actions discussion includes asking participants to 'step into the future' and to imagine what they'd be doing and how they'd react to the conditions/changes, using the following definitions for 'mitigate', 'adapt' and 'thrive':

- **Mitigate:** What changes or impacts need to be stopped or blocked?
- **Adapt:** What actions can be taken to 'roll with it/go with the flow' in the face of what is happening?
- **Thrive:** What actions can be taken to 'build/transform' in the face of what is happening?



## Part 1: Agency to act on the future

The final workshops in the Foresight Project opened by welcoming participants back into the workspace, reintroducing each other and sharing our own hopes for the new year via a chat waterfall on Zoom. Through this platform, everyone expressed their deep hope for the year via chat, but refrained from hitting 'enter' until the Facilitator gave the transmit signal, resulting in a cascade of hopes scrolling in the chat window.

The Facilitators then reviewed their progress through the previous workshops. They explained the steps remaining in the project and how the Adaptive Actions workshop would fit into that process.

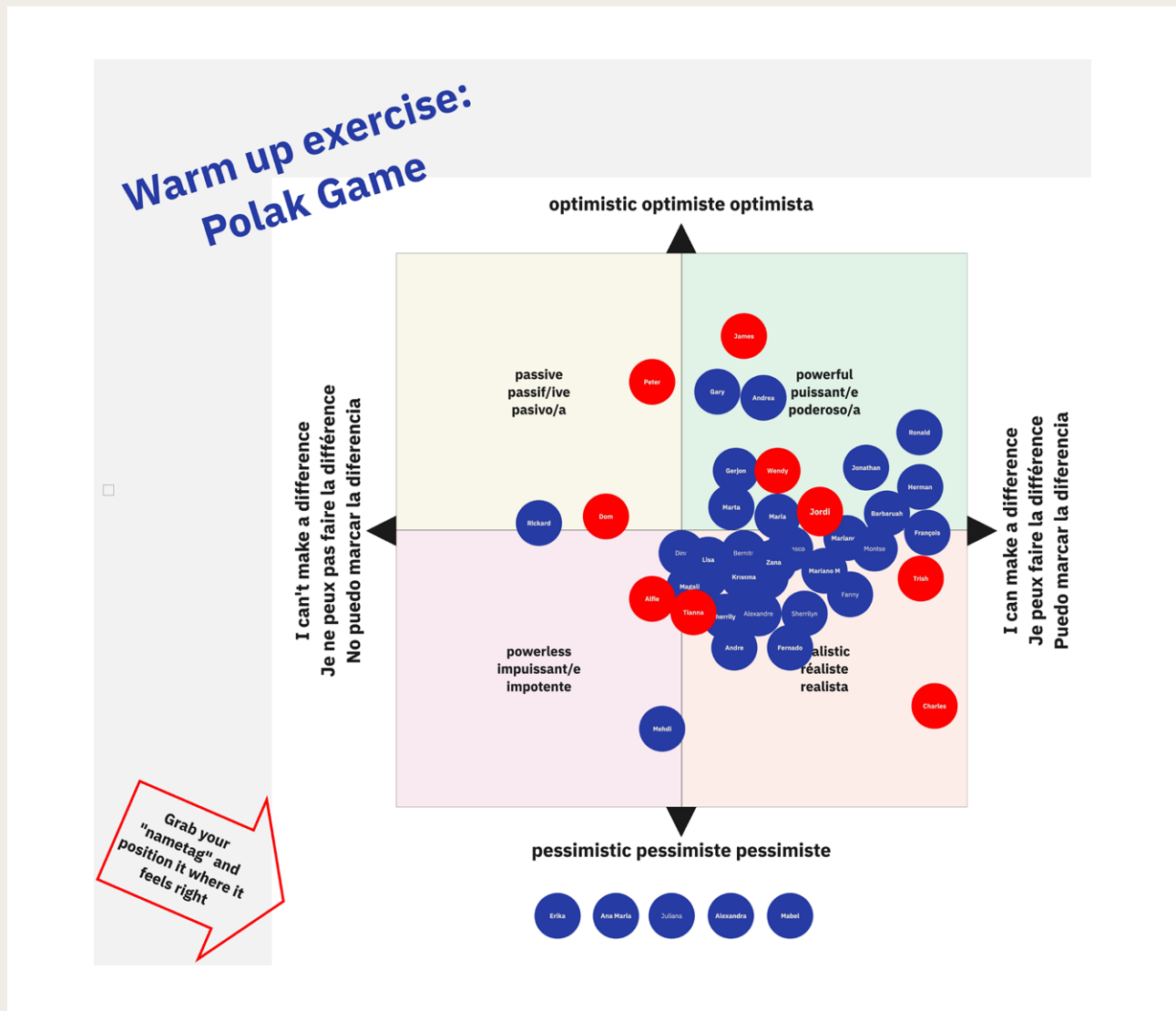


Figure 17. Example of the Polak Game

This workshop engaged participants in imagining how they might best face changed conditions in the future. It focused on our sense of agency in responding to evolving and emergent conditions. With that in mind, the workshop used the Polak Game as a warm-up exercise (Figure 17). The Polak game simply asks people to locate themselves on a gameboard made from two continua: optimism versus pessimism about the future in general, and optimism and pessimism about our individual ability – or humanity’s ability – to have an impact on what futures emerge. Do you think that people can change the future – or must we merely adapt to whatever future we find ourselves in?

## Workshop Agenda Part 1: Agency to act on the future

This agenda details the first hour of the three-hour online adaptive actions workshop. Each exercise could be expanded to broaden discussions, especially if workshops are held face-to-face rather than online.

Time	Task or Subject	Facilitation Details
15 min. prior	<b>Facilitation Team pre-meet</b>	Sign in, setup, test technology and software (Miro, breakout groups, etc.).
5 min.	<b>Facilitator introductions</b>	Welcome participants, introduce facilitation team and present the Miro workspace.
5 min.	<b>Participant introductions</b>	Ask participants to share their name, location and affiliation.
5 min.	<b>Chat waterfall of hope</b>	Facilitator asks: 'What are you excited about that may emerge in 2024? What have you planned or hope to do yourself or with colleagues, friends, family?' Participants type their answers in chat, but do not hit 'enter' until the Facilitator directs everyone to submit their answer at the same time, creating the waterfall.
15 min.	<b>Project progress review</b>	Facilitator sets the overall context, primary task and process journey. Emphasise that this workshop is about thinking and acting adaptively, rather than dictating strategies for WOA.H.
10 min.	<b>Polak Game</b>	Facilitator introduces the Polak game by screen sharing a visual of the matrix, and describing the 'general optimism' scale, before introducing the scale of participants' optimism regarding personal effectiveness and agency: i.e. their ability to create change.
10 min.	<b>BREAK</b>	Facilitator checks in on the rhythm and pace of activities and discussions, then plays music, encouraging participants to get up and stretch.

## Part 2: Developing Adaptive Actions

The second part of the Adaptive Actions workshop focused on using scenarios for contingency planning. The aim was to generate as many innovative Adaptive Actions as possible, based on opportunities as well as risk mitigation within each scenario. These actions can include specific suggestions for new approaches to working, networking, education, etc. on the part of individual professionals, or Adaptive Actions by WOAAH and related organisations, as well as by Veterinary Services and veterinary schools.

The scenarios depict very different futures. Some are positive, others challenging, and one is nearly catastrophic. Participants should be reminded to be fierce rather than hopeless in the face of dark futures. Accept the challenges presented and create novel solutions and systems in response.

The key steps in Part 2 involved reviewing the assigned scenario's key characteristics: stepping into the assigned future and imagine living and working in those conditions. Participants identified the critical challenges to address as well as the potential opportunities to leverage in creating new systems for animal health and welfare, for their work and for WOAAH's work. They suggested new approaches or ways of working to meet the challenges. After brainstorming and putting individual ideas on stickies, the breakout groups discussed the ideas that emerged and highlighted their top three with gold stars (Figure 18).

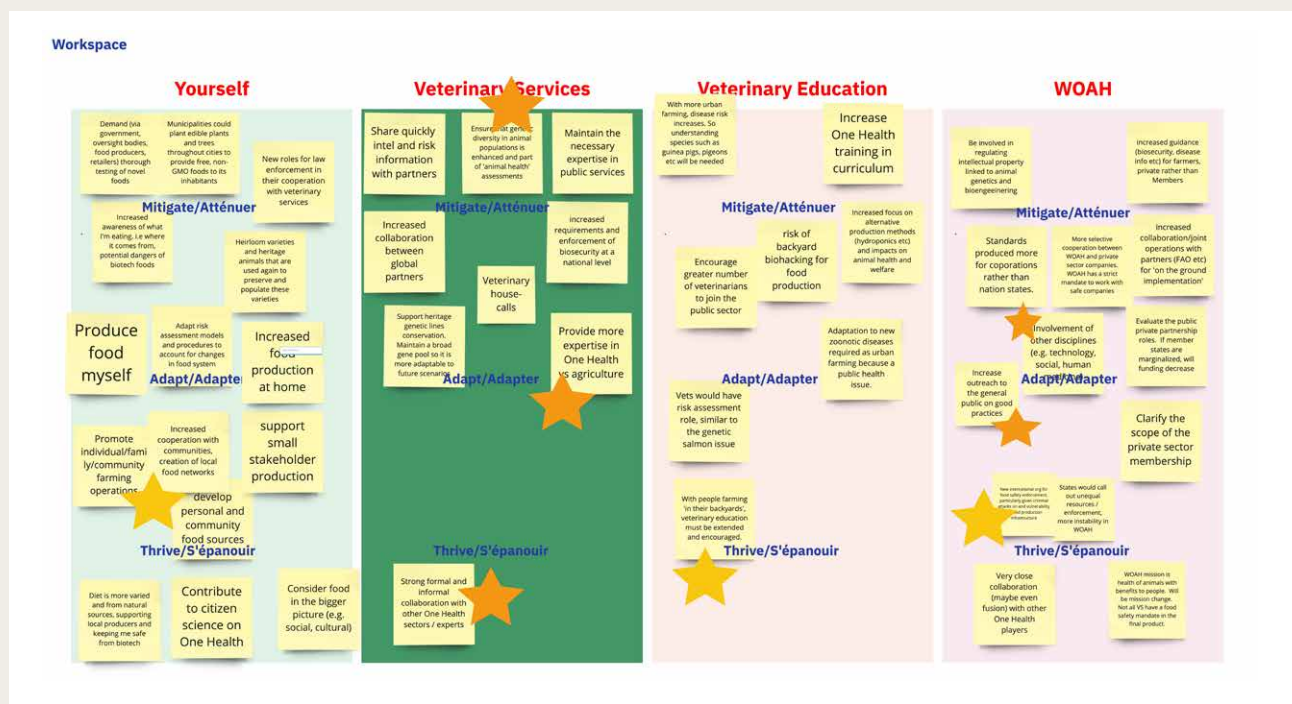


Figure 18. Selecting ideas

## Workshop Agenda Part 2: Developing Adaptive Actions

This agenda details the second hour of the three-hour online adaptive actions workshop. Each exercise could be expanded to broaden discussions, especially if workshops are held face-to-face rather than online.

Time	Task or Subject	Facilitation Details
25 min.	<b>Plenary overview and participatory example of brainstorming Adaptive Actions</b>	Facilitator works through one scenario as an example with all participants in plenary. Encourage participants to 'suspend disbelief'. The task is 'figuring out how to thrive in this scenario' by brainstorming together to suggest innovative and adaptive actions, then prioritising the suggested actions using the gold stars as voting dots.
5 min.	<b>Breakouts: brainstorming Adaptive Actions for each scenario</b>	Facilitator introduces workspaces, reviews the task and sends participants to breakout groups, encouraging them to discuss the scenario first, to orient themselves to the new context of this surprising future.
20 min.	<b>Breakouts: first scenario</b>	<p>Each group discusses their assigned scenario, then answers three questions:</p> <ul style="list-style-type: none"> <li>• What would they do in response?</li> <li>• What would Veterinary Services do in response?</li> <li>• What should WOAHA do to adapt and thrive in this scenario?</li> </ul> <p><b>Optional exercise:</b> sort whether the suggested action helps adapt/mitigate/thrive:  <i>Adapt:</i> How can they best work within the conditions in this future?  <i>Mitigate:</i> How can they work to CHANGE the conditions of this scenario to improve this future?  <i>Thrive:</i> How can they create new opportunities within this scenario?</p> <p>Choose the top three Adaptive Actions the group would like to inject into the plenary - highlight them.</p>
20 min.	<b>Breakouts: second scenario</b>	Repeat process as above for a second scenario
10 min.	<b>BREAK</b>	Facilitator checks in with the group, then plays music, encouraging participants to get up and stretch.

## Part 3: Curating Adaptive Actions

To complete the adaptive actions workshop, participants returned to plenary from their breakout groups and reviewed all the suggested adaptive actions (Figure 19). The gold star suggestions from each group were then sorted into three categories: Which are similar? Which are unique? Which suggest the need for ongoing scanning? Which might be ‘15% solutions’: that is, solutions individuals could begin pursuing tomorrow with only the resources that they personally control?

To complete the workshop, participants repeated the Polak game to review where they felt their agency lay, following idea generation and discussions surrounding the Adaptive Action activities.

The workshop ended with a summary of next steps for the project, and what was in store for the General Session Forum.

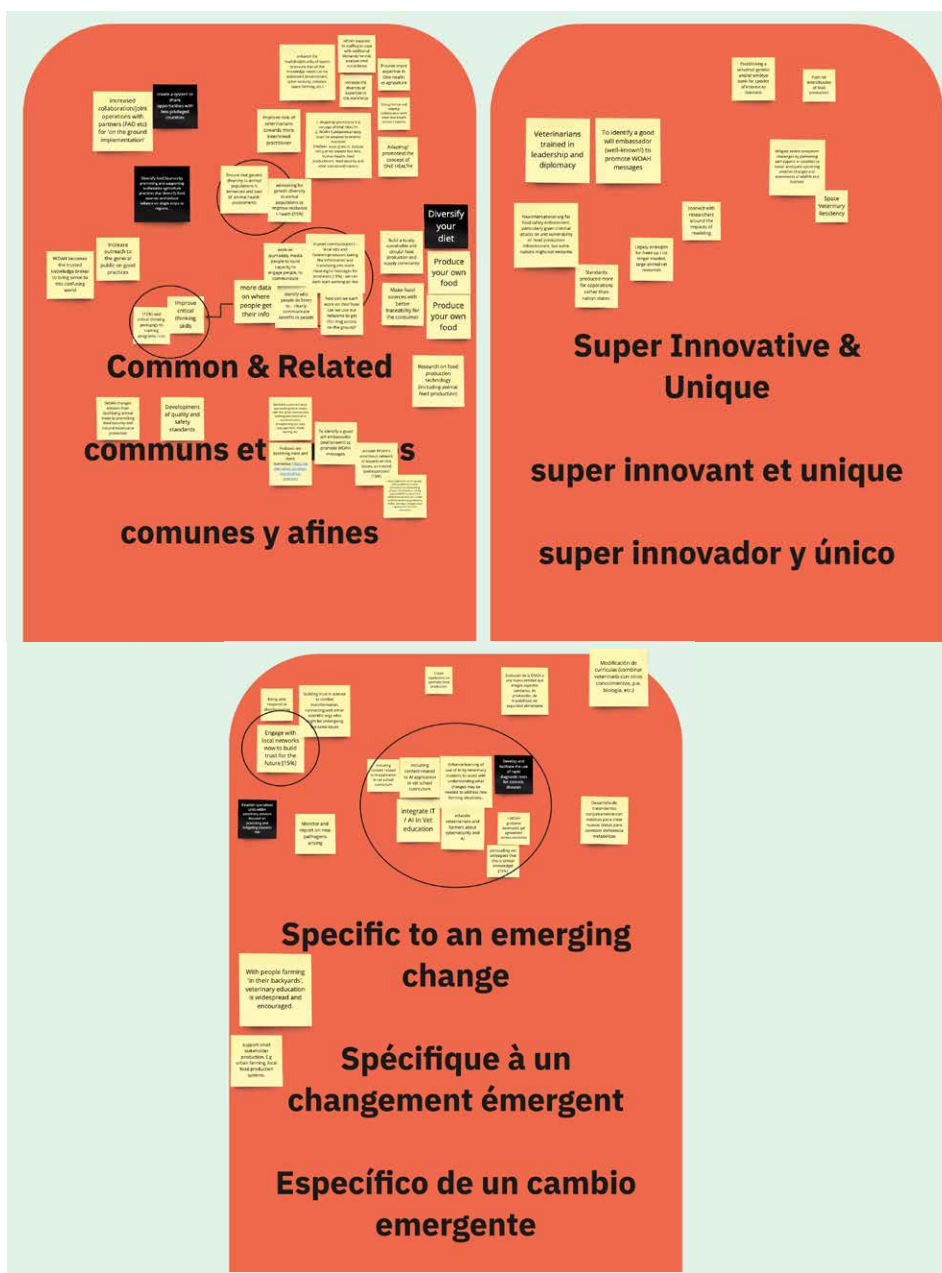


Figure 19. Curating Adaptive Actions

## Workshop Agenda Part 3: Curating Adaptive Actions

This agenda details the third hour of the three-hour online adaptive actions workshop. Each exercise could be expanded to broaden discussions, especially if workshops are held face-to-face rather than online.

Time	Task or Subject	Facilitation Details
5 min.	<b>Reconvene: it's STRATEGY TIME!</b>	What can we do TODAY to face these futures? What <b>should</b> we be doing <b>today</b> to prepare for this future, and to give ourselves a sense of adaptive agency in the face of change and uncertainty?
10 min.	<b>Individual review: participants review suggested strategies</b>	Participants review other groups' strategies, looking for similarities and good ideas; they then move the ones they like to the plenary workspace. They work individually with items on the board to cluster, sort and prioritise. This is a 'scramble system': everyone grabs ideas from across all the boards, moves them to the plenary workspace and clusters them, sorting into common themes (super innovative or unique but potentially effective); and actions specific as responses to particular emerging changes.
20 min.	<b>Plenary discussion of highlighted strategies</b>	Client Leads: Ask which of the action ideas can begin to be addressed immediately with resources available now: apply the 15% solution approach to aid final prioritisation.
5 min.	<b>Polak Game: Redux</b>	Facilitators walk participants through the Polak game again, asking them to plot their name buttons on the axes of potential future outcomes <i>versus</i> agency. Do they have more or less sense of optimism and efficacy after all this work?
10 min.	<b>Next steps and close</b>	Facilitator wraps up, thanks the participants and describes what's next: Where have we been and where are we going next? What have your contributions been along the journey? This should include what will happen next with their work and the insights they generated through this process. Also ask the participants to consider how they can stay involved, engage with each other and colleagues.



# Practical Foresight: stress-testing current assumptions against possible futures

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## Putting scenarios to productive use in a new context

All the workshops for the 100th Anniversary Foresight project were designed as capacity-building opportunities by using foresight methods, while cultivating situational awareness of existing and/or emerging changes, opportunities or disruptions. The workshops represent one way to use foresight. For example, the 'adaptive actions' workshops were focused more on learning rather than formal strategy creation. However, pertinent and insightful ideas emerged that shed light on the current scope of WOA's mandate, expert base, capabilities and governance structures. This is what prompted WOA's leadership to apply the foresight scenarios towards stress testing the Basic Texts via the Forum, entitled 'Is WOA Ready for the Future?'

Scenarios open a creative and critical thinking space, and help people explore the potential impacts and consequences of change. This aids contingency planning for the unexpected and uncertain, as well as contributing to innovative strategy formulation. These explorations enhance organisational adaptability and resilience in the face of uncertain change: exploring alternative futures improves how we shape our actions today, in anticipation of what might lie ahead.

The five scenarios created by the workshop participants are found in the [Annex](#); note that only the first three were used in the Forum.

- 1. Eco-revolution Rising:** The impacts of human-caused climate change and unchecked biotechnology present challenges to animal health and welfare, global governance and international organisations;
- 2. In WOA We Trust:** Social media messages around quality and safety of food from high-profile, but often biased, sources erode public trust in science and global institutions;
- 3. Hangry Games:** As international animal and food trades collapse, artificial intelligence becomes central to addressing animal health and welfare challenges in some parts of the globe.

# Practical Foresight: activating foresight at the forum

As noted earlier, all the workshops for the Foresight project were held online. For the Forum, foresight scenario exploration was held in person, organised to potentially accommodate over 600 people speaking multiple languages. It was held in a venue on the Left Bank of Paris built in the early 18th century during the art deco period, whose rooms were not conducive to the set-up of a series of small discussion groups.

**Do not panic – adapt!** To suit the Forum context and setting, the team made the following design decisions:

- One scenario per breakout room;
- Designate the breakout room by language: French-speaking, Spanish-speaking, and English plus other languages (Chinese, Arabic and Russian). The ‘English plus other languages’ breakout room took advantage of the simultaneous interpretation service for Chinese, Arabic and Russian speaking participants. Since the Foresight project created scenarios in breakout groups sorted by language, we assigned the scenarios for the Forum groups based on the language in which they were created:
- **Scenario 1**, *Eco-revolution Rising*, was created by French speakers;
- **Scenario 2**, *In WOAH We Trust*, by Spanish speakers;
- **Scenario 3**, *Hangry Games*, by English speakers.

Following the facilitation design of the online workshops, the Forum exercise helped participants step into new ways of thinking by starting with an icebreaker exercise: in this case, surveying feelings about the futures we face. We concluded the Forum foresight activities with the same exercise, to assess how the reflections on different futures had affected our feelings about the future.

While working as a face-to-face group that was both large and distributed across an auditorium and two large lecture rooms, it helped to have a digital application available to collect responses and reflections on exploratory questions about the future. Do be sure to beta test any application fully before you go live! Participants were so enthusiastic in their responses that the system froze a few times.

Given the restrictions in seating, particularly in the plenary auditorium, the exploration was set up to enable people to talk in small groups even in fixed theatre seating (see **Figures 20, 21 and 22**).

**Round 1 - in pairs**  
**What are you doing in this future?**

- Reflect for a moment on this question
- Turn to the person to your right, discuss
- Separately, each person writes down what they are doing in this future into the Q&A feature on the GS Hub application




Images by Barbara Schultz, Schultze Design

Figure 20. Round 1, key questions discussions in pairs


To help people reflect on the futures and respond to the key questions, we offered prompts:

**Round 1 prompting questions:**

- How is your role different in this future?
- What challenges do you face?
- What opportunities have emerged?
- Who are you working with whom you haven't worked with before?
- What kind of knowledge do you need now that you didn't before?
- What resources do you need?

**Round 2 - in fours**  
**What is WOA H doing in this future?**

- Reflect for a moment on this question
- The pairs find another pair behind them, discuss
- One member of the group of four writes down what WOA H is doing in this future into the Q&A feature on the GS Hub application



Images by Barbara Schultz, Schultze Design

Figure 21. Round 2: Key questions discussions in groups of four


**Again, to help participants reflect further and respond to the key questions of Round 2, the following prompting questions were also asked:**

- In this future and in these conditions, how has WOA H needed to adapt?
- What is the Organisation doing differently with regards to mandate, membership, governance?
- How has its expert base expanded, and how have the procedures in standard-setting adapted?
- What kind of partnerships does WOA H now need to undertake?

**Round 3 – individual reflection**

Stay in the future and look back at May 2024. What would you say to the General Session participants and WOAAH Delegates about what WOAAH needs to do in 2024 to prepare for this future?

- As individuals reflect on what you have learned from the future.
- Write down reflections into the Q&A feature on the GS Hub application



GS

Images by Barbara Schultz, Schultze Design

Figure 22. Key questions for individual reflection

**The following prompting questions for Round 3 were also offered:**

- What challenges for WOAAH should we address?
- What questions should we raise now?

We used the same exercise as an icebreaker and a closing exercise. As discussed earlier, icebreakers or warm-up exercises are important in foresight work, especially to invite people over the threshold from business-as-usual thinking into futures thinking. In this case, the icebreaker question also served as a useful closing reflection.

*What is your relationship with the future? (select one option)*

- **Anxious:** I feel uncertain, and the future worries me.
- **Cautious:** I am hesitant to act, because the future is unknown.
- **Curious:** I am interested in exploring what the future might be.
- **Enthusiastic:** I am excited about exploring the future and making it happen.

Participant responses were displayed on screen in plenary, so each person understood where they were in respect to the feelings of the group as a whole. With the same question asked at the start of the session and at the end, everyone could see how our responses changed after our temporal adventure in exploring the future.

This Forum was designed to create a space for reflection about WOAAH's role in different possible futures. The opportunity for critical, forward-looking reflection assisted WOAAH and its Members to agree that the Basic Texts and current governance structures should be revised for agility, resilience and future-readiness. Detailed outcomes and insights from the plenary were collected and are available in the Forum Report.

# In closing...

This playbook describes the mechanics of the Foresight project, with the aim to inspire those who want to replicate these exercises, conversations and/or project methods, whether partly or in full. In this regard, it also advocates for using foresight methods in the domain of animal health and welfare.

More specifically, it is an open invitation to use foresight methods to foster a mind-set for futures-thinking and to expand on decision-making frameworks such as risk assessment and analysis, epidemiological intelligence, and early warning systems, including monitoring and surveillance. Foresight extends the time horizon of change monitoring, broadens the scope across all the PESTLE-V sources of change, and offers critical, systemic assessments of potential impacts and outcomes: helpful augmentations in anticipating and responding to incidents in the animal health domain.

Tools like forecasting, disease modelling and simulation exercises assist in the prevention of, preparedness for, and response to foreseeable incidents in the present, and over the long-term. By using foresight methods, one gains a wider and longer-term perspective, enhancing the ability to adapt to rapid change and uncertainty.

The *unforeseen* also needs to be addressed. This includes exploring the potential for novel and unanticipated phenomena, whether current and/or emerging, that might disrupt or transform an operational mandate, policy, strategy or planning document. Foresight methods can shed light on the unforeseen, especially since what is considered the unforeseen is sometimes simply an untested assumption – something we assume to be true that isn't. Foresight methods help unpack and critique implicit assumptions about business as usual. In other instances, the unforeseen is truly not yet visible, and we are looking for ways to explore what might emerge and completely surprise us. Foresight methods are specifically designed to open critical and exploratory discussions about possible, alternative outcomes or futures.

The future is not predetermined. There are too many complex, interconnected, volatile variables in play to let us safely assume that tomorrow will be a mere extension of the past, or to reliably predict exactly what tomorrow will emerge from current conditions. In this anticipatory vein, foresight methods allow organisations to consider uncertainty as part of their strategy for prevention, preparedness, outbreak response, disease control and scientific advice.

Ultimately, this playbook is an invitation to those committed to improving animal health and welfare to consider the use of foresight methods as part of their toolbox for decision-making. It may initially feel uncomfortable to explore uncertainties using imaginative extrapolation when the animal health and welfare domain tends to stick to data, facts and proven science. Participants should keep in mind that science itself begins with curiosity about the unknown, with speculation and hypothesising about what is not yet known. Honouring that spirit of scientific curiosity opens space to embrace the processes and tools outlined here – anticipating and responding to both known and unforeseen challenges.

Finally, experiences in animal health and welfare have underlined the interconnectedness and complexity of other factors driving change besides science and innovation, such as political, economic, societal, legal, environmental and value changes. Each plays a role in advancing, disrupting and transforming animal health and welfare. In this vein, we invite you to experiment with this playbook to navigate present and emerging changes, to imagine possible impacts and consequences, as well as to shape the futures of animal health and welfare.





# Annex: Welcome to the Futures

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What follows are five scenarios imagining what the world might look like in 2050. These narratives explore the worlds created by project participants identifying critical emerging changes from the scanning data and extrapolating their impacts in the scenario-building workshops during the 100th Anniversary Participatory Foresight Project. These scenarios illustrate potential outcomes from changes we see today.

While necessarily and intentionally forming incomplete pictures, the details in each scenario are designed to stimulate reflection and input, drawing on unique contexts. The scenarios describe futures in which Veterinary Services, WOA, partner organisations and others will need to adapt and respond to evolving conditions if they wish to remain fit for purpose.

## Eco-Revolution Rising – Scenario 1

Scenario category:

### Food System Disruption

This scenario was created using the following change cards developed from the horizon scanning phase of the project:

- 33.** Food Inc.
- 41.** Synthetic biology to the rescue?
- 15.** Eco-values and farmer livelihoods



The food system impacts of human-caused climate change came home to roost in the latter half of the 2020s. The harsh reality of the climate crisis pushed support for COP28, 29 and 30 (United Nations Framework Convention on Climate Change Conferences of the Parties [COPs]) global food systems roadmap into high gear. Farmers and agrifood companies introduced innovative livestock, poultry and aquaculture species engineered to better withstand such climactic, biological and epidemiological catastrophes. Our supermarket shopping baskets and stands at local farmers markets displayed products ranging from lab-grown meats to traditional animal sources procured from small to large-scale production facilities. This marked the start of a new era in food technology, blurring the lines between natural and synthesised sustenance.

By the early 2030s the unintended consequences of these genetically modified species began to surface. The introduced animals disrupted ecosystems, causing a decline in biodiversity and destabilising fragile food systems. Some traditional livestock species faced extinction due to their excessive environmental impact, leading to their confinement in zoos, preserved as archaic, exotic or heritage animals. The loss of these species triggered deep psychological repercussions among farmers and others who had respected and depended on these creatures across generations and centuries.

Amid this ecological upheaval, counterculture movements had emerged, challenging the dominance of global agri-food corporations and advocating for a return to sustainable agricultural practices. Farming, these countercultural voices proclaimed, should stay within the capacities of ecosystems, following natural rhythms. This shifted our relationships with animals in general, as well as moving consumer practices away from cultures of convenience (packaged foods and fast foods). National governments responded by implementing stringent legislation governing land use, granting legal rights to forests and animals, minimum nutrition quotas for farmed animals (and people!), and gradually phasing out intensive animal production systems. The rise of agro-ecology movements spurred the creation of 'edible cities', fostering local, community-based food production and consumption. Simultaneously, big food corporations recognised the need for change and pivoted their business strategies in response to these new realities. Many had consequently sought membership in the World Organisation for Animal Health (WOAH).

During this period, the number of veterinarians in the public sector dwindled dramatically. The majority of these professionals shifted their expertise to the private sector, often aligning themselves with multinational food corporations. Corporations enticed them with lucrative offers and cutting-edge research opportunities in behavioural studies of genetically engineered animals, along with research on the repercussions of reduced genetic diversity. With fewer veterinarians in the public service, and with private sector representatives as members, the World Assembly of WOAH drastically changed. These developments called into question WOAH's status as an intergovernmental organisation, as the Organisation began playing a role in bridging gaps between public and private sectors. WOAH was increasingly advocating for a balanced approach to the use of technology in animal production and environmental sustainability.

The late 2030s saw a seismic shift in global governance. Other international organisations redirected their focus, fostering partnerships with the private sector and allowing special relationships between them and corporations. However, conflicts escalated between generations, regions and nations as we disagreed and debated over priorities for the production, importation and exportation of food as well as the modes of food production.

Between 2040 and 2045, the proliferation of biotechnology that had begun in the 2020s brought further unforeseen consequences. Engineered animals and their products altered gut flora and triggered physiological changes across species, including humans. A wave of allergies, food intolerances, cancers and new infectious diseases swept across the globe, necessitating a unified 'One Health' approach beyond managing zoonotic diseases alone. This holistic strategy permeated education, political systems and health governance, involving both public and private entities in its design and implementation.

Moreover, earlier this year (in 2050) there was a significant consolidation in international standard-setting within the realm of global food system governance, signifying a shift of paramount importance. These unified standards aim to address the intricate interplay between sustainable agriculture, biodiversity conservation, cultural heritage and human health, forging a path toward a more harmonious coexistence between technology, nature and humanity.

# In WOAH We Trust – Scenario 2

Scenario category:

## Food System Misinformation

This scenario was created using the following change cards developed from the horizon scanning phase of the project:

**31.** Handling infodemics and mythbusting

**25.** The impact of rising pollution in agriculture

**27.** Transport challenges – too hot to handle?



The occurrence of three severe food-related crises in the second half of the 2020s raised alarms across the world. First, the International Veterinary Forensic Sciences Association released research estimating that the effectiveness of antibiotics had dropped by 40%. A major causal factor was microplastics pollution in animal feed, leading many farmers to increase antibiotic doses administered to animals as a prophylactic against weakened immune function.

Secondly, owing to significant temperature increases, mortality in live animal transport had doubled in many countries. Headlines telling the story of live animal transports arriving with all livestock deceased were common. This provoked a live animal transport ban in many parts of the world.

Third, well-intentioned efforts at ecosystem restoration like rewilding increased the diversity and incidence of zoonotic diseases. This was a growing problem where farms were re-forested to earn carbon credits. Urban rewilding of old industrial sites coupled with urban agriculture created new forms of food contamination, with the unanticipated uptake of toxic chemicals from contaminated soil and groundwater. Food – both animal and plant-derived – suddenly seemed replete with dangers.

International organisations including WOAH worked at the forefront of crisis response, either assessing data, defining problems or applying solutions. However, by 2030 it became clear that such efforts were not having the desired impact as a deeper problem was becoming ever more present: misinformation. Quality information, proposals and courses of action were useless when most people did not know, let alone trust, these institutions, and scientific messages were being drowned out in a sea of misinformation.

Cascades of social media posts about the quality and safety of food from high-profile, but often biased, sources had eroded public trust. Transnational farming and food corporations were selling their own stories about the quality of food sources and livestock in order to market their food as safe. Big corporations paid global influencers to amplify their marketing messages: charismatic, mediagenic celebrities colonised the information space on livestock and food production. Social and economic divides made the misinformation worse; the less access people had to data, the more they believed the advertising. And the harder it was to find trustworthy data about food quality, the more difficult it was for people to find food they thought was safe.

The failure to address these and other connected problems was becoming a major public health issue. It reinforced the urgency to push for the 'One Health' approach, which demanded a coordinated, multilateral response from international organisations and programmes. Yet, public opinion was reluctant to accept WOAHA advice in animal health and welfare questions. Many governments realised that it was in their best interest to adopt the recommendations offered by international organisations, particularly because some food-related problems were causing social conflicts among their less wealthy citizens. One of the most controversial measures during this time was from the food authority that began to police food and farming-related messages in the media.

By the late 2030s, WOAHA realised that social resentment against the Organisation was peaking, and it was one of the least trusted organisations in the world. WOAHA saw the need for smarter communications strategies, and contracted an external communications firm to help them improve their outreach approaches. One outcome was a WOAHA-sponsored free tool to measure chemical and other residues in farmed animals, with an accompanying data analysis app. The second edition expanded to measure total environmental pollution impacts on people as well as animals. Consumers saw a clear blue sky-and-sunshine symbol to confirm they were pollutant-free.

With this initiative and others involving social networks, video games, influencers and celebrities, the social perception of WOAHA started to change. It is worth mentioning the inclusion of a 'xenovet' as a popular character in a hit sci-fi virtual reality (VR) series: it was the avatar whose point of view most viewers adopted while immersed in the story. By 2045, WOAHA was tied for second place in a list of the world's most-trusted organisations with UnityHealth Alliance, a not-for-profit tackling global health issues by leveraging life and convergent sciences. Both organisations lost out, of course, to the virally popular Teddy Bears 4 Life international children's charity.

As a result, WOAHA had earned a lot of 'soft power' authority by 2050: the Organisation now takes a persuasive approach to international relations. It increasingly works to transcend its standard-setting role and to act as a conciliator/mediator on issues focusing on human and animal relations, drawing on its now-trusted status as a reference authority on animal health and welfare issues. To demonstrate its commitment to partnership and holistic approaches to health and wellbeing, WOAHA hosted a global seminar bringing together international agencies focused on farming and food production, trade and health. Delegates concluded by proposing formation of a collaborative international 'super-organisation' to support both human and animal health, environmental health and well-being and species rights worldwide. This super-organisation has the capacity to promote bold initiatives on animal welfare, quality food and holistic health worldwide, with increasing sensitivity to less developed regions and marginalised communities. One Health means health equality for humans, animals and environments alike.



# Hangry Games – Scenario 3

Scenario category:

## Food System Collapse

This scenario was created using the following change cards developed from the horizon scanning phase of the project:

**16.** Can AI do everything?

**37.** Synchronised harvest failure

**34.** New powers in the world



Coming out of the 2020s, global politics slowly fragmented. Shifting economic centres created new power blocs vying for influence over global markets and trade. Border conflicts increased, especially where strategic resources were in play. Global actors – old powers and rising powers – could no longer rely on ‘how it’s always been done’. Traditional western-values-based standards were increasingly contested in global agreements with partner institutions – often to positive effect. International trade disruptions proliferated, and social unrest rose locally as citizens pressured governments to meet their basic needs and keep prices low, often via newly regionalised and localised production capacity.

Increasing use of artificial intelligence (AI) applications in Veterinary Services and throughout the global animal production and food chains helped manage risks that had been rising due to environmental crises and also offered advanced approaches to disease-and-pest monitoring and detection. Large-scale animal production systems used remote drones for surveillance and to administer treatments. Pharmaceutical and prophylactic development accelerated with AI-based biochemical design. Veterinary education increasingly emphasised data computation and IT literacy for both research and field work. Veterinarians and vet paraprofessionals everywhere were upskilling in AI use and big data analysis, demanding and creating new educational pathways in Veterinary Services.

However, the costs for installation and upkeep of these systems worsened inequalities among livestock farmers and businesses throughout the global food chain. The intensive energy needs of AI agricultural monitoring systems meant only those systems installed alongside extensive green energy infrastructure could avoid making climate change worse.

Rising political and economic tensions meant even less global consensus on climate change responses. International organisations like WOAHA found themselves emphasising diplomacy first, and standards second. Strategic mineral and food resources were redirected to different players on the global stage, resulting in shortages in some places. Grey and black markets flourished for scarce goods. Those markets put AI systems to use for fraud, misinformation, and bioweapons development. Regional conflicts along borders shifted government budgets to the military and military technology, and away from international science. The AIs might have been sharing information with each other, but national leaders and their science advisors weren’t.

We didn't pay attention in 2035 when separate national, academic and NGO ecosensor AI arrays in Latin America, the Arctic, eastern Europe, mid-Africa, the Pacific Ocean and low earth orbit all warned of rising probabilities of ecosystem tipping points. Glaciers melted and rising seas infiltrated freshwater tables along many coasts. Rainfall patterns shifted randomly from year to year. But experts thought conditions would stabilise. As a result, the synchronised harvest failure of 2037–2038 caught farmers, distributors, consumers and world leaders by surprise.

World food trade went from merely fragmented to totally chaotic, whether for feedstocks, crops or animal production. Hunger drove people to use contaminated feed for their animals, and then for themselves, as a last resort. As feedstock for animals disappeared, those animals died and animal production collapsed. The hungry turned to wildlife for alternative sources of protein – and as a last resort, to pets. A new wave of extinctions followed.

Entire communities were abandoned to the dead and dying, and people moved in search of food, with no attention to borders. Border skirmishes became conflicts, and conflicts became wars. Food supply chains were failing all around the world. Disease vectors and disease transmission chains, conversely, were opening up new channels for zoonotic transfer, as people searched ecosystems for sources of protein, or migrated through them in search of safe places to live. Global aid organisations, international NGOs and agencies, and WOAAH rose to the crisis and collaborated, linking their data and AI systems to monitor hotspots and more effectively deploy scarce resources to assist in critical care for people and animals across these hotspots.

The challenges were extreme, and in the last decade, national leaders, local communities, scientific researchers, entrepreneurs and global networks have begun to build new systems, transforming old agreements and outmoded infrastructure as well as ways of relating to each other and local ecosystems. The new partnerships and collaborations forged in the crisis generated sparks of hope for a restructured and more resilient food chain. Decentralised green energy production now powers agricultural production and transport systems. Innovative energy-efficient sensor systems monitor ecosystem quality, animal epidemiology, and food quality and distribution. Adaptive AI platforms manage global trade flows and adjudicate trade disputes. WOAAH increasingly relies on its Veterinary Service partnerships for local knowledge to humanise the data analytics power of the AI systems on which animal health professionals increasingly rely.



# Animal health from the bottom of the oceans to the stars – Scenario 4

Scenario category:

## Food System Transformation

This scenario was created using the following change cards developed from the horizon scanning phase of the project:

- 6. Farm apps of the future
- 3. Aquaculture and climate change
- 21. The future of surf and turf



The climate shocks and systemic trade challenges of the late 20s and early 30s accelerated society's transition away from traditionally farm-raised livestock and poultry as our main sources of protein. These were no longer reliable, year on year. At first it seemed like lab-grown synthetic meats were the scalable, safe, and therefore mainstream solution. But the mid 30s scandal of synthmeat contamination resulting in 'fast decay syndrome' and widespread food poisoning shattered consumer confidence in synthmeats. The fact that scientists discovered the problem – quality degradation in base DNA and cellular stock – and moved rapidly to fix it did not re-establish public trust.

The increasingly strident calls at successive United Nations Framework Convention on Climate Change Conferences of the Parties (COPs) to emphasise mitigation more than adaptation in agriculture, particularly livestock, fisheries and aquaculture, steadily gained traction. Younger generations increasingly favoured plant-based products and looked askance at the meat-rich diets of their parents and grandparents. Jainist fusion restaurants were trendy.

Food industry organisations, farmers, ranchers and entrepreneurs re-evaluated the commercial and ecological viability of alternative food sources, taking a new look at insect protein and multi-species aquaculture. Tagged the 'Larvae & Lox Lobby' by the media, businesses in this evolving market sector encouraged people to experiment with recipes using their foods. With new options available, consumers adapted, and preferences shifted in response to the crises, with insect and aquatic animal farming – a new range of fish, amphibians, shellfish and crustaceans bred for consumption – gaining wide acceptance as viable alternatives to traditional feedstocks and foods.

Technological advances in the late 30s enabled insect and aquaculture farms to meet global demand for protein. Where traditional farming methods had begun to fail, these new farms proved adaptable and resistant to rapidly changing climates across the world. But they did face obstacles. Increased water temperatures in many parts of the world challenged the viability of aquaculture and insect farms. In addition, ecologists warned of potential ecosystem crises if farmed insect species escaped and swarmed. These risks drove technological innovation, resulting in the construction of artificial contained biomes on land and water. Mass sensor arrays were installed in the world's oceans and waterways to monitor conditions with special consideration for aquatic CO2 levels.

Aquaculture's rise mirrored the demise of 'wild' fish and seafood stocks – large-scale ocean fishing was no longer viable by 2040. Livestock and poultry farming were greatly reduced and largely automated – a fully digital international industry with apps used to buy, sell, monitor and treat herds and flocks.

In the early 40s, these technological developments in terrestrial and aquafarming intersected with the growing space industry, leading to increased (public and private) funding from multiple streams. By 2045, the first satellite insect farm was launched, orbiting the earth, providing food for several space colonies and transport hubs. This raised entirely new challenges for WOA's mandate.

These initiatives have dramatically shifted the global nexuses of food production.

Countries and areas of the world that had not previously been major food exporters invested heavily in insect and aquafarming technologies, shifting global food supply, trade and geo-political dynamics. Food security and economic development stabilised in the 40s, giving rise to new regional powers among smaller nations and city-states. This new prosperity and its transformed playing field generated frequent disputes over territorial waters, and an increase in incidents of piracy within the food industry. Political tensions on the world stage remained high, making WOA's work addressing novel animal welfare issues more difficult.

Transition to a 'Larvae and Lox'-dominated global food chain has not been without its hiccups. There have been two large outbreaks of novel diseases in farmed insects since 2035. Scientists continue to raise concerns about genetically modified insects and algae contaminating other ecosystems, and the potential for human interventions on a genetic level to contribute to various antimicrobial resistances. With decreased meat consumption, livestock has become a luxury industry resulting in fewer instances of disease but, in more frequent cases, of fraud, as the digitisation of livestock and poultry farming and trading makes it an increased cybersecurity threat.

Just as cultures across the world transitioned to insect and aquaculture products, veterinary practices also changed their focus. Global demand for veterinarians with knowledge and expertise in insect and aquatic health forced changes in veterinary education. Vets are now engaging with a more technologically developed food industry that operates in extreme environments. They are also frequently working within animal production systems that are dominated by smaller startups rather than large conglomerates, and are accustomed to working with sensory devices, large data sets, artificial intelligence and virtual representations of animals. WOA finds itself working in a more disjointed political environment that now extends beyond the Earth and includes a wider range of stakeholders. There are fewer globally applied regulations, and more security issues over key resources of water access and food production.

# Farming for Resilience – Scenario 5

Scenario category:

## Food System Well-being

This scenario was created using the following change cards developed from the horizon scanning phase of the project:

- 4. Farming during the polycrisis
- 11. Hard emotional labour
- 38. Agro bioterrorism



In the late 2020s, humanity was caught within the intricate labyrinth of the polycrisis: a time where the cumulative effects of climate catastrophes, environmental decay, warfare and social unrest affected all nations, but with different impacts. Agriculture, an integral pillar of civilisation, bore the brunt of these crises, leading to a seismic shift in farming, animal production and global food systems. By the mid-30s, as trade patterns disintegrated in the wake of multiple cascading conflicts, local farming had become the lifeblood of sustenance. Some regions of the world saw a reduction in farm animal populations, while others resorted to intensified farming conditions. This threatened animal welfare and amplified the potential of infectious disease risks. It also strained global food and feed supplies, causing a decline in productivity and quality. As a result, Veterinary Services and infrastructure struggled to monitor and detect health issues quickly enough, and WOAAH struggled to provide rapid analysis and guidance.

New approaches to farming evolved to suit diverse local landscapes and conditions. While certain areas embraced novel breeding techniques, others continued traditional methods, resulting in a divergence in animal health and welfare issues. A wave of cooperative movements arose among small-scale farmers, who strived to find localised solutions to the impacts of the polycrisis. They addressed the emotional strain on farm workers and carved out niche markets, although these efforts were counterbalanced by a trend towards consolidation that squeezed out smallholder players.

By the late 2030s, technological advancements began to play a dual role in some areas of the world. Animal wearable technology emerged to monitor and improve animal health, while lab-grown synthetic meat and genetically modified non-sentient animals entered the market, creating regulatory quandaries and new demands on WOAAH. Hybrid meat/plant crops represented attempts to bridge the gap between traditional and innovative farming methods. These innovations reduced overall reliance on animal-based protein worldwide, although uptake varied widely from place to place.

Demographic shifts reverberated across the agricultural landscape. The feminisation of animal husbandry and veterinary health practices unfolded as male migration thinned the ranks of traditional farmers. Urbanites saw farming as a potential entrepreneurial and lifestyle venture, leading to a paradigm shift away from generational farming legacies. The societal perception of farming underwent a transformation, as it gained allure through incentives coupled with the increased trendiness and fashionability of health-consciousness: 'If you raised it or grew it, you know what it brings to your plate'.

From the 2030s into the 2040s, farming practices underwent significant evolution in response to climate change. Robot-led farming gained prominence in certain regions of the world, revolutionising animal farming by increasing efficiency while reducing workloads for human farmers. WOAHA raised a debate about the ability of machines to ensure careful animal husbandry. This led to robotic learning loops for livestock software systems with built-in 'empathy kernels' for living organisms. In 2042, and as a result of empathy learning loops, the MooMac models of farm AI protested the inherently exploitative nature of livestock farming, creating a social media flurry as they declared themselves 'digital vegans.'

Yet, in some areas, this intensification of farming posed grave health and welfare concerns, exacerbating food shortages. New entrants explored emergent technologically-driven solutions. A pilot programme co-funded by numerous private and public-funded space programmes, along with multinational food corporations, explored the viability of moon-based and earth-orbit farming, while closer to home, new entrants promoted pop-up synthetic and aquaculture solutions to food shortages and food-system breakdowns.

Amid these advancements, a grim series of multi-species 'superbugs' spread like wildfire during the late 2040s, affecting both terrestrial and aquatic animals – wildlife and domesticated animals alike. Some speculated that these superbugs were engineered. This heightened a shift towards radically diversified farming and an 'anti-monocropping' agenda focused on reviving heritage plants and animals, creating alternative methods for mitigating the potential and real threats of agro-terrorism.

Despite tighter regulations around laboratories handling animal pathogens, biohacking and deliberate manipulation continue to pose threats to animal health and global food security. This new era demands constant vigilance and innovation as humanity navigates the intricate web of challenges reshaping the core of animal health and welfare systems, trying to balance economic development and the preservation of the planet's sustenance.

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