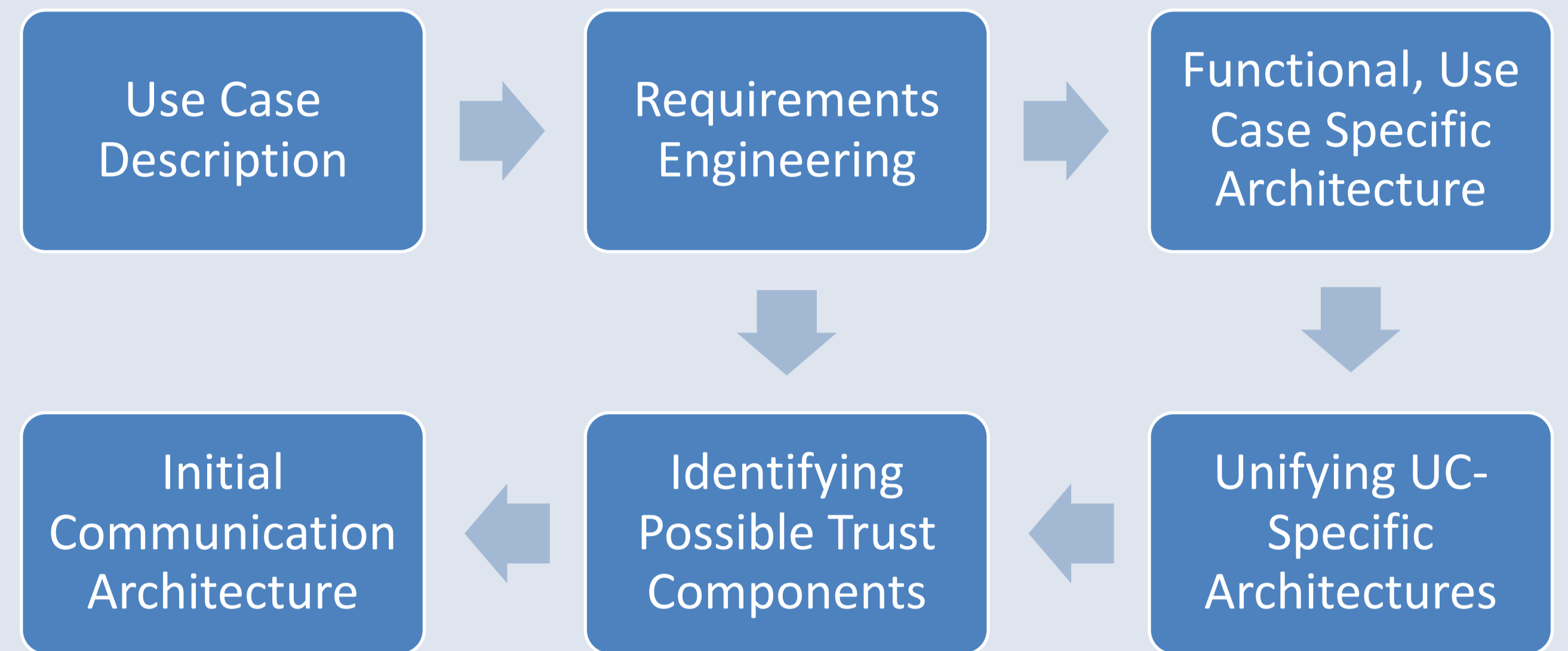


A Resilient V2X Communication Architecture – Initial ConnRAD Approach

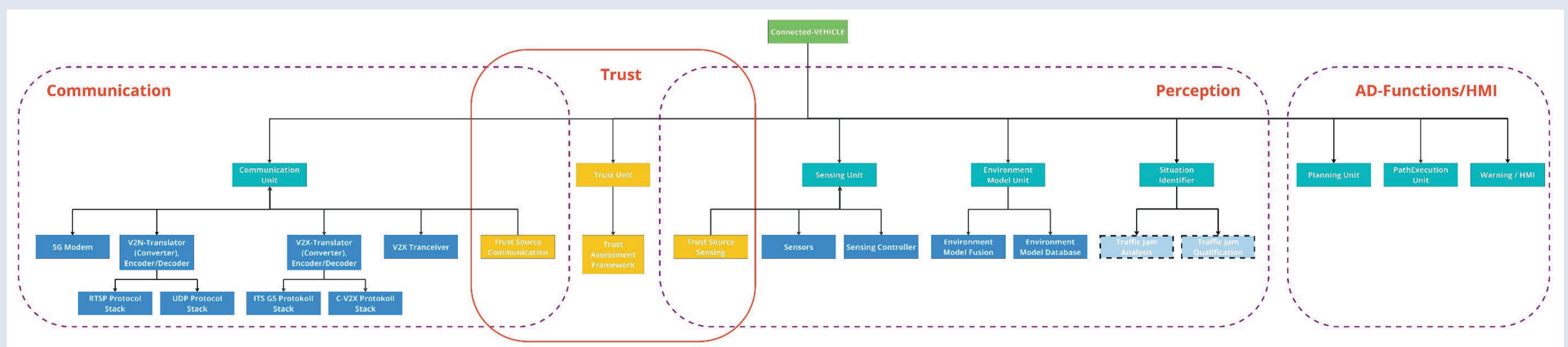
Goals and Motivation

- Current V2X communication faces the problem of unknown, and therefore untrusted, communication partners. Information gathered via V2X are used for informative use cases (e. g.: road works warning), but especially regarding safety-critical driving functions, there are legal issues using untrusted information.
- Connected Automated Vehicles (CAVs) shall be able to assess the information they receive. Therefore, the communication architecture will be extended by components allowing the sending ITS-station to rate the data with regard to their quality/trustworthiness on the one hand, and such allowing the receiving CAV to assess the trustworthiness of the sender as well as trustworthiness and quality of the transmitted information.

Procedure



Initial Communication Architecture (Vehicle)



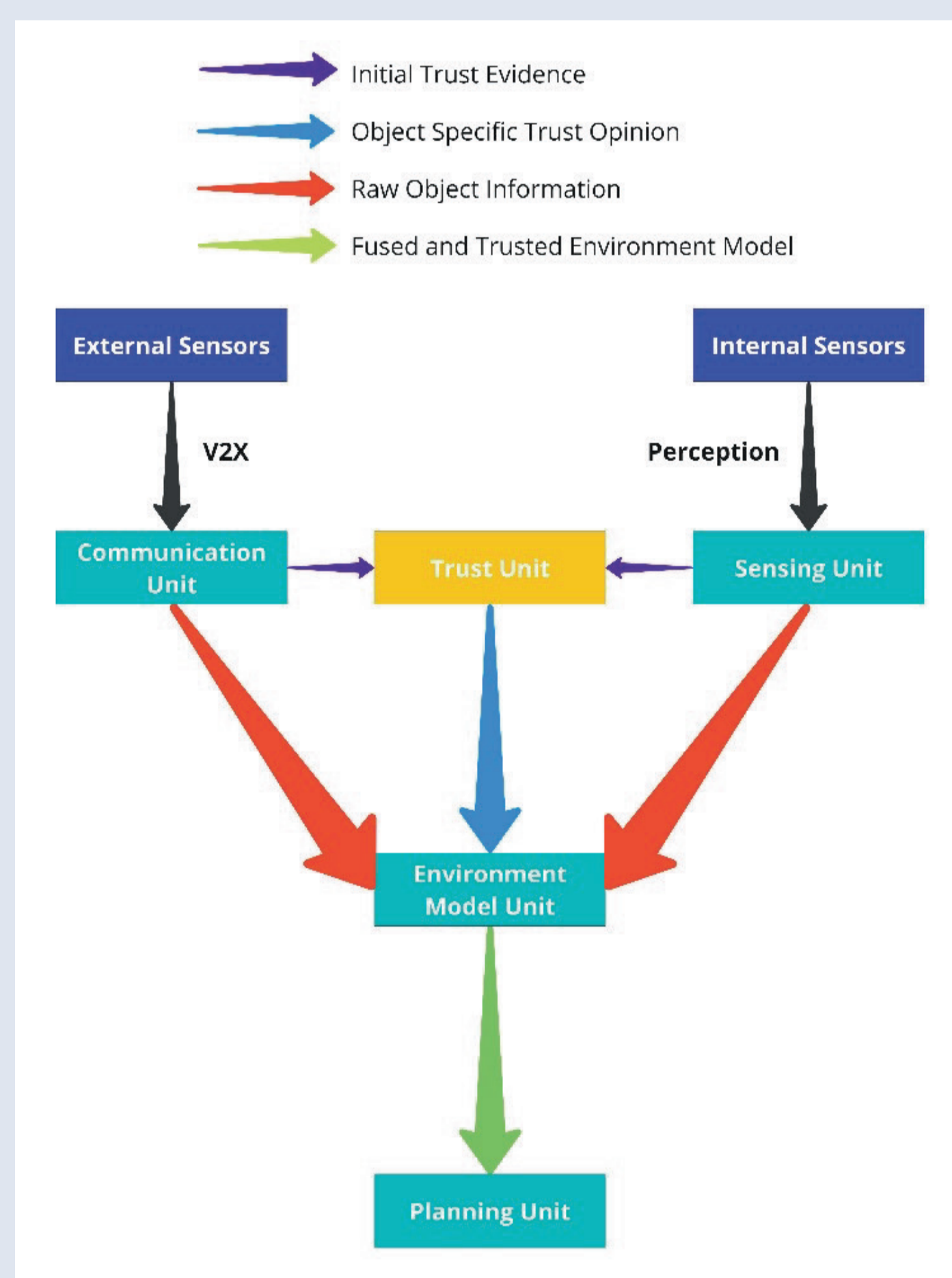
Trust Components (Vehicle)

Trust Unit

- Contains the Trust Assessment Framework (see respective poster)
- Determines actual trust opinion

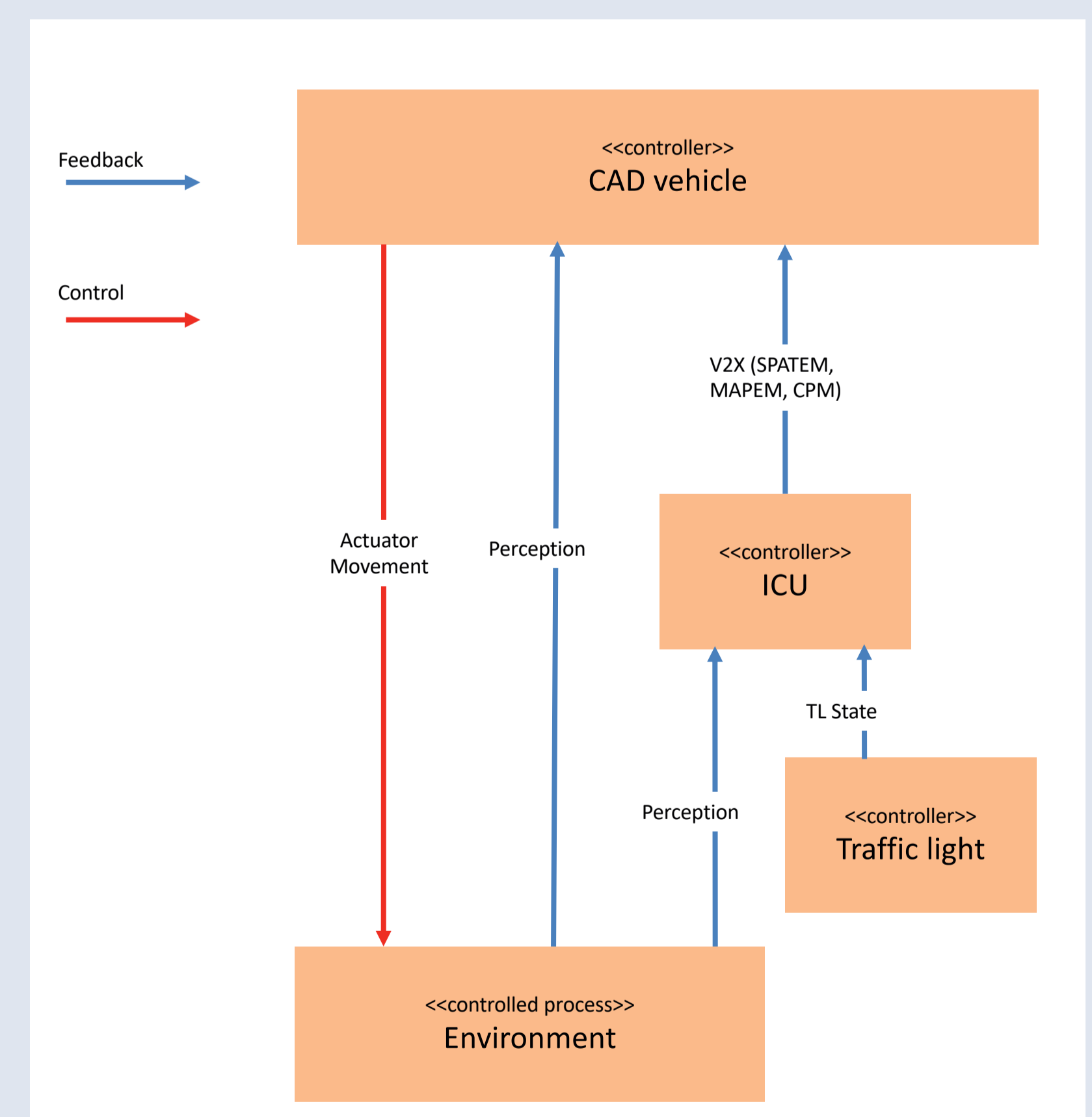
Trust Sources

- Both in the communication and sensing domain are the respective trust sources
- Deliver initial trust evidence to Trust Unit



System-Theoretic Process Analysis (STPA) – UC 1

- System wide analysis of possible causes of loss
- Identification of possible combination of (sources of) errors
- Iterative loops to assure the robustness of the developed architecture



Next Steps

- Implementation of the architecture given so far
- Development of further methods to describe the trustworthiness of gathered data in order to communicate it to other road users
- Development of further methods to enable the receiver to assess the trustworthiness of both the sender and the information sent
- Final investigation of legal constraints affecting the communication architecture
- Extension of message-content and -protocols
- Ongoing: integration of the input mentioned above into the communication architecture

Additional Information:

