



**HAL**  
open science

# Continuous and Efficient Cooperative Trust Management for Resilient CCAM

Francesca Bassi

► **To cite this version:**

Francesca Bassi. Continuous and Efficient Cooperative Trust Management for Resilient CCAM. ETSI Security Conference 2023, Oct 2023, Sophia-Antipolis (France), France. hal-04253796

**HAL Id: hal-04253796**

**<https://hal.science/hal-04253796>**

Submitted on 23 Oct 2023

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution - NonCommercial - NoDerivatives 4.0  
International License



# Continuous and Efficient Cooperative Trust Management for Resilient CCAM

## Cooperative, Connected and Automated Mobility (CCAM)

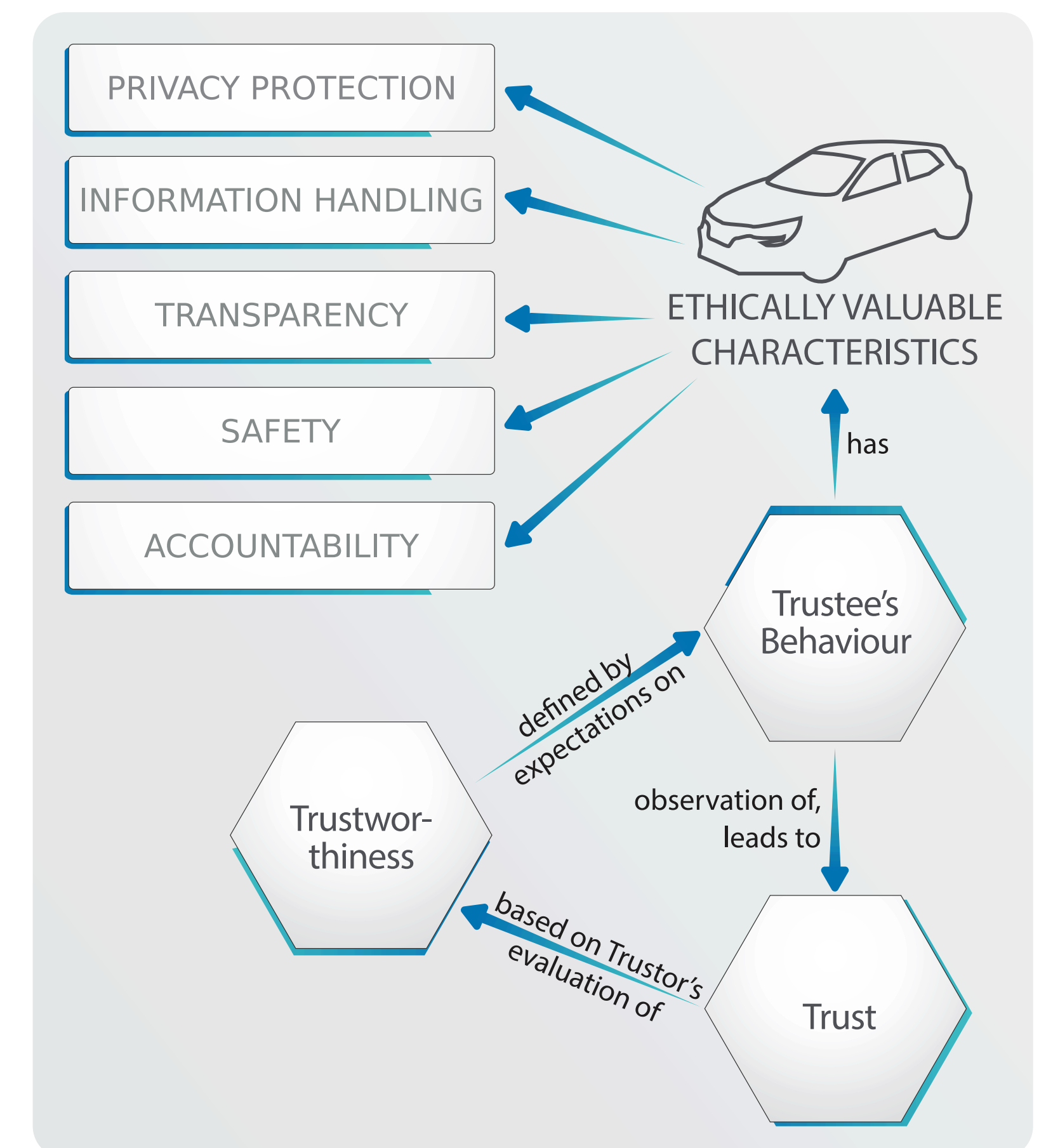
CCAM aims at enhancing road safety by using perception sharing, path planning, real-time local updates, coordinated driving.

## Multiple actors, new security questions

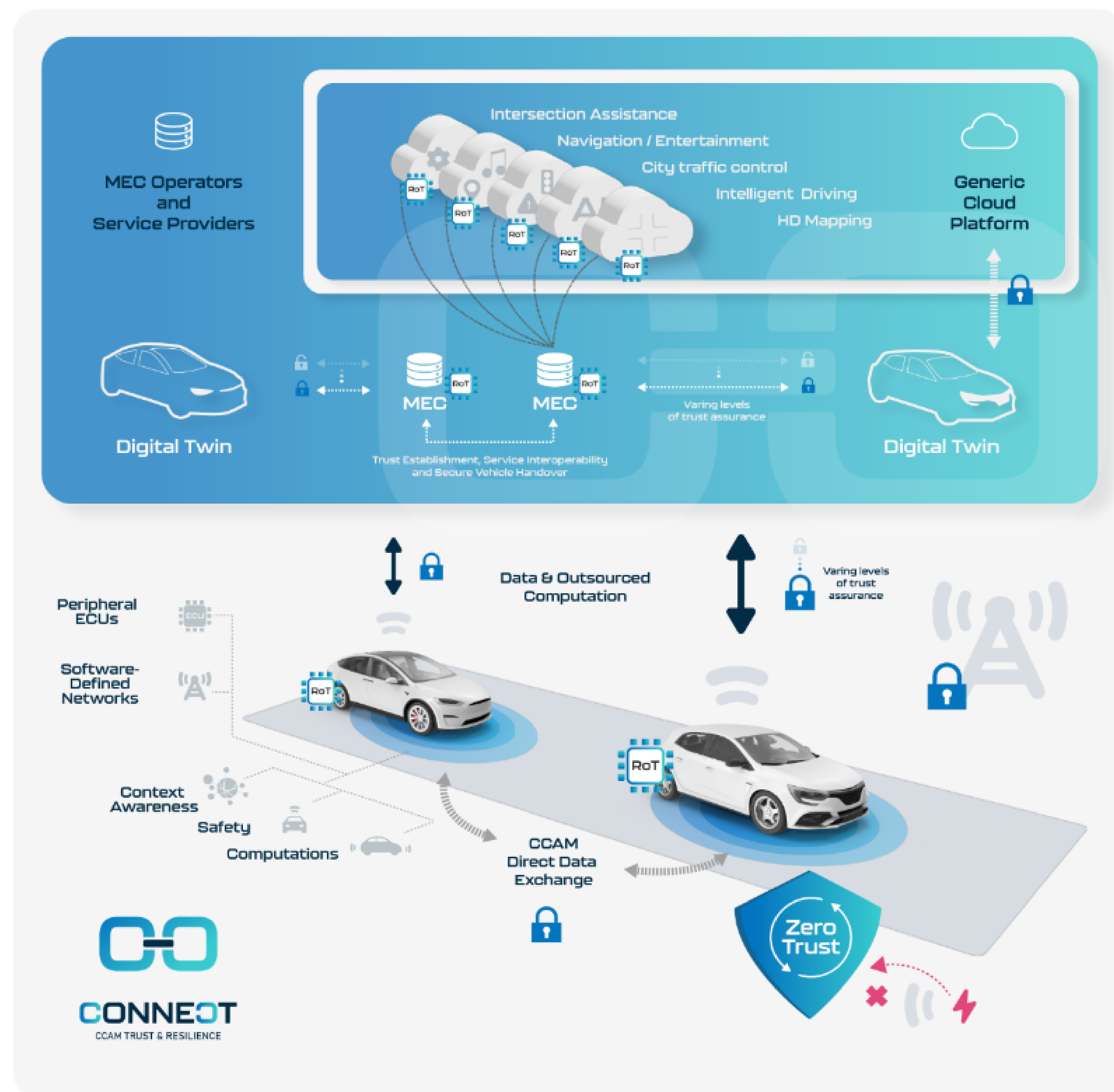
Multi-Access Edge Computing (MEC) provides the required latency and processing power near the vehicle to assist the execution of safety-critical operations. How to provide security in the cooperative task in this complex, multi-actor environment?

## Continuous, dynamic trust assessment

CONNECT establishes a trust assessment framework, centered around the Zero-Trust paradigm, which allows a component to continuously assess the dynamic trust relationships with interacting components and entities, and to take trust-based decisions.



Trust modeling in CONNECT



Trust enablers in the CONNECT framework

## Trustworthiness evidence

In CONNECT trustworthiness is the technical measure of the ability of a component to perform a task or to comply with a security property, and it informs the trust decision. Trustworthiness is gauged collecting verifiable evidence, including continuous verification of integrity of the hardware, of the instantiated software stack, and of the runtime execution state of the target component. This is obtained thanks to the design of a distributed Root of Trust supporting both the vehicle and the MEC and leveraging trustworthiness claims (as defined by IETF) for disclosing the attestation results as trust sources.

## CONNECT use cases

Trust-based decisions in CCAM arise in heterogeneous situations, and may concern, e.g., trust between the in-vehicle components; trust on the V2X data; trust between the vehicle and the MEC infrastructure. These are explored by the three CONNECT use cases: Cooperative Adaptive Cruise Control, Intersection Movement Assistance and Slow Moving Traffic Detection.



Funded by the European Union under grant agreement no. 101069688. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.