



**National Federated  
Compute Services**  
NetworkPlus

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# The Roadmap Structure and Interim Update

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# Roadmap Structure





# The NFCS Roadmap

A primary output of the NetworkPlus, the Roadmap will provide UKRI with:

1. Review and assessment of:
  - Achievable levels of federation
  - Available technologies
2. Prioritised details of:
  - Options and scenarios, reflecting user requirements and future budgets
  - Potential activities spanning the full range of DRI investments with respect to federation
3. Justification of the need for investment

You can contribute to the Roadmap by:

- Providing recommendations and findings in outputs from flexible fund projects
- Contributing at this and other NFCS Conferences and Workshops
- Reviewing and responding to drafts of the Roadmap

# Evolution of the Roadmap Structure

- The National Federated Compute Services NetworkPlus currently plans a Roadmap which will include:
  - A Core Outcomes document presenting an executive summary of our recommendations and vision
  - A Full Report document, or documents, presenting in detail our Roadmap
  - Appendices referencing project reports and other relevant documents
- Recommendations in the core outcomes document will be clearly referenced to relevant sections of the Full Report
- The Full Report will clearly reference to project reports and other relevant documents in the Appendices
- This structure is fluid, and likely to remain so until late in the project



# Core Outcomes Document

## Vision of Federation

- Our high level vision of federation

A vision setting out what NFCS sees as:

- The structure of Federation
- The benefits of Federation for the DRI community
- The greater contribution a Federation might make to the UK as a whole

## Key Outcomes

- Our core recommendations to progress federation

A series of proposals which, taken jointly, will progress federation

- Presented at a high level, with detail deferred to the full report
- Including an idea of the resources needed for these recommendations

- The Core Outcomes document will be targeted at lay persons who wish to understand:
  - What is Federation?
  - Why is Federation useful?
  - What core activities would be involved in Federation?
- Where readers wish to learn more they will be clearly signposted to relevant portions of the full report

# Full Report

## Vision & Context

- Our vision of federation
- Scoping
- Levels of federation
- What would NFCS look like?
- How would NFCS evolve?

## Landscape Survey

- High level view of existing landscape
- Technologies, communities & policies which may be elements of NFCS

## Challenge, Gaps & Risks

- Description, for NFCS, of:
- Challenges
  - Knowledge Gaps
  - Risks

## Activities, Options & Scenarios

- Prioritised list of activities
- Timelines where possible

Key that these activities:

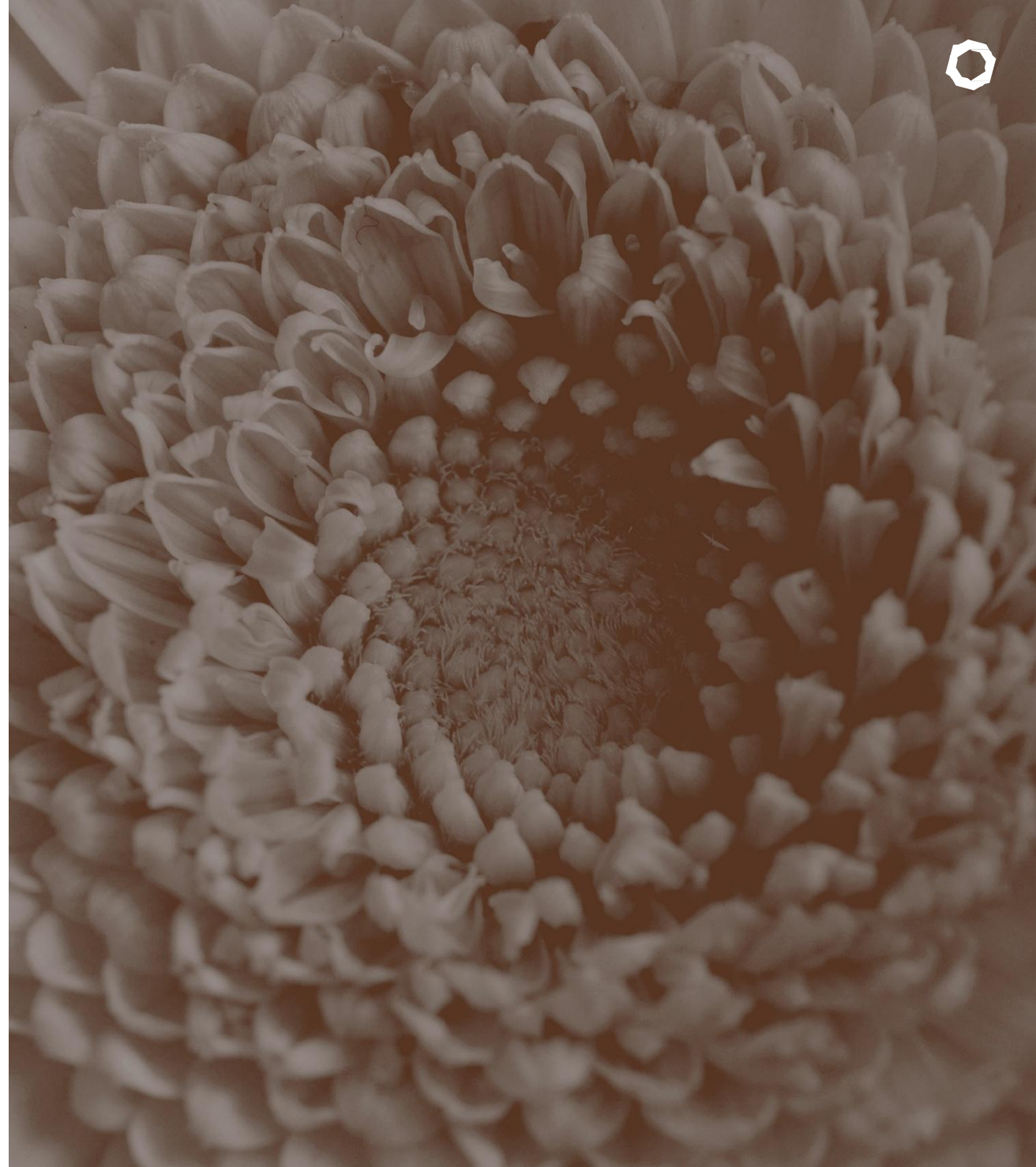
- Present options where available
- Include scenarios for varied funding scenarios
- Provide justifications and arguments in support
- Prioritise recommendations for activity which may be assigned elsewhere in UK compute landscape

## NFCS Timeline

- Clear 5-year timeline for NFCS

# Full Report

- The Full Report will be targeted at members of the DRI community interested in the full detail of Federation
- Will be structured to clearly correspond to the Core Outcomes document
- Will clearly reference to the appendices



# How projects contribute

- The core output from projects comes in the form of the project report
  - The project report must capture all outputs from the project of relevance to NFCS
  - This must be published with a DOI (please contact us if this is an issue)
- Interim findings, pending the project report, are welcome and encouraged
- Key findings from projects will be synthesised and included in the Roadmap
- All project outputs will be **considered** however not all outputs can or will be **included**
  - The team will draw from submission where relevant



# How projects and the community can contribute

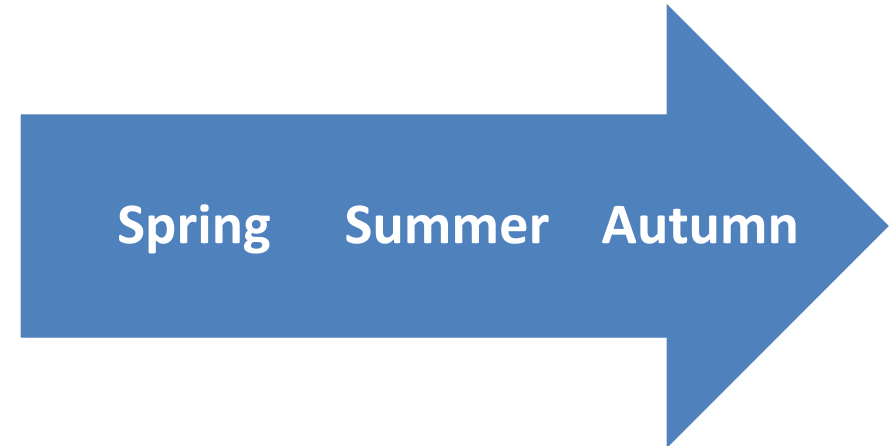
- Other routes to contribute to the Roadmap are to:
  - Review and provide feedback to drafts of the Roadmap
  - Attend NFCS Conferences and Workshops
  - Submit relevant documents and reports which originate outside NFCS
- Submission mechanism for external groups will be established shortly



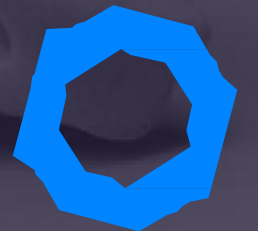


# Roadmap Timeline

- The overall timeline for the NFCS Roadmap remains **extremely tight**
- A draft report is expected to be produced in early summer, ahead of final outputs from projects
- To support this timeline we are keen to see **interim findings** wherever possible
- The final roadmap will be presented in September



# Interim Update and Forward Look



# Wide engagement

- Direct participation of project partners from a wide variety of research council areas
- Engaged with a wide variety of partner programmes and initiatives



And many more...

# Wide engagement

## Universities & Research Institutions

- University of Leicester
- Durham University
- University of Cambridge
- University College London (UCL)
- University of Bristol
- King's College London (KCL)
- Queen Mary University of London (QMUL)
- Newcastle University
- University of Edinburgh (EPCC)
- University of the West of England (UWE)
- Rosalind Franklin Institute
- Henry Royce Institute

## Companies & External Partners

- NCC Group
- MartinH.Net
- ConstelCom Ltd
- StackHPC Ltd

## National Funding & Infrastructure Progs

- UKRI Digital Research Infrastructure (DRI)
- NFCS NetworkPlus
- AIRR (AI Research Resource)
- DiRAC
- ARCHER2
- DARE-UK
- HDR UK
- National TRE ecosystem

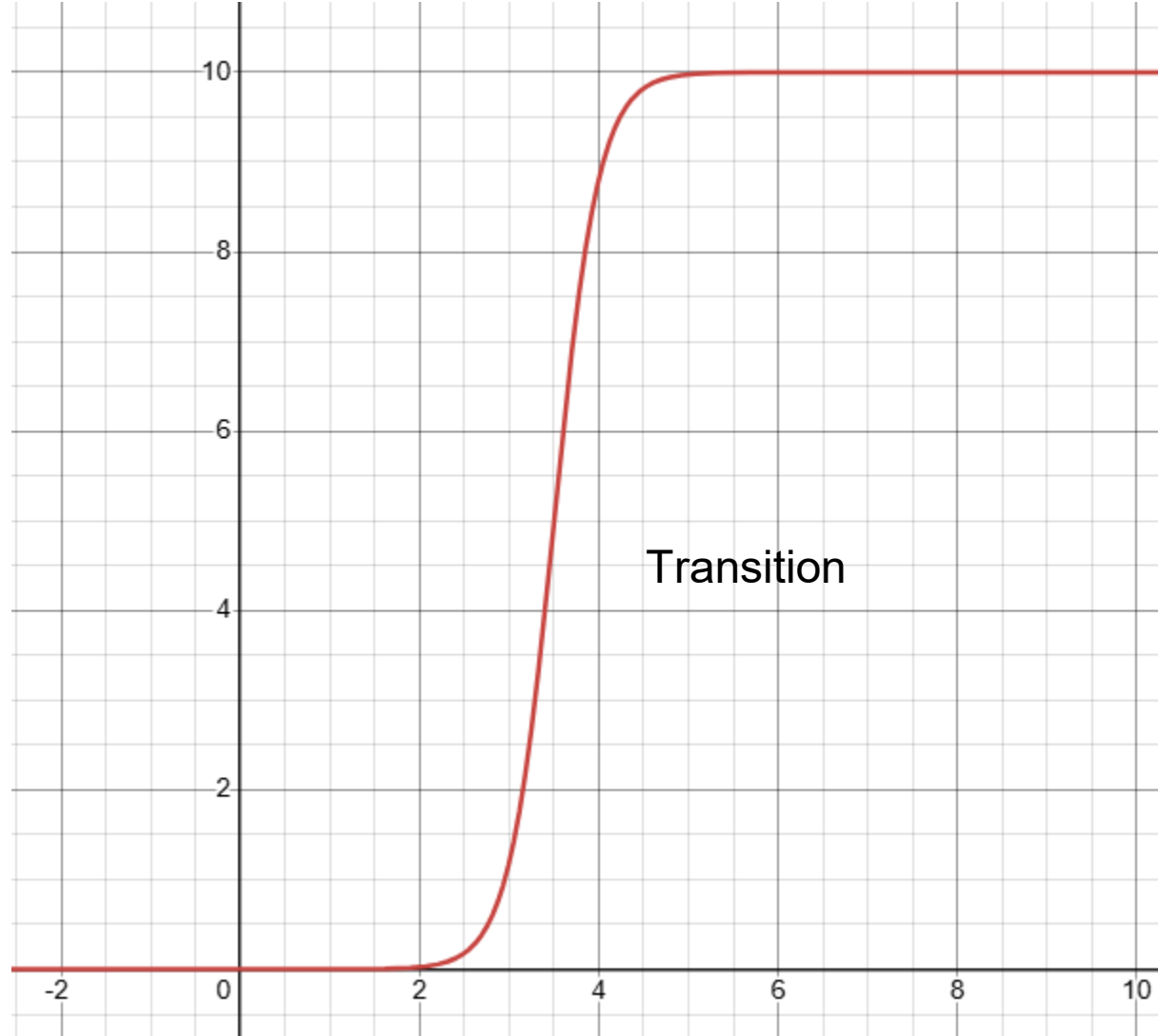
# Work across pillars

| Technology  | Community   | Governance   |
|---|---|--|
| <ul style="list-style-type: none"><li>• Technical evaluations of:<ul style="list-style-type: none"><li>• Data-movement tools</li><li>• Container registries</li><li>• Packaging stacks</li><li>• Edge-HPC orchestration tools</li><li>• Identity and Access Management technologies</li><li>• Tokenised Authentication</li><li>• AI Helpdesks</li></ul></li><li>• Reference architectures for federation<ul style="list-style-type: none"><li>• Data</li><li>• Compute</li><li>• Identity</li></ul></li></ul> | <ul style="list-style-type: none"><li>• User stories across domains:<ul style="list-style-type: none"><li>• HPC</li><li>• AI</li><li>• Arts and Humanities</li><li>• Healthcare</li><li>• Transport</li><li>• Built Environment</li></ul></li><li>• Community requirements for federation adoption</li><li>• Definition of user archetypes and future-skills needs</li><li>• Inclusion strategies:<ul style="list-style-type: none"><li>• Junior researchers</li><li>• Tier 3 providers</li><li>• Built environment</li></ul></li></ul> | <ul style="list-style-type: none"><li>• Governance frameworks:<ul style="list-style-type: none"><li>• Identity and Access Management</li><li>• Data contracting</li><li>• Environmental and data workflows</li></ul></li><li>• Institutional integration models for access provisioning.</li><li>• Sustainability/operating models for federated services.</li></ul> |

# Timelines

Federated

Unfederated



This could be a timeline for next stage of national federation

Planning Delivery

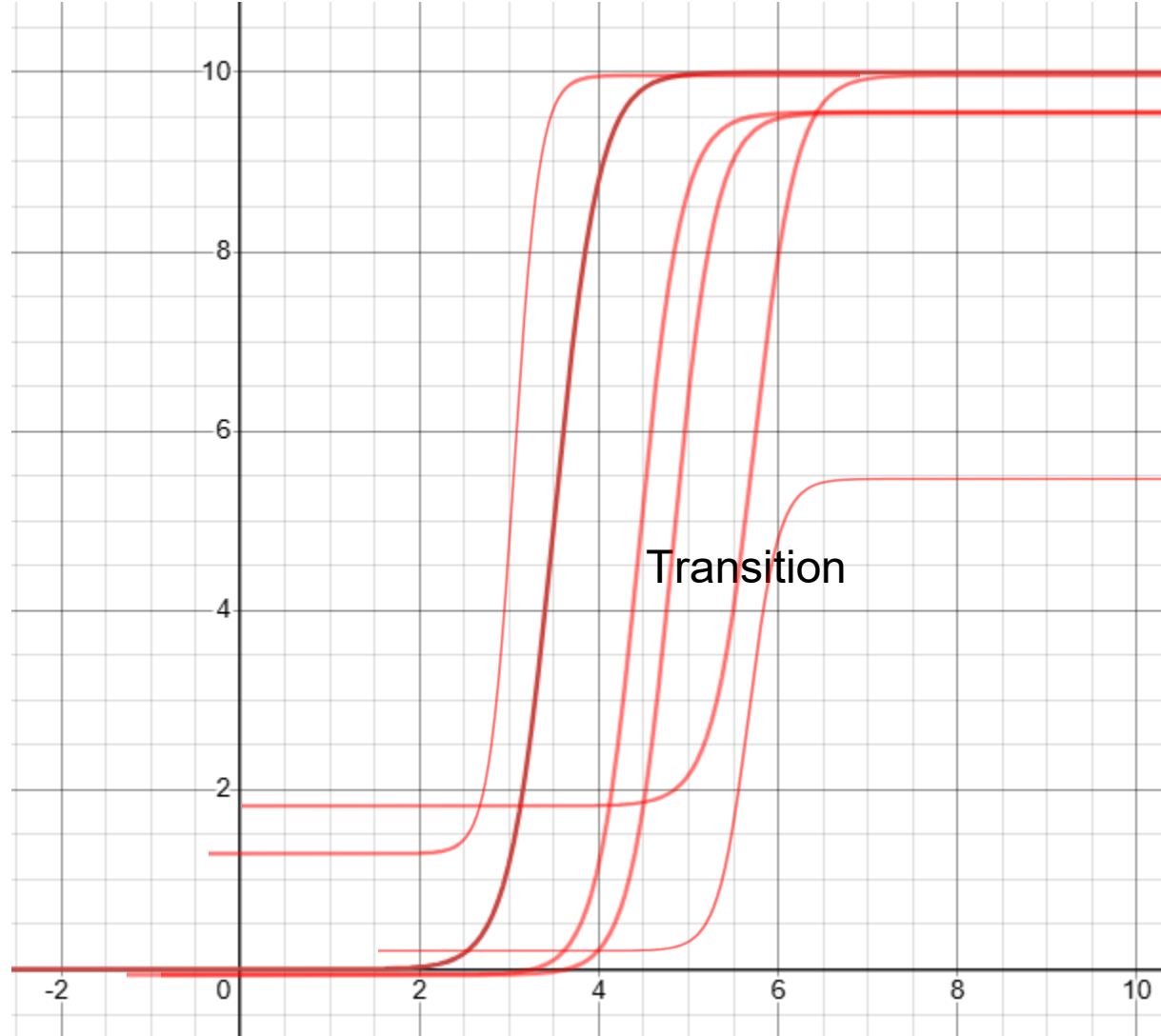
Business-as-usual

Years?

# Timelines

Federated

Unfederated



Reality is more complex

Different activities are at different stages, have different timelines, different aspirations, different challenges

**Roadmap needs to address how to achieve this**

Planning

Delivery

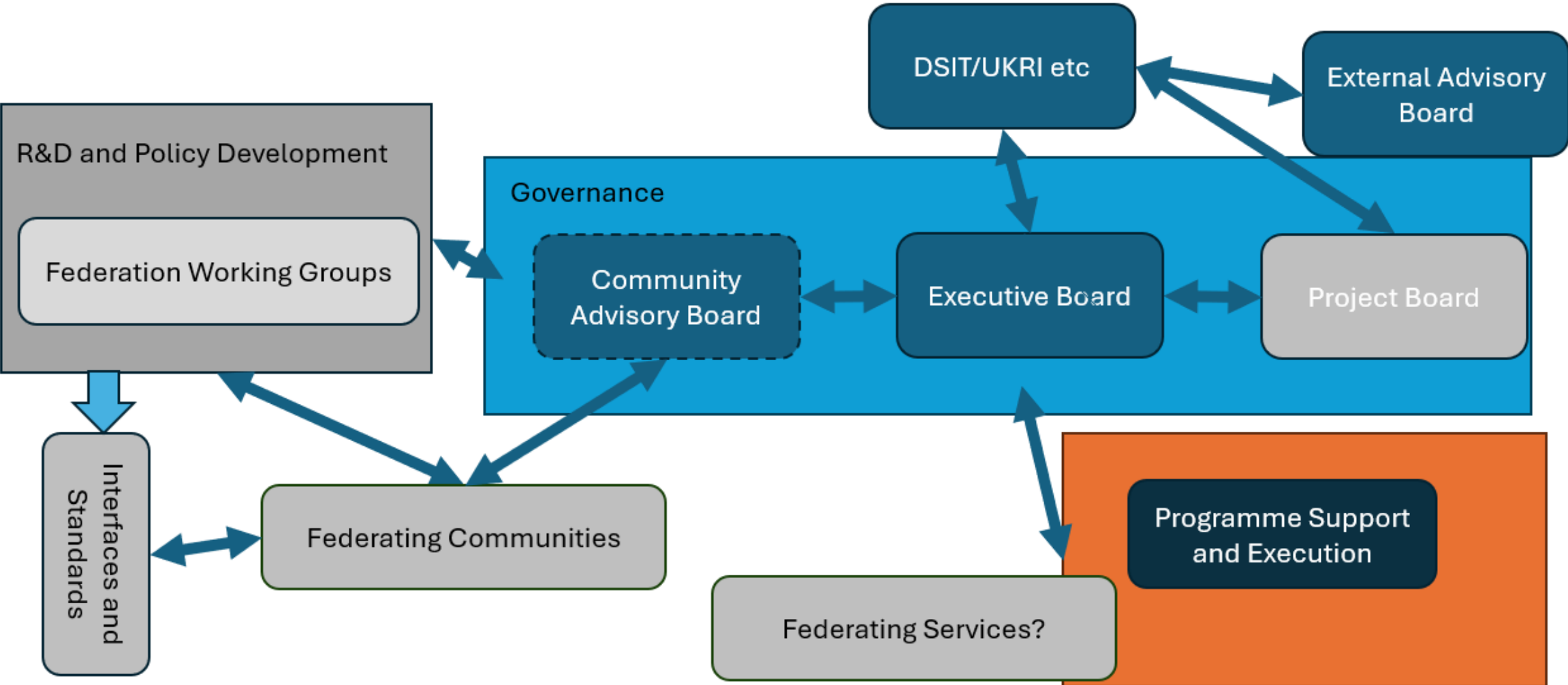
Business-as-usual



# Structure, scope and subsystems

- Where does decision making sit?
  - How do we balance responsibility and accountability at different layers?
  - How do we facilitate federation while respecting autonomy of federation members?
  - How will community input be captured and influence a federation of federations?
  - How will we technically delivery federation?
- Roadmap will need to have recommendations on this:
    - What structure?
    - Which participants?
    - What sits where in the structure?
    - What actions are necessary to bring together this structure, and bootstrap federation?

# Example of potential organisation chart



# Mapping onto Pillars

