SPHERE-PPL Annual Meeting & Workshop

Environmental Modelling & Forecasting

SPHERE-PPL Team

Wednesday 14th January 2026

Welcome!

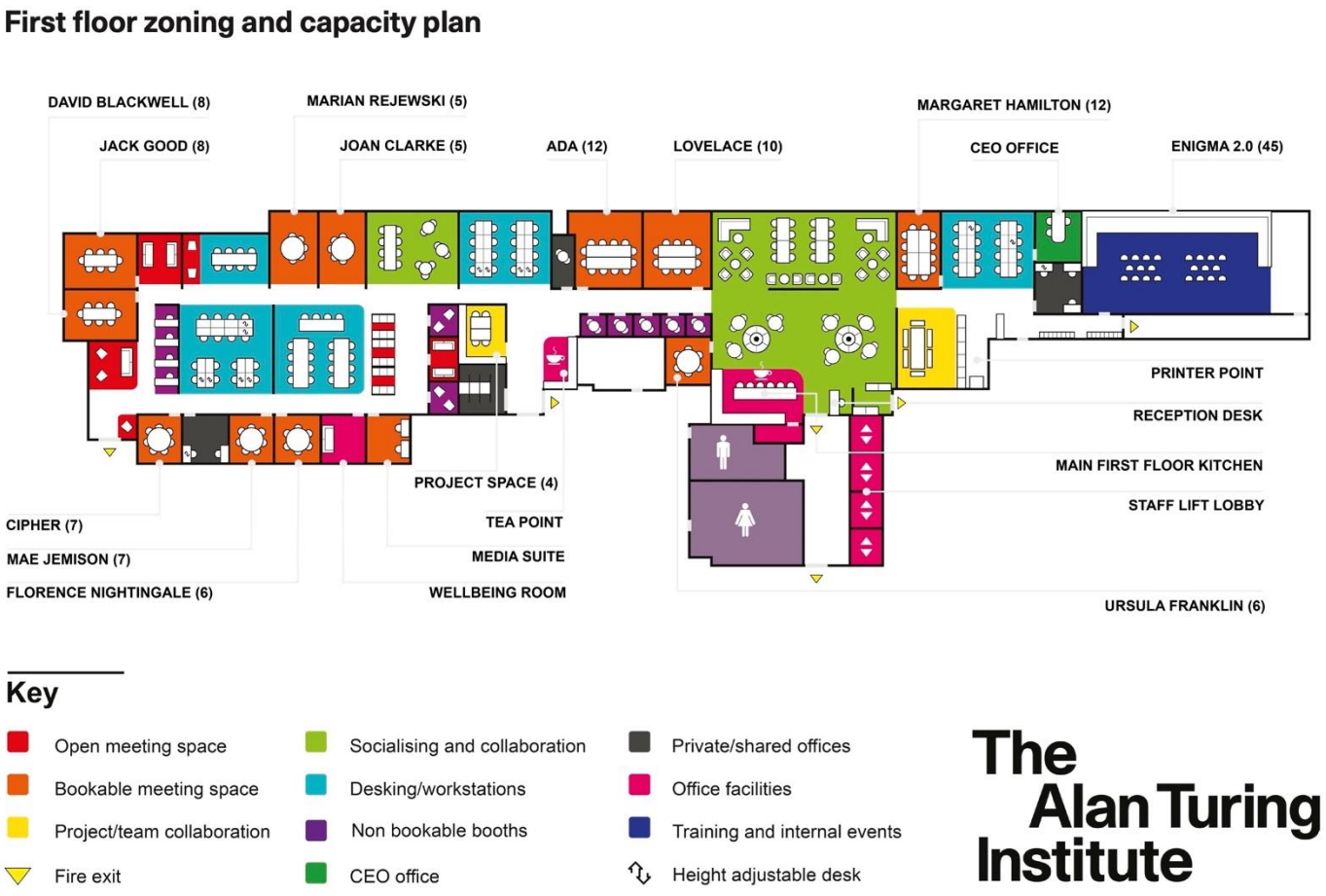
Agenda

Timings	Activity	Description
9:30-10:00	Arrivals & Registration	
10:00-10:15	Introduction from the SPHERE-PPL Team - Will Pearse	Meet the team and an introduction to the vision
10:15-10:40	Keynote 1 - Julie Smith	ADAS
10:40-11:00	Keynote 2 - Robin Freeman	ZSL
11:00-11:25	Coffee Break	
11:25-11:35	Presentation - Rich Wood	Forecasting Severe System Pressure in the NHS
11:35-12:20	Break-Out Discussion	Activity 1 - Identifying key challenges in environmental science
12:20-12:50	Break-Out Feedback	2-minute presentations on challenges
12:50-13:50	Lunch	

Agenda

Timings	Activity	Description
13:50-14:00	Lyme Disease Contest Prize Giving	
14:00-14:10	Presentation - Will Pearse	Building a Forecasting Contest
14:10-14:45	Break-Out Design	Activity 2 - Groups design forecasting contests
14:45-15:15	Break-Out Feedback	Group feedback and discussion of contest priorities
15:15-15:40	Coffee Break	
15:40-16:05	Keynote 3 - Eric Daub	The Alan Turing Institute
16:05-16:15	Presentation - Will Pearse	What can SPHERE-PPL do for you?
16:15-16:35	Break-Out Discussion	Activity 3 - Brainstorming requests for workshops, training and support
16:35-16:55	Break-Out Feedback	Creating a community priority list
16:55-17:00	Wrap-Up	

Facilities & Accessibility



The Alan Turing Institute

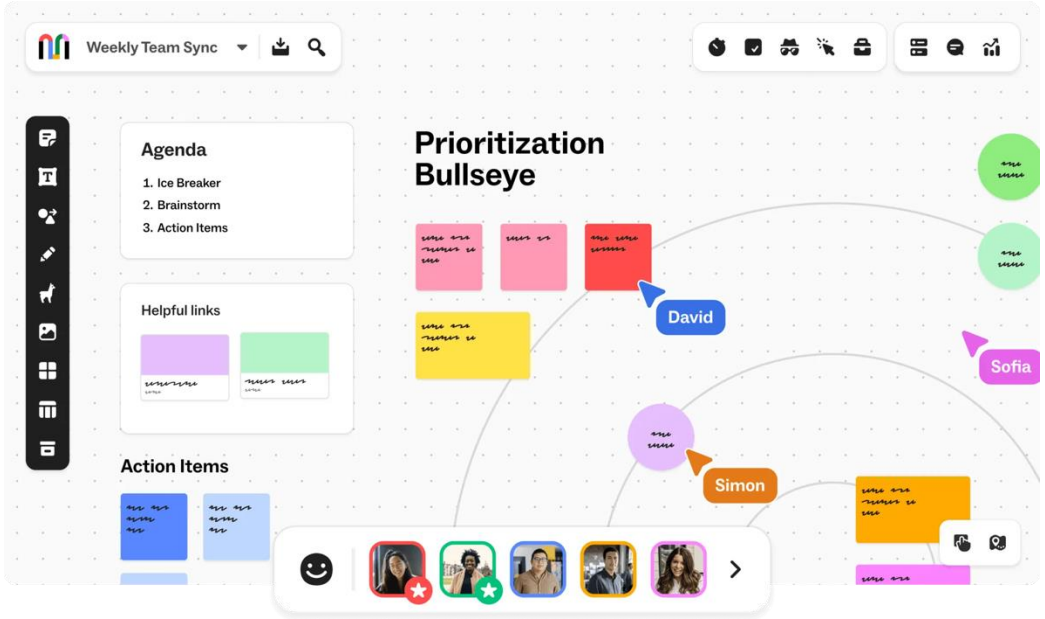
Mural

We will be using Mural for all the activities:

- Activity 1: https://shorturl.at/rtEzv
- Activity 2: https://shorturl.at/1ahdl
- Activity 3: https://shorturl.at/SxCEd

Password: forecast

(No need to create an account)



Code of Conduct

- **Respectful Communication**: Communicate with others in a professional and considerate manner. Be mindful of diverse perspectives and experiences. Avoid interrupting others and listen actively.
- **Inclusive Language**: Use inclusive language that avoids any discriminatory or offensive remarks. Be mindful of gender, race, ethnicity, religion, sexual orientation, and other personal attributes.
- **Active Participation**: Engage actively in discussions and activities. Share your insights and perspectives while being mindful of others' contributions.
- **Professional Conduct**: Maintain a professional demeanour throughout the workshop, including during breaks and social events.
- **Mobile Devices**: Minimize distractions by silencing mobile phones or using them only during breaks, unless they are essential for workshop activities.

Introduction from the SPHERE-PPL Team

Spatial, Health & Environmental Research using
Probabilistic Programming Languages

CUT TO WILL P SLIDES

Outcomes of the Day

- This full-day event will bring together experts in a range of fields from industry, academia, and government to discuss cutting-edge research and explore collaborative opportunities within environmental science.
- Meeting participants will:
  1. Network with policy specialists and data scientists to discuss issues through a common language
  2. Identify forecasting challenges that the SPHERE-PPL Community will undertake and contribute to the design and outcomes of these endeavours to maximise their impact.
  3. Prioritise the training and support provided by SPHERE-PPL to the community to expedite the development of analytical capabilities where they are most urgently required

Keynotes

Keynotes

Julie Smith – *ADAS*

Dr Robin Freeman – *ZSL*

Coffee Break

Refreshments are around the corner in the kitchen areas

CUT TO RICH WOOD SLIDES

Activity 1 - Identifying Key Environmental Challenges

https://shorturl.at/rtEzv

How its going to work!

- **Stage 1 - Break-out Discussions (45 minutes)**
  - Split into teams
  - 45 minutes to talk about key environmental challenges that relate to modelling & forecasting
  - Add them to the Mural Board
  - Don't worry about finding solutions, we will do that in this afternoon's session

- **Stage 2 - Group Feedback & Contest Priorities Vote (45 minutes)**
  - Each team will have 2 minutes to present what they think is the biggest challenge they discussed
  - These will form the basis of our forecast contest discussions later!

Activity 1 – Group Feedback

Lunch Break

Refreshments and food are around the corner in the kitchen areas!

Welcome Back!

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Lyme Disease Contest Prize Giving

Activity 2 – Designing a Forecasting Contest

How its going to work!

- **Stage 1 – Building a Forecasting Contest (10 minutes)**
  - Quick presentation from the SPHERE-PPL team on how the forecasting contests are going to work mechanically and what makes a good contest

- **Stage 2 – Break-Out Discussions (40 minutes)**
  - Split into teams aligned to the identified key challenges.
  - Using the Contest grids on the Mural Board, start designing a forecasting contest

- **Stage 3 - Group Feedback (40 minutes)**
  - Each team will give an overview of their proposed contest
  - Indicative vote on what would provide greatest impact

Building a Forecasting Contest

From Questions to Insights

Dr Will Pearse

Why do a Forecasting Contest?

Grand Vision

- An open-source and globally-accessible competition to find innovative and accurate ways of predicting something.
- A conduit for connecting stakeholders with analytical capability.

Smaller Scale

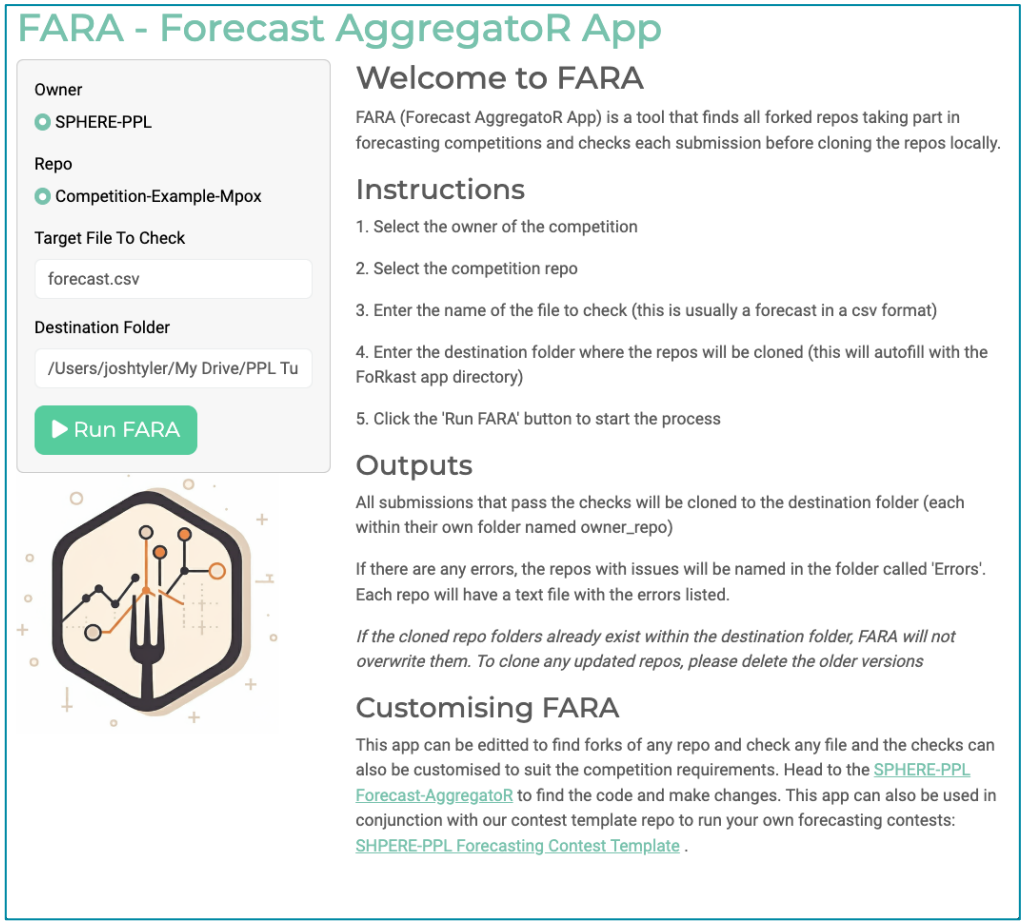
- Find answers to the challenges we talked about earlier!
- Put resources and insights into your hands.

SPHERE-PPL Framework

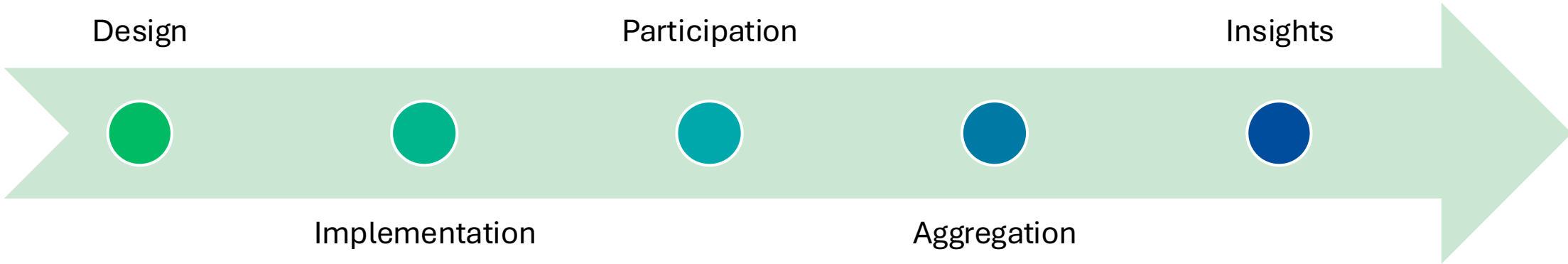
A Github Repo, that can be cloned, edited and then collated by contest organisers, using our Forecasting AggregatoR App (FARA).

FARA can:

- Find all contest submissions automatically
- Check entries for errors and issues
- Be customised for any GitHub-based contest
- Condense all results and synthesise insights



Journey of a Contest



Considerations

Design
What are the Key Challenges we want to solve?

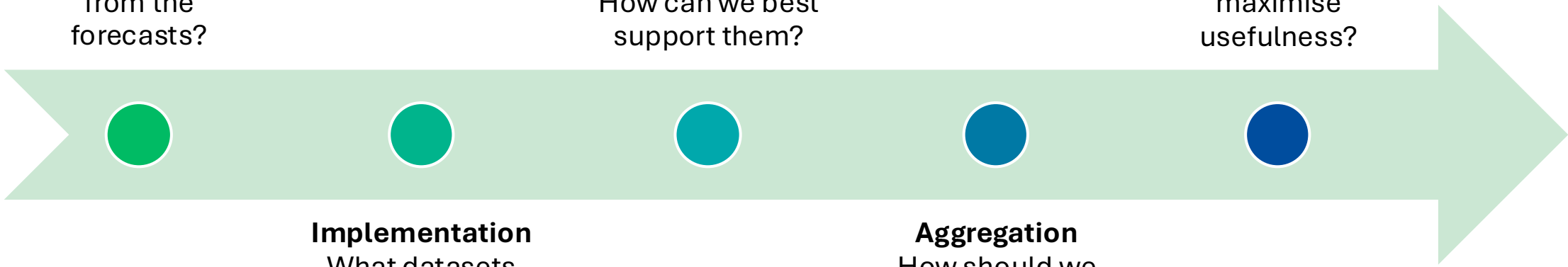
Who will benefit from the forecasts?

Implementation
What datasets can we use openly?
Are there any specific strategies or tools that we want to see?

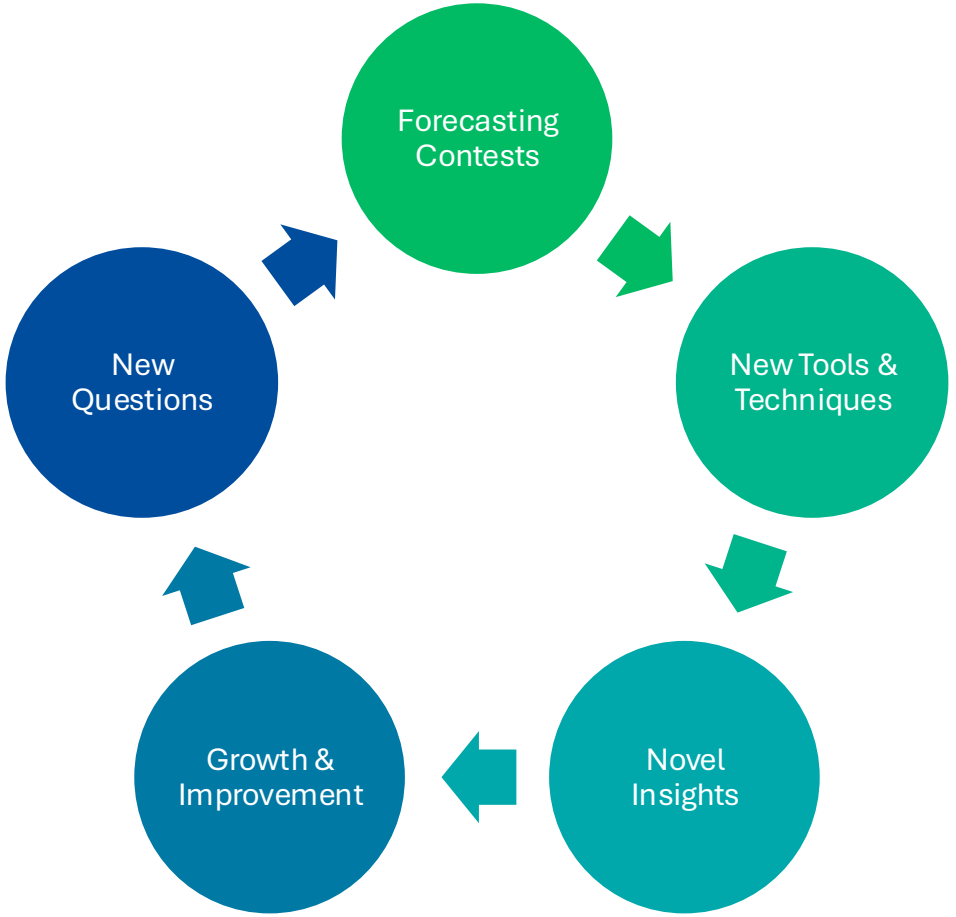
Participation
Can we engage with a diverse set of teams?
Do they have enough time?
How can we best support them?

Aggregation
How should we aggregate all the entries?
Do we want to build a new model based on the findings of the contest?

Insights
What format would create the most impact?
How can we disseminate the results and maximise usefulness?

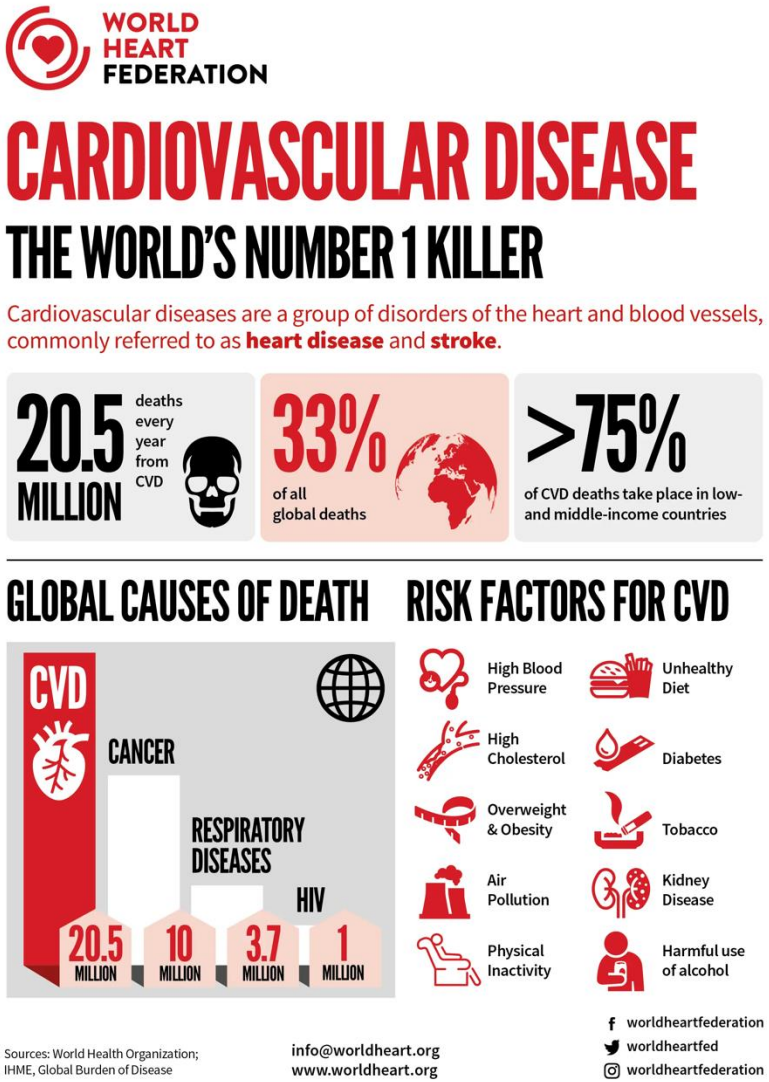


Maximising Value to Stakeholders



Example - CVDs

Key Challenge	Future burden of Cardiovascular Disease (CVD)
Exam Question	Forecast the number of new cases of CVD in the UK for each year from 2024 to 2034, stratified by age group and sex.
Usable Data	• PHE Data (Trends in CVD mortality, morbidity, and risk factors • ONS Data (population projections, mortality rate, socioeconomic factors)
Output Format	• Table of forecasted numbers • Summary report • Deployable app
Other Information	Include coronary heart disease, stroke, and heart failure



https://shorturl.at/1ahdl

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Key Environmental Challenges

Activity 2 – Group Feedback

Coffee Break

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Keynotes

Keynotes

The Alan Turing Institute

Dr Eric Daub – *The Alan Turing Institute*

Activity 3 – Building a Community

How its going to work!

- **Stage 1 – What can SPHERE-PPL do for you? (10 minutes)**
  - Quick presentation from the SPHERE-PPL team on what the future holds

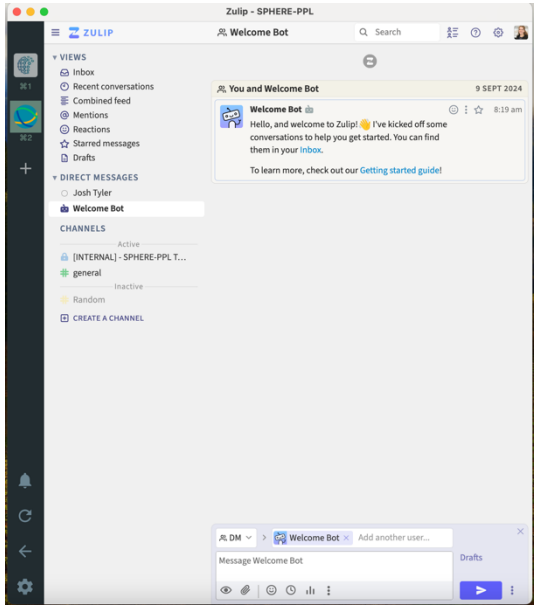
- **Stage 2 – Brainstorming requests for workshops, training and support (20 minutes)**
  - Split into groups and make a list of different ideas that would help you make progress in your area (added on the Mural Board)
  - Include as many details as possible!

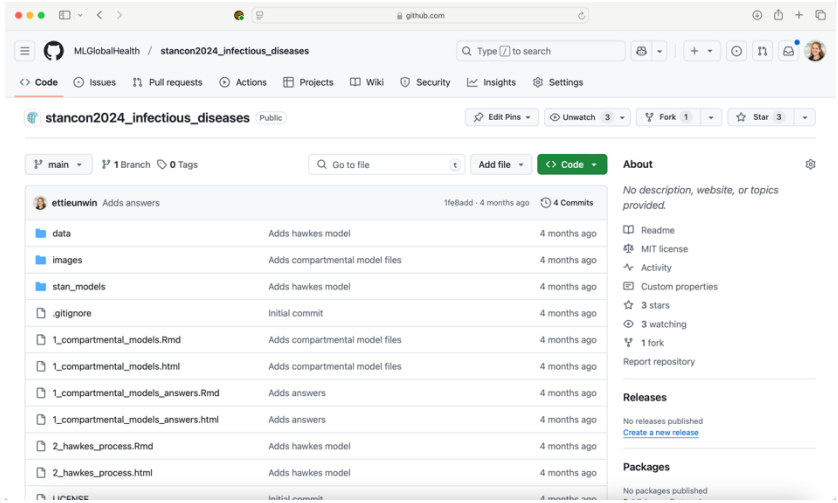
- **Stage 3 – Creating a community priority list (30 minutes)**
  - Each team will give an overview of their requests
  - Discussion around how the SPHERE-PPL community can best facilitate and maximise value

What can SPHERE-PPL do for you?

- The network's primary goal is to connect data-scientists, researchers and policy-makers, to enable high-quality modelling and data-driven decision-making.
- The SPHERE-PPL project has funding to facilitate workshops, training and targeted support on both fundamental modelling & probabilistic programming, alongside events and sessions like today, working directly with stakeholders.

What we've done so far





StanCon 2024
Conference on Stan programming and Bayesian Modeling
Oxford University, UK. September 2024

Symposium for Bayesian Modelling
Jan 22 2024

SPHERE-PPL
Home Our Vision Meet The Team Resources & Training Events Forecasting Contests Get Involved

SPHERE-PPL
GitHub Email

SPatial, Health & Environmental REsearch using Probabilistic Programming Languages

The purpose of this community is to accelerate use of probabilistic programming languages in research & policy to drive understanding and innovation. Our core areas of focus are Health, Climate & Environment, and Spatial analyses, which align with the Grand Challenges of the Turing Institute. Within this website, you will find pages relating to all of our meetings and workshops, forecasting contests and training materials.

A key part of building this community is to help connect organisations (e.g. charities, NGOs, Government departments) with analytical and research capabilities to help inform policy and develop knowledge. If you have an area of interest that would benefit from connecting with this network, please send us an email using the link below.

Health Modelling & Forecasting Meeting 2025 - Event Resources

Join The Mailing List!

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Spatial, Health & Environmental Research using Probilistic Programming

Biodiversity modelling
…with stan!

Spatial, Health & Environmental Research using Probabilistic Programming Languages

https://shorturl.at/SxCEd

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- **Stage 3 – Creating a community priority list (30 minutes)**
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Activity 3 – Priority List

Wrap-Up

- We’ve reached the end of the day!
- Please complete the Feedback Survey!

Thank-You!

For more information, please visit www.sphere-ppl.org or email the team at info@sphere-ppl.org.