



Webinar

# EU-CEM – European Common Evaluation Methodology for CCAM

8 May 2024 11:00-12:00 CET

Organised by the FAME project

More information and draft EU-CEM Handbook:

[www.connectedautomateddriving.eu/methodology/common-evaluation-methodology](http://www.connectedautomateddriving.eu/methodology/common-evaluation-methodology)



# Agenda

- Welcome and agenda – Yvonne Barnard (University of Leeds)
- Introduction to FAME – Stephane Dreher (ERTICO, FAME project coordinator)
- Introduction to the EU-CEM – Satu Innamaa (VTT)
- Guidelines for the project preparation phase – Isabel Wilmink (TNO)
- Guidelines for how to set an evaluation plan – Satu Innamaa (VTT)
- Evaluation area specific guidelines – Elina Aittoniemi (VTT)
- Taxonomy – Floris Hooft (MAPtm)
- Q&A – Yvonne Barnard (University of Leeds)
- Wrap-up and next steps – Yvonne Barnard (University of Leeds)



# Introduction to FAME

Stephane Dreher (ERTICO)





# FAME

## Framework for coordination of Automated Mobility in Europe



July 2022 – June 2025  
22 partners from 12 States  
RIA  
4M €

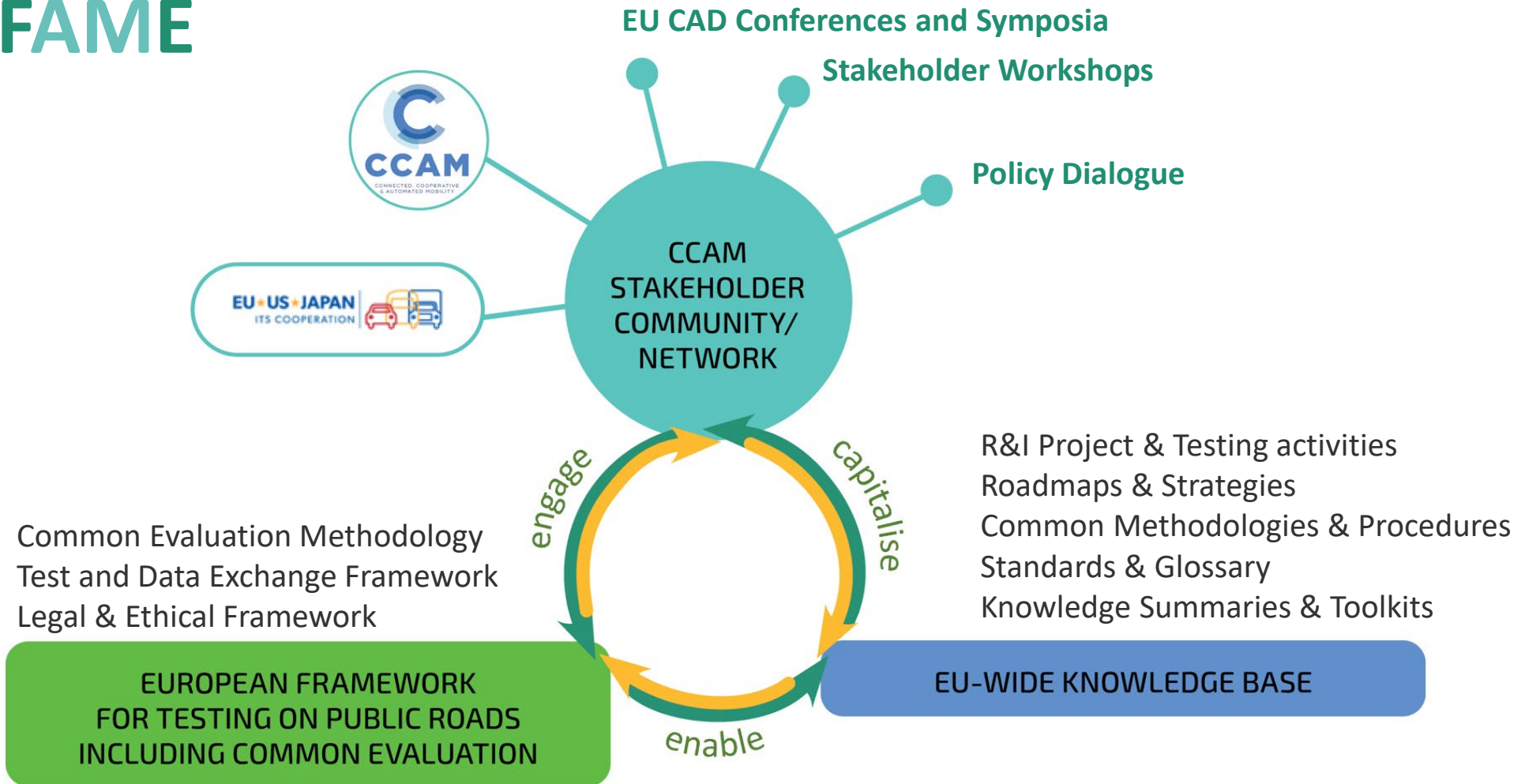
Building on...  
VRA  
2013 – 2016  
CARTRE  
2016 – 2018  
ARCADE  
2018 – 2022



THE FAME PROJECT IS FUNDED BY  
THE EUROPEAN UNION HORIZON  
EUROPE WORK PROGRAMME

8 May, 2024

# FAME





# Introduction to the EU-CEM

Satu Innamaa (VTT)

**More information and draft EU-CEM handbook:**

[www.connectedautomateddriving.eu/methodology/common-evaluation-methodology](http://www.connectedautomateddriving.eu/methodology/common-evaluation-methodology)



# Common evaluation methodology for CCAM

- FAME is developing a common evaluation methodology (EU-CEM Handbook) that provides guidance **on how to set up and carry out an evaluation or assessment** of direct and indirect (wider socio-economic) impacts directed to different user groups
- Objectives for EU-CEM
  - Provide **common language and basis** for CCAM evaluations
  - Allow all CCAM projects to benefit of methodological **lessons learned and best practices**
  - **High quality evaluation** of CCAM pilots and demonstrations
  - Ensure **transferability of results** of CCAM pilots for future research, development and testing
  - **Better excellence and progress** of research and innovation on CCAM
  - Projects can provide **high quality input for decision and policy making**

# EU-CEM principles

## Guiding star principle

- The EU-CEM provides a common evaluation methodology for all CCAM tests, setting minimum requirements for evaluation

## Collaboration principle

- The EU-CEM provides evaluation guidance inspired by lessons learned and best practices of CCAM tests

## Comply-or-explain principle

- The EU-CEM provides guidance which should be followed, or the motivation for different choices should be explained

## Agility principle

- The EU-CEM encourages agile ways of working in developing the project evaluation plan

## Flexibility principle

- The EU-CEM allows for flexibility in adapting it to each project's specific evaluation needs

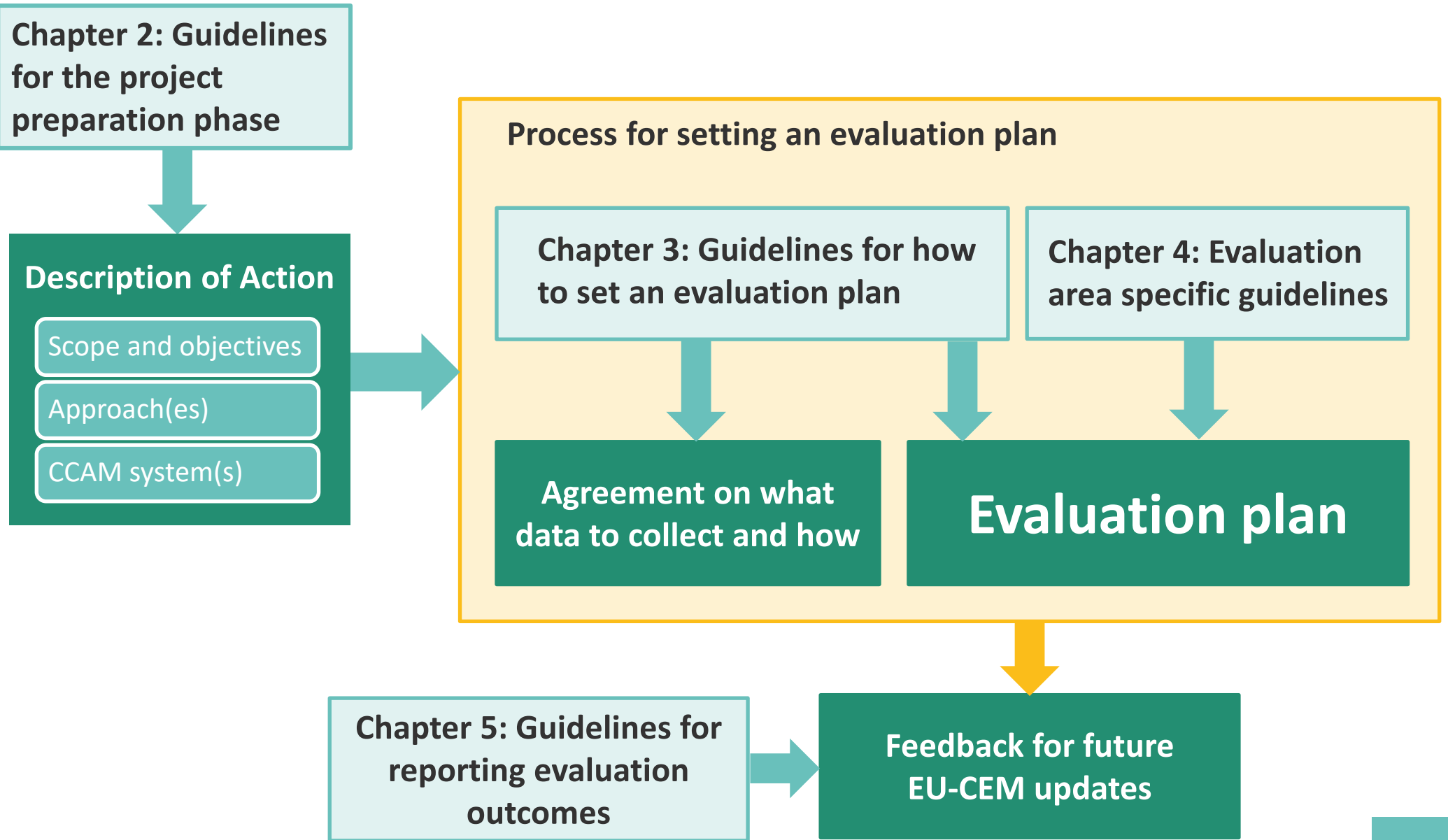




# For whom?

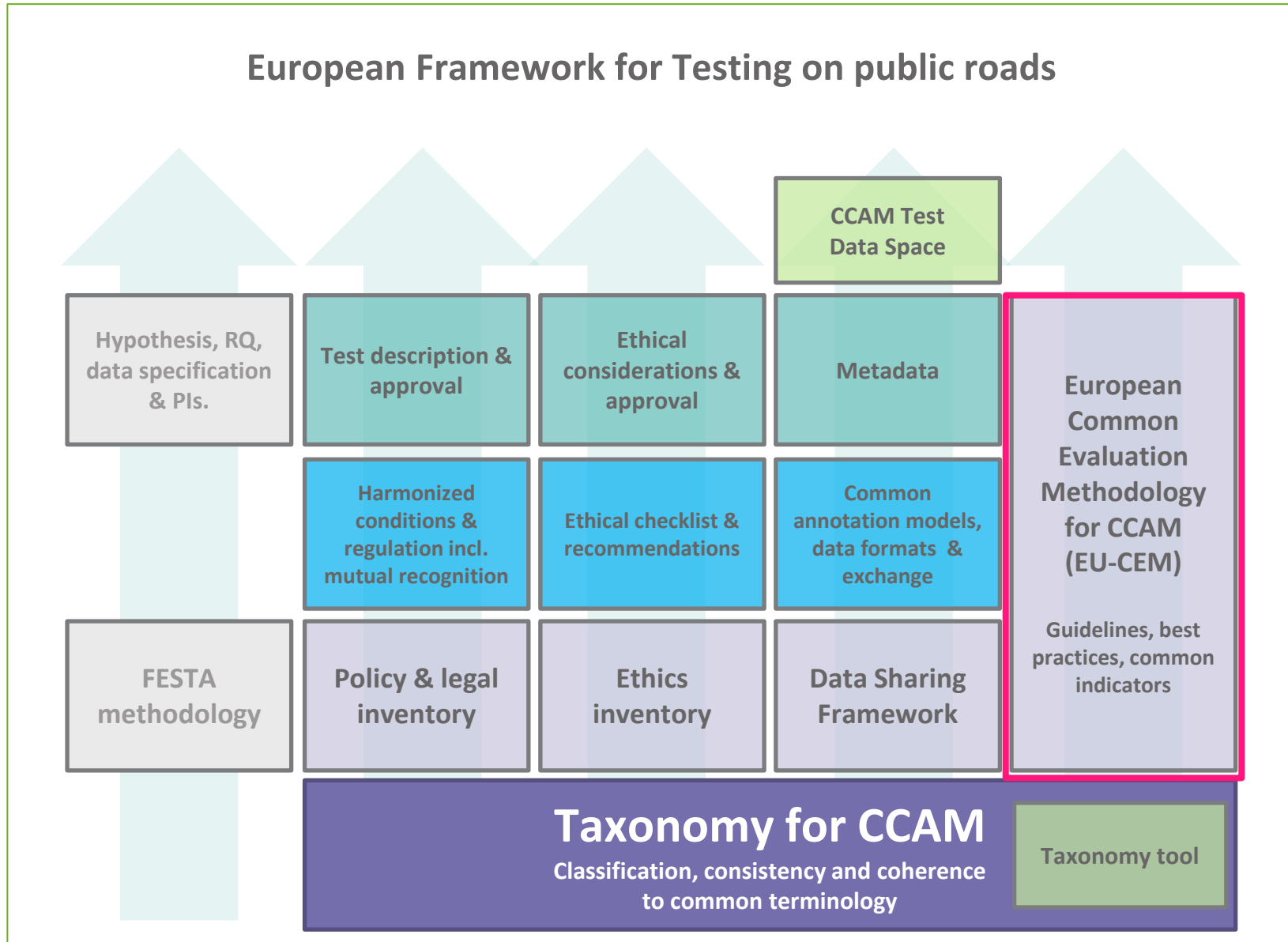
For all CCAM projects that include **impact assessment**, addressing

- Automation of road transport of **people and goods**
- **Any vehicle type** (specifically cars, trucks, shuttles, buses)
- **Higher-level driving automation** (SAE level 3 and higher), with and without connectivity
- **Use cases on public roads**, likely with specified operational design domain (ODD), operating in mixed traffic
  
- Mainly **large joint projects**, but is applicable also for small ones



# European Framework for Testing on public roads

- Software & tools
- Templates for documenting CCAM testing activities
- Best practises, checklists & recommendations
- Methodologies, frameworks & inventories





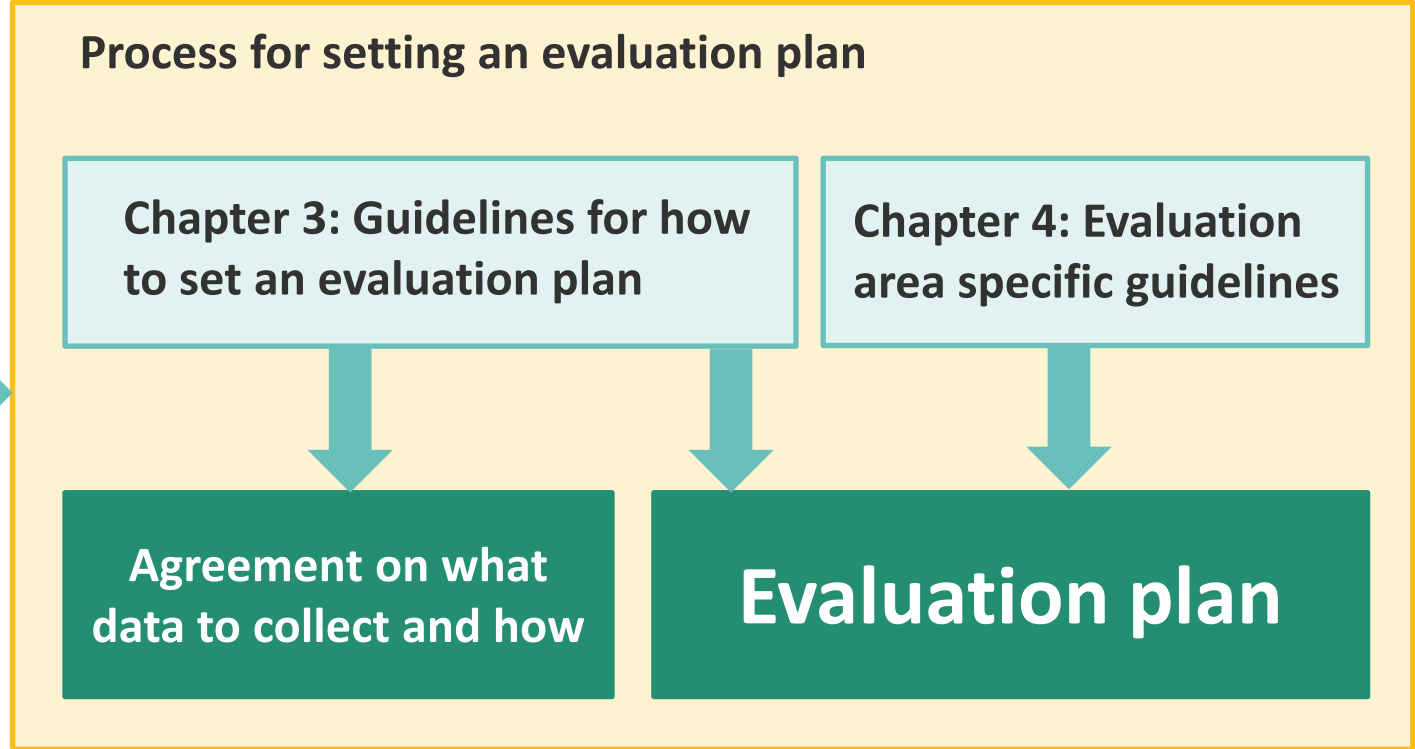
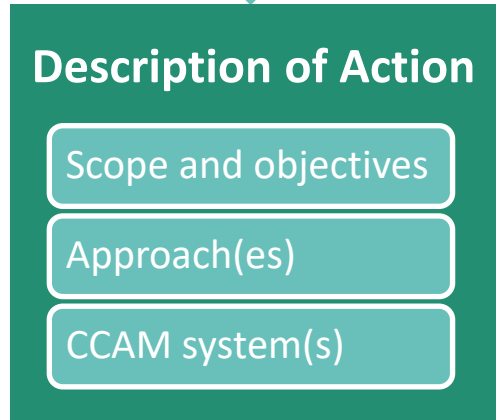
# Guidelines for the project preparation phase

Isabel Wilmink (TNO)





Chapter 2: Guidelines for the project preparation phase



Chapter 5: Guidelines for reporting evaluation outcomes

**Feedback for future EU-CEM updates**



# How to lay a strong foundation for successful evaluation?

- This foundation is laid in the proposal phase and at the start of projects
- **Scoping of evaluation**
  - Broad range of expected benefits – how to choose which ones must and can be evaluated?
  - Scoping to ensure that the consortium can be built to fit the scope and that the scope is set to fit the consortium
- **Project structure and governance**
  - CCAM projects can be large and complex, with often immature technologies and large amounts of data
  - A good project structure is a start, in addition good governance is needed
    - To deal with e.g. unrealistic targets, complex plans, weakness in structure and capabilities, unclear levels of commitment, insufficient communication

# Guidelines for the project preparation phase

Scoping of evaluation		Project structure and governance	
2.1	How to set the overall scope of the evaluation	2.4	How to plan the evaluation activities for the proposal
2.2	How to define impact areas that the project will cover in the evaluation	2.5	How to create a project structure that supports the evaluation
2.3	How to build a consortium fit for the evaluation scope	2.6	How to assign responsibilities across work packages and activities
		2.7	How to ensure information exchange to support the evaluation of CCAM
		2.8	How to enable adaptivity of the planned evaluations
		2.9	How to ensure the quality of the evaluation
		2.10	How to set up a process for mediating conflicts

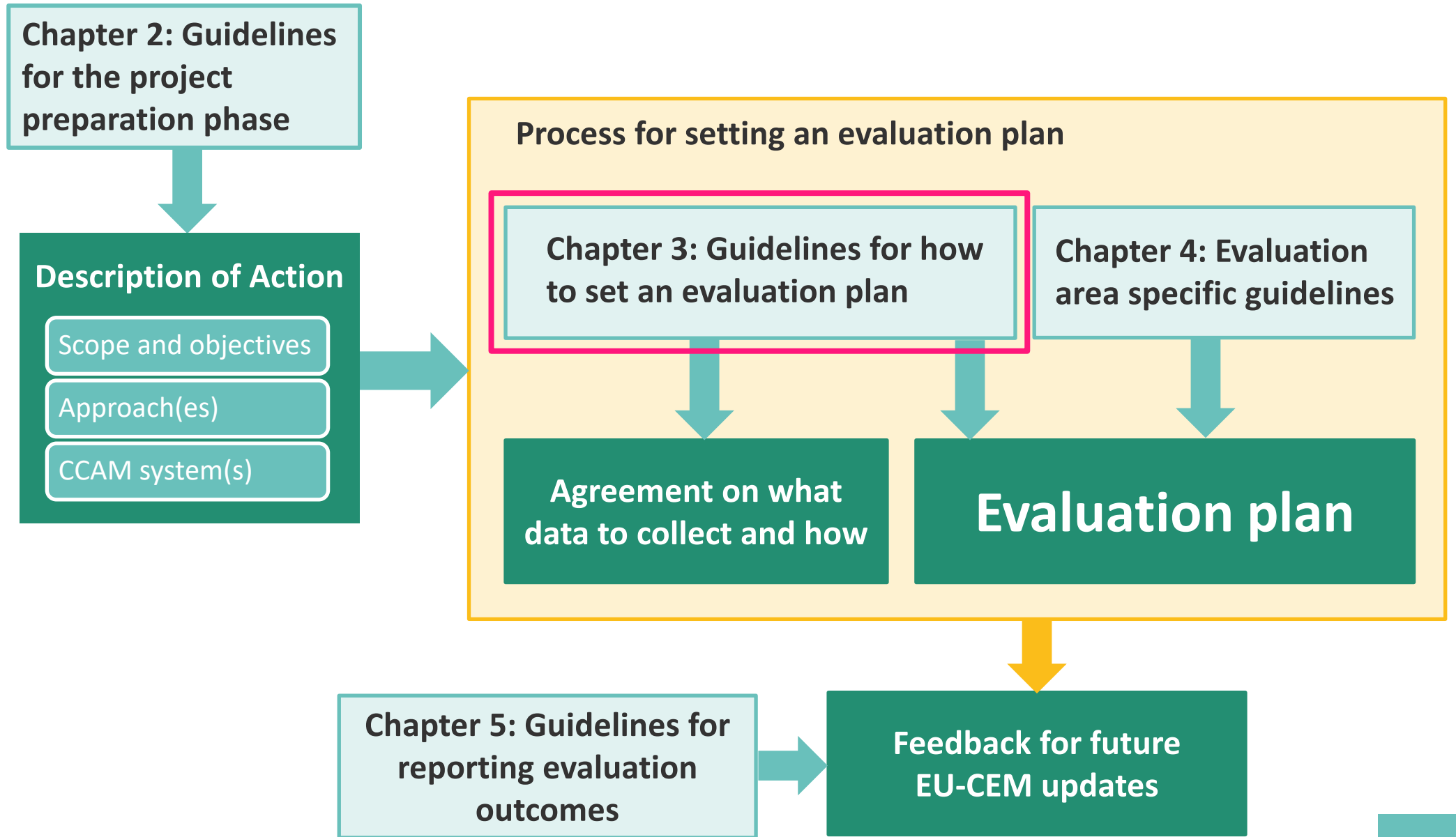


# Guidelines for how to set an evaluation plan

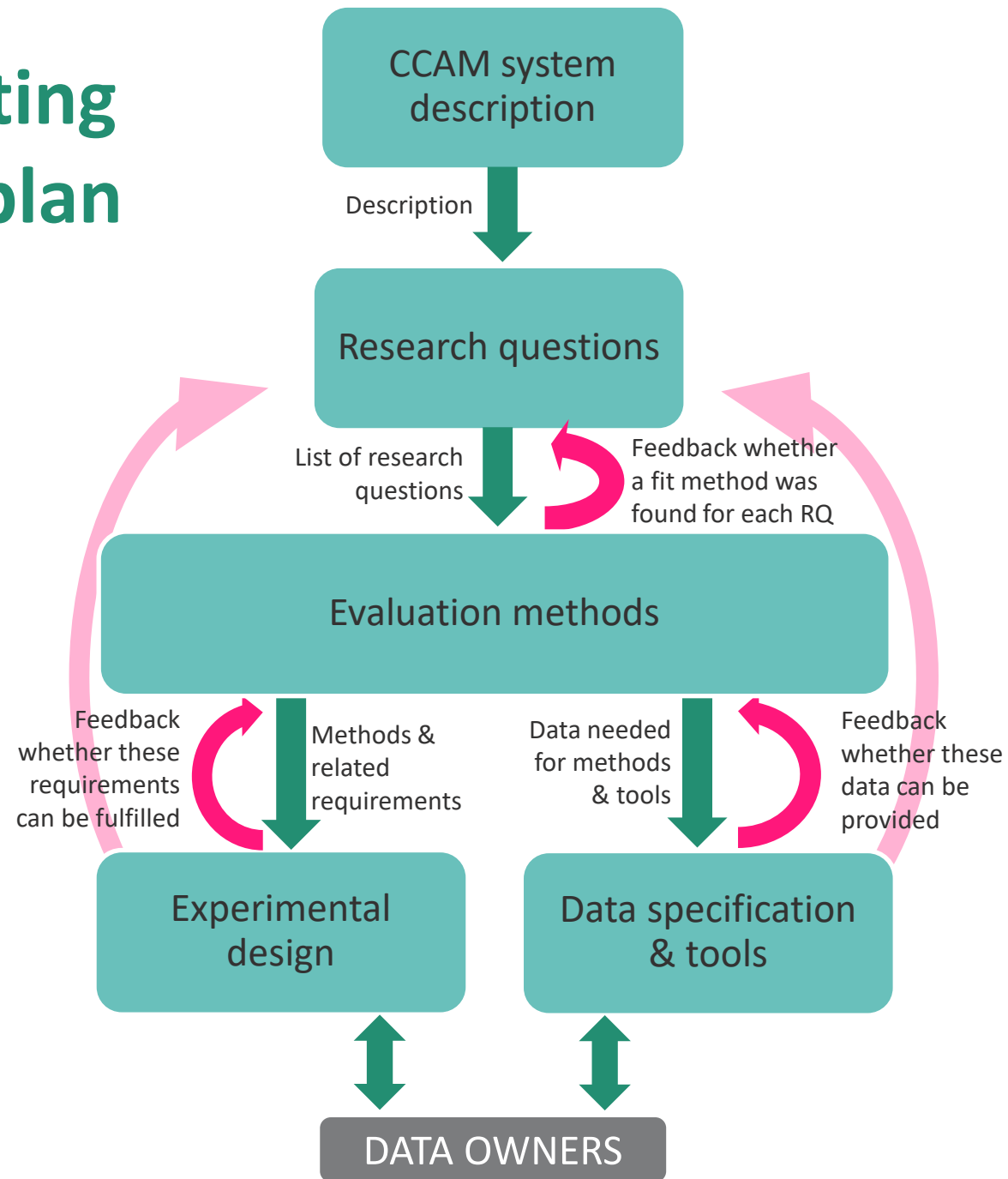
Satu Innamaa (VTT)







# Process for setting an evaluation plan



# Format of guidelines

- Sub-chapter for each main step in setting of the evaluation plan
  - CCAM system description
  - Research questions
  - Evaluation methods
  - Data specification and data tools
  - Experimental design
  - Evaluation plan compilation

- How to...
  - Guideline
  - Example
  - Literature

## Guideline 3.8. How to check the feasibility of research questions

Guideline	<p>Check the feasibility of the evaluation plan for each research question, covering all elements of (1) data provision, (2) experimental design, (3) evaluation tools, (4) timeline and (5) resources.</p> <p>1) For data provision, check that all data needed for the evaluation are covered by the agreement of data to be shared with the evaluation team and that the planned quantity of data is sufficient for the planned methods. This includes input for all methods and tools, including their calibration and contextual data.</p> <p>2) For experimental design, check that both the participant type and experimental design agreed with the test site teams fulfil the minimum requirement of the set methodology.</p> <p>3) For evaluation tools, check that the planned tools are available to the evaluation team member set responsible for the corresponding evaluation step, or that the plan</p>
-----------	---

...

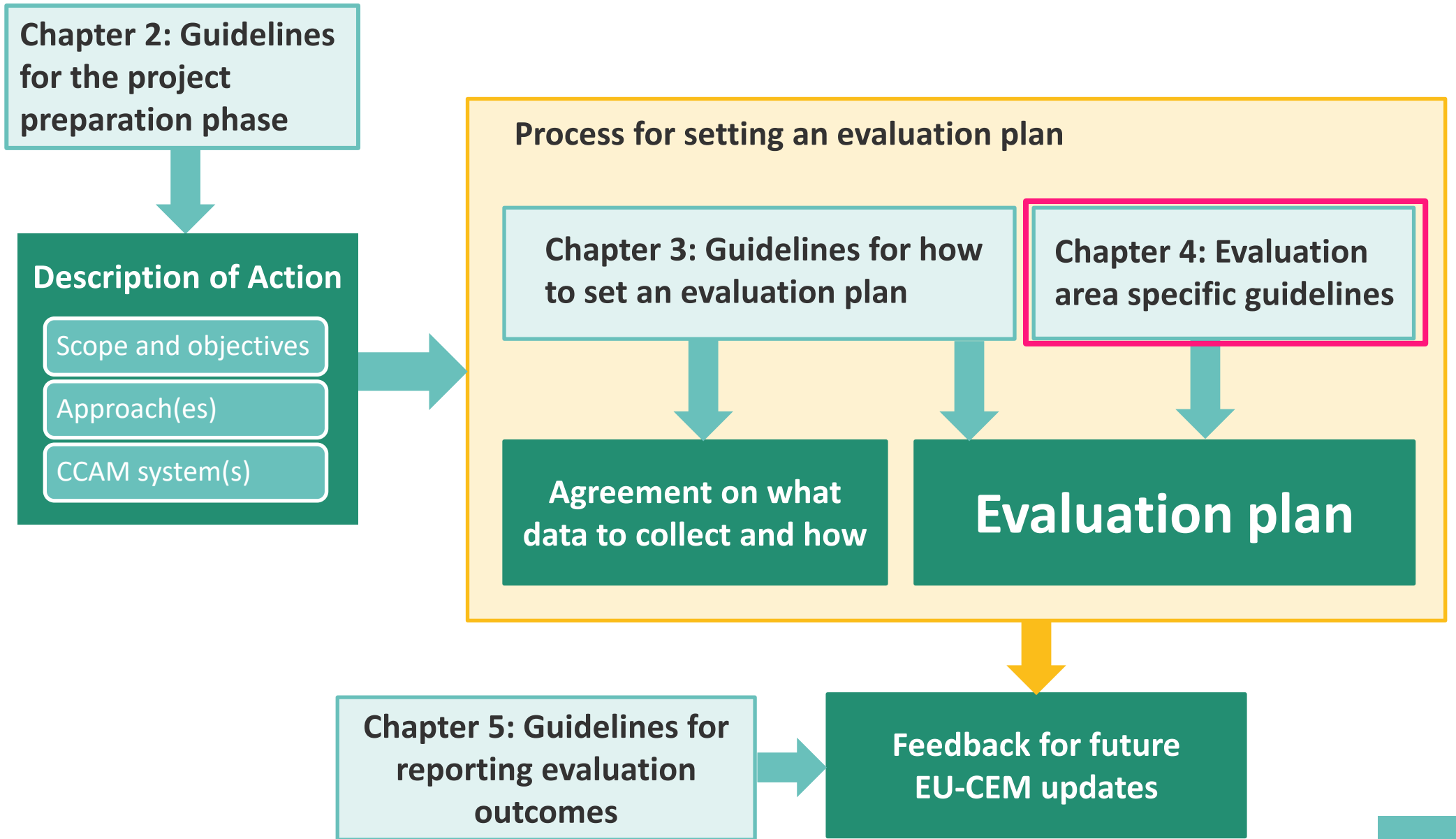


# Evaluation area specific guidelines

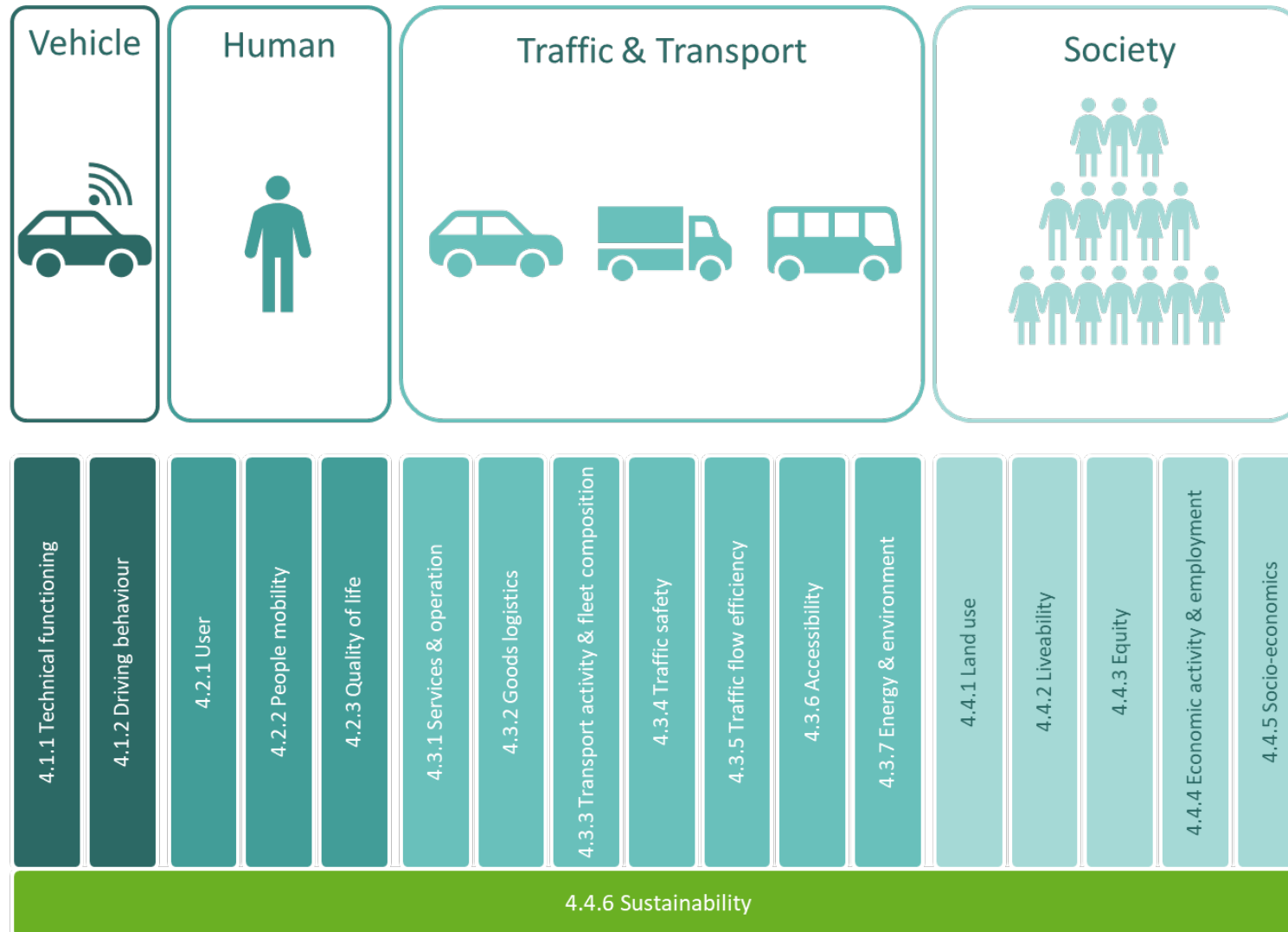
Elina Aittoniemi (VTT)







# Guidelines for 18 evaluation areas



# Format of guidelines

- 18 evaluation areas in total, grouped based on level of evaluation: vehicle, human, traffic & transport and society
- Introduction
  - Definition for the evaluation area and scoping of the chapter
  - Short overview of the theory
- Guidelines
  - Recommendations of result indicators to be evaluated by every project addressing the topic
  - Impact pathway to show the linkages with other areas
  - Overview of different approaches and methods
  - Pitfalls and best practices related to different methods



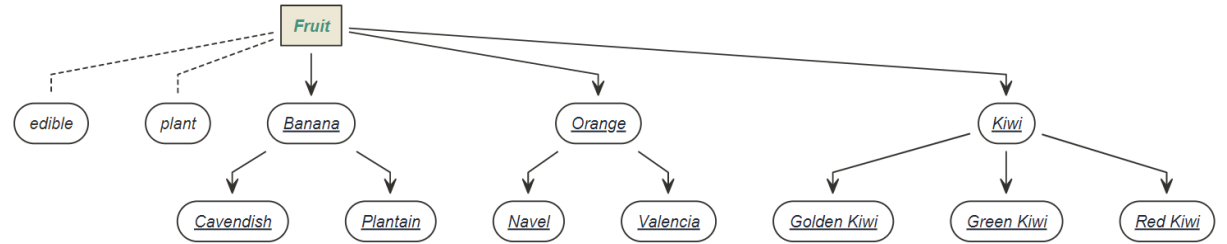
# Taxonomy

Floris Hooft (MAPtm)



# Taxonomy for CCAM

- Goals
  - Ensure harmonized definitions
  - Consistent terminology to support CEM
- Content
  - 410 terms, definitions (incl. related terms, context, reference etc.)
  - Visualised and navigable with ontology software: hierarchical approach / categorization
  - Filtering + export function
- Based on
  - Existing standards (ISO, SAE, EC, UNECE, WHO), FAME consortium and other taxonomies





# Taxonomy

for  
Connected Cooperative and Automated Mobility (CCAM)

[About](#) [Contact](#)

ABCDEFGHIJKLMNOPQRSTUVWXYZ

operational

**Filters** Clear all

**Context**

- AI
- Data
- Evaluation
- Infrastructure
- Operation
- Regulation
- Safety
- Technology
- User
- Vehicle

[Export filtered terms](#)

Taxonomy for Connected Cooperative and Automated Mobility (CCAM) contains a total of 5 terms.

## Current operational domain (COD) Vehicle Technology

Current operational domain is the specific set of operating conditions which exists presently in the immediate vicinity of an ADS, including, but not limited to,...

## Operational design domain (ODD) Vehicle

Operating conditions under which a given driving automation system or feature thereof is specifically designed to function.

# Operational design domain (ODD)

Added: 15/12/2023  
Contributor: FAME Add to list

## Current consensus

Operating conditions under which a given driving automation system or feature thereof is specifically designed to function.

## Explanation

This includes, but is not limited to environmental, geographical, and time-of-day restrictions, and-or the requisite presence or absence of certain traffic or roadway characteristics.

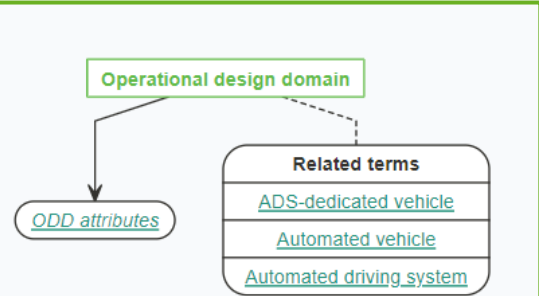
**Known synonym(s):** [Current Operational Domain](#), [Target Operational Domain](#)

**Reference:** [ISO-SAE PAS 22736:2021](#)

**Source reference:** [SAE J3016\\_202104](#)

**Related terms:** [ADS-Dedicated Vehicle](#) [Automated Vehicle](#) [Automated Driving System](#)

**Context:** Vehicle



## ANY QUESTIONS?

If you have any question, we're here to help.

[Contact](#)

[Add to list](#)

[Add term to list](#)

[Add term family to list](#)



# Questions?







# Next steps

Yvonne Barnard (University of Leeds)



# Next steps for us:

## Gathering feedback and improving the EU-CEM

- Feedback activities:
  - Via the website
  - Small dedicated (on-line) workshops
  - Summer school
  - Interviews with experts
  - Interaction with projects
- Update EU-CEM handbook and create an interactive version: available next year

**EU-CEM is for the CCAM  
community, so we need you**

# Next steps for you:

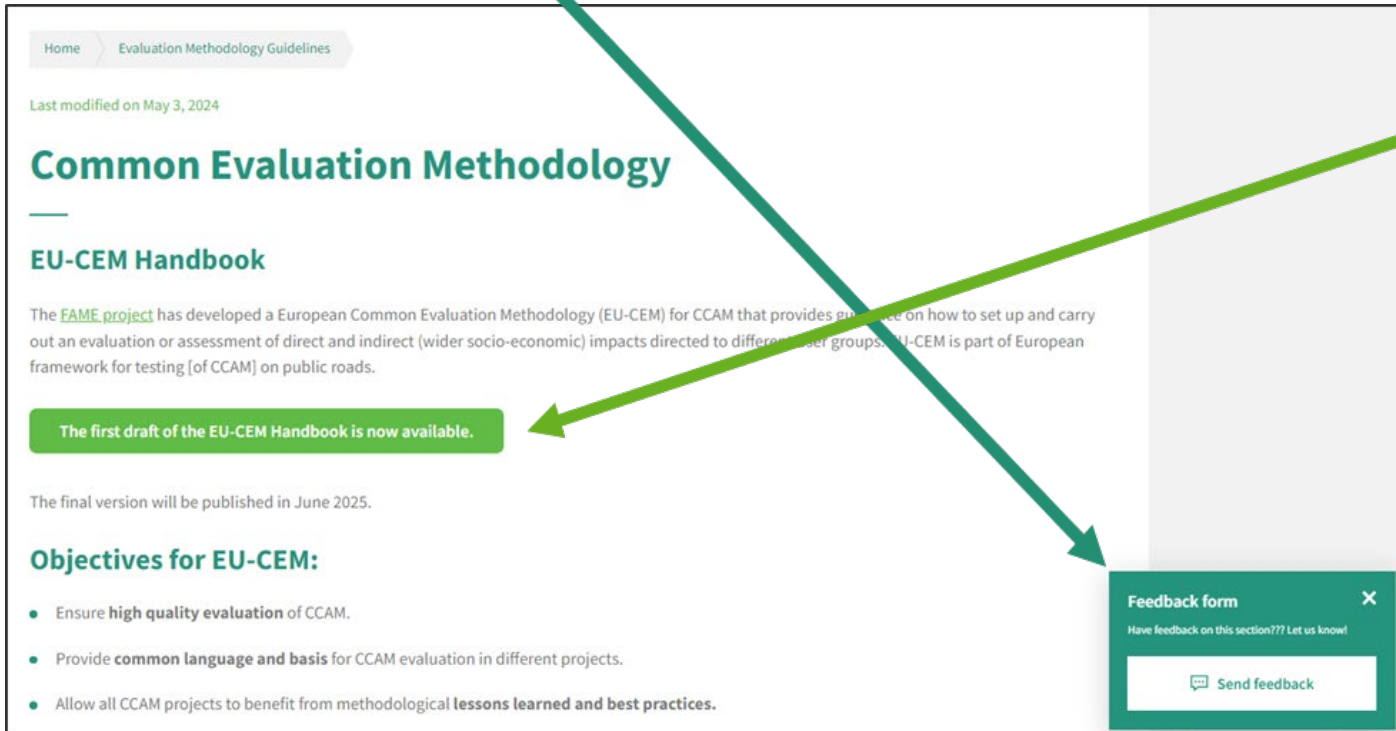
- Download the draft handbook:  
[www.connectedautomateddriving.eu/methodology/common-evaluation-methodology](http://www.connectedautomateddriving.eu/methodology/common-evaluation-methodology)
- Give us feedback

Want to discuss or have an interview?

Email:

[Satu.Innamaa@vtt.fi](mailto:Satu.Innamaa@vtt.fi)

[y.barnard@leeds.ac.uk](mailto:y.barnard@leeds.ac.uk)



Home > Evaluation Methodology Guidelines

Last modified on May 3, 2024

## Common Evaluation Methodology

### EU-CEM Handbook

The [FAME project](#) has developed a European Common Evaluation Methodology (EU-CEM) for CCAM that provides guidance on how to set up and carry out an evaluation or assessment of direct and indirect (wider socio-economic) impacts directed to different user groups. EU-CEM is part of European framework for testing [of CCAM] on public roads.

**The first draft of the EU-CEM Handbook is now available.**

The final version will be published in June 2025.

### Objectives for EU-CEM:

- Ensure **high quality evaluation** of CCAM.
- Provide **common language and basis** for CCAM evaluation in different projects.
- Allow all CCAM projects to benefit from methodological **lessons learned and best practices**.

**Feedback form** ✕

Have feedback on this section??? Let us know!



  
connected  
automated  
driving.eu

EUROPEAN COMMISSION

HORIZON EUROPE PROGRAMME

CALL TOPIC HORIZON-CL5-2021-D6-01: Framework for better coordination of large-scale demonstration pilots in Europe and EU-wide knowledge base

  
FAME  
Framework for coordination of Automated Mobility in Europe

**D4.2: EU-CEM Handbook, DRAFT**

Deliverable no.	D4.2
Dissemination level	Public draft
Work Package no.	WP4
Lead editor	VTT
Version number	D.6
Status (F: final, D: draft)	D
Keywords	Methodology, CCAM, Handbook
Due date	28 February 2025
Document date	2 May 2024

 Funded by the European Union





# Thank you!



[www.connectedautomateddriving.eu](http://www.connectedautomateddriving.eu)



Connected Automated Driving in Europe



@Europe\_CAD

More information and draft EU-CEM handbook:

[www.connectedautomateddriving.eu/methodology/common-evaluation-methodology](http://www.connectedautomateddriving.eu/methodology/common-evaluation-methodology)