

Modelling Safe and Secure Cooperative Intelligent Transport Systems

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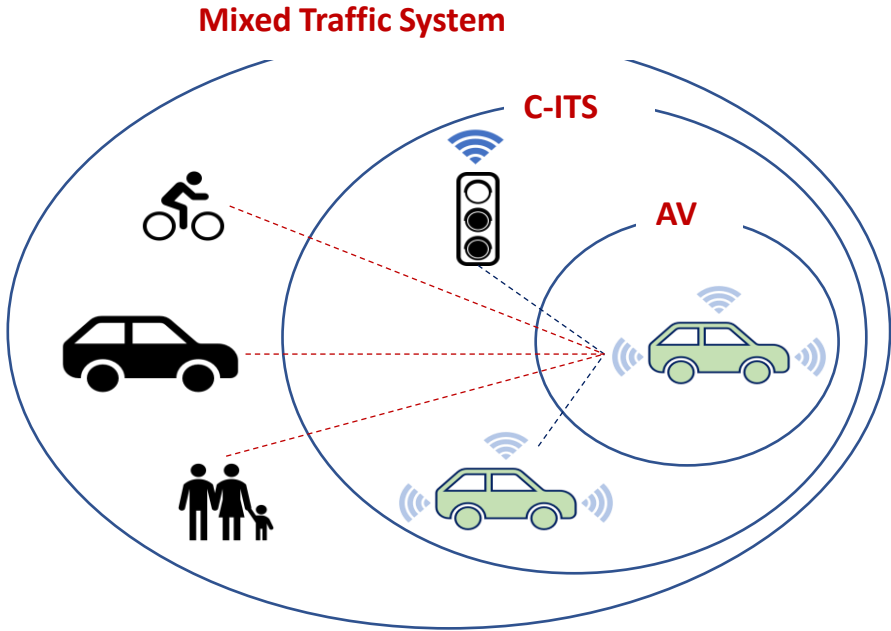
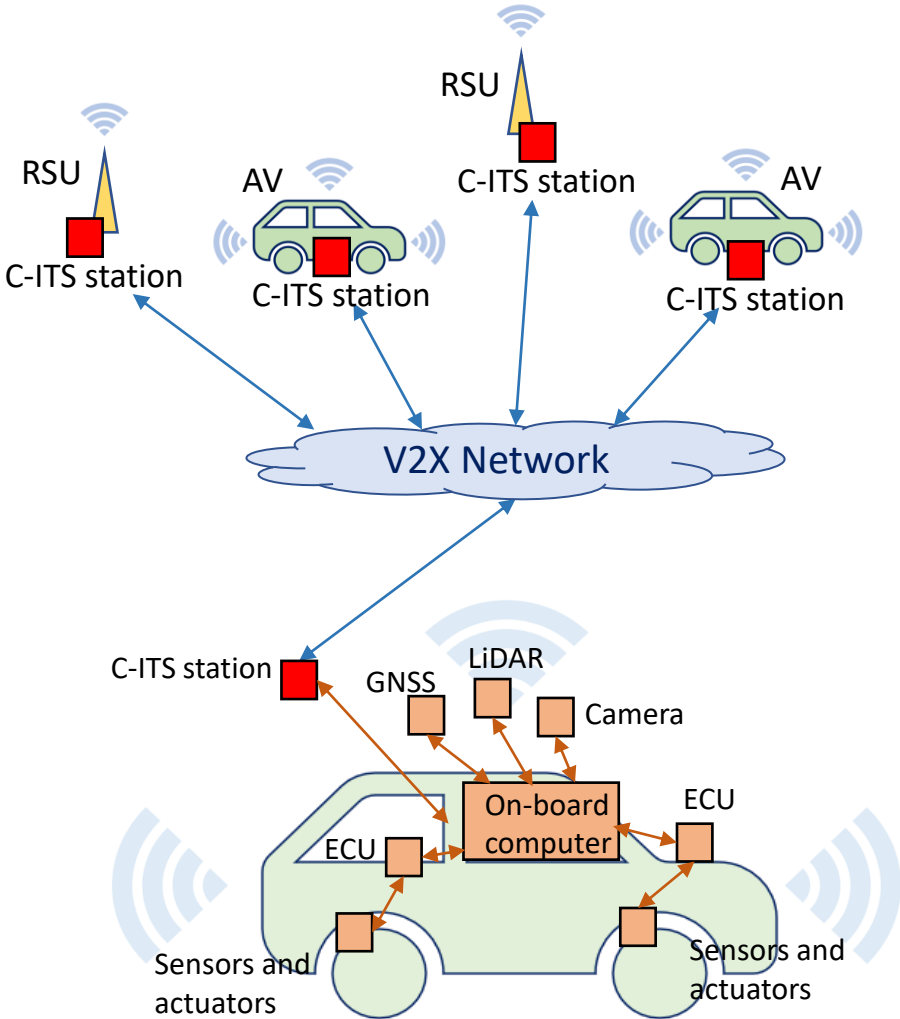
* Presenter

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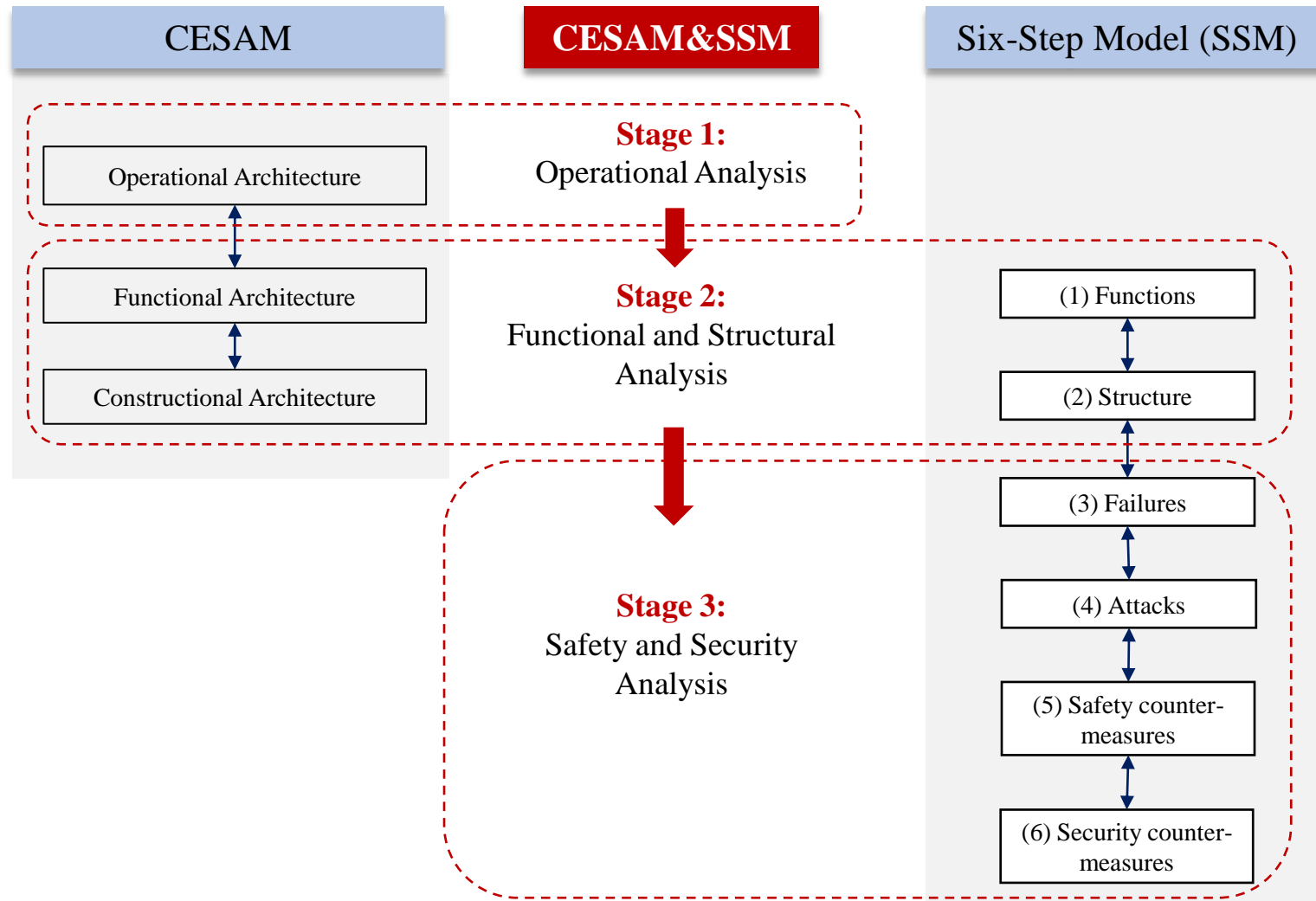
A BETTER WORLD BY DESIGN.



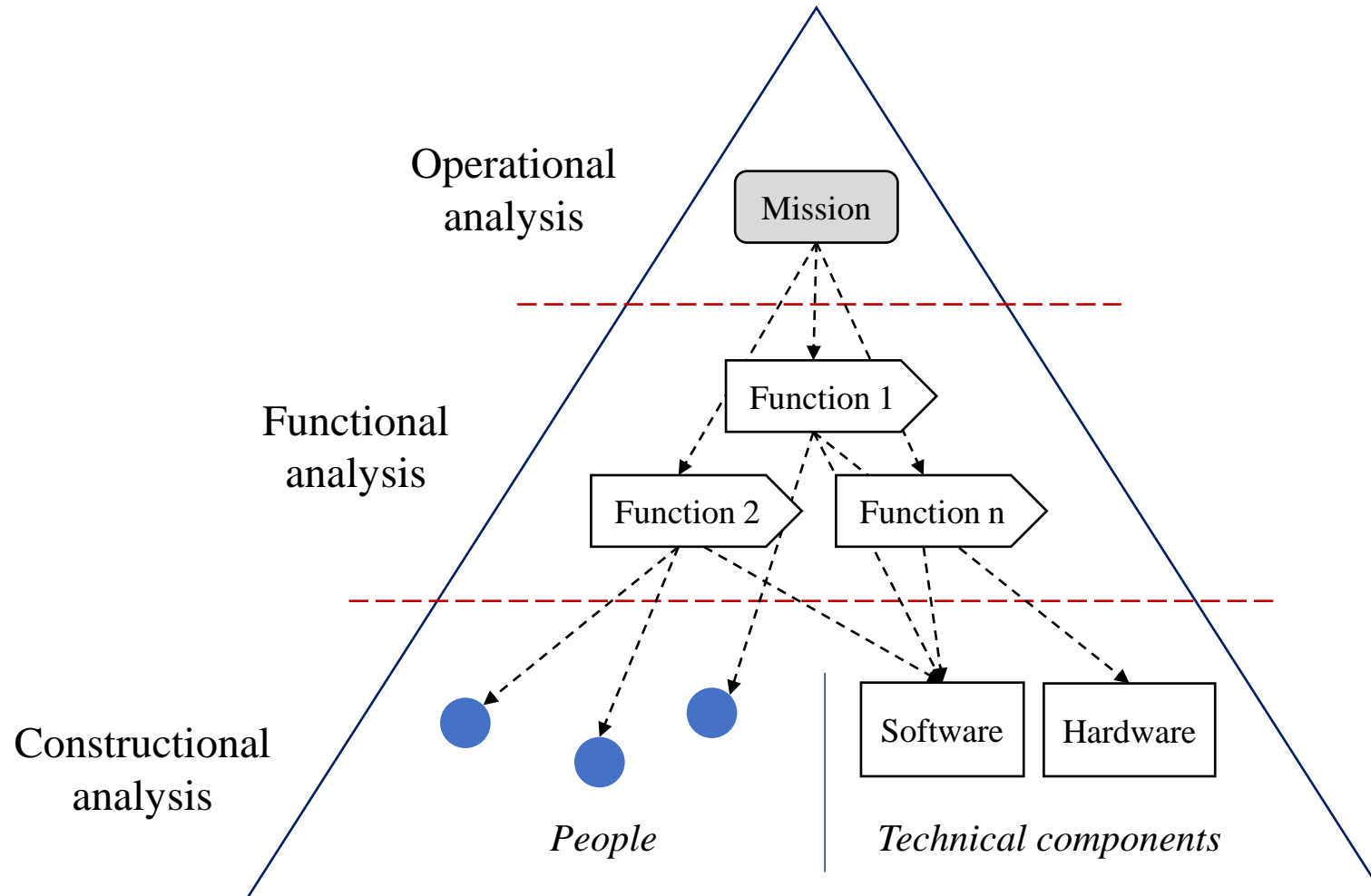
Cooperative Intelligent Transport Systems (C-ITS)



Proposed method (CESAM + SSM)



CESAM (CESAMES Systems Architecting Method) [1]



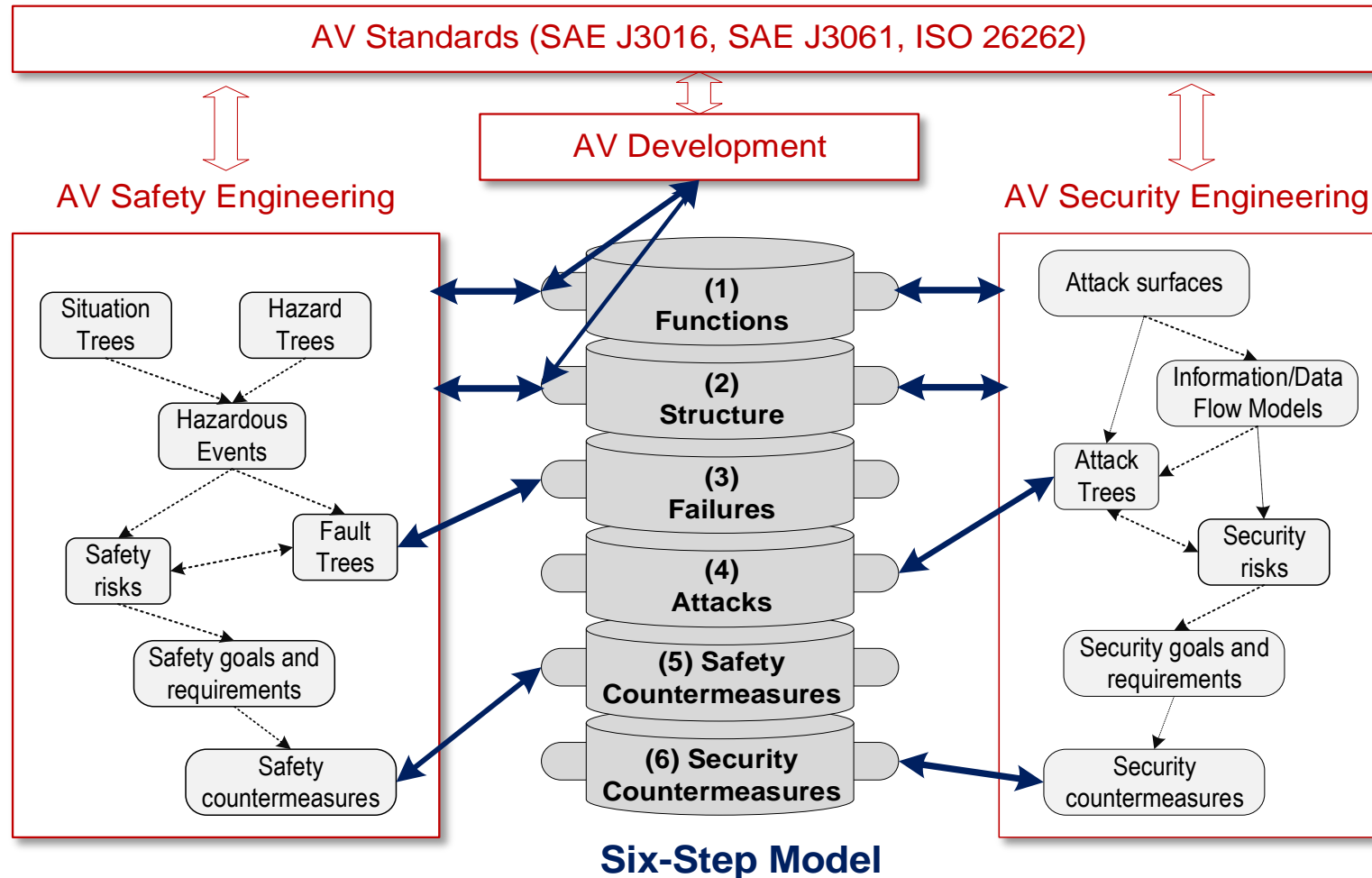
- Need architecture
- Lifecycle
- Use case
- Operational scenario
- Operational flow

- Functional requirement architecture
- Functional mode
- Functional decomposition & interaction
- Functional scenario
- Functional flow

- Constructional requirement architecture
- Constructional mode
- Constructional composition & interaction
- Constructional scenario
- Constructional flow

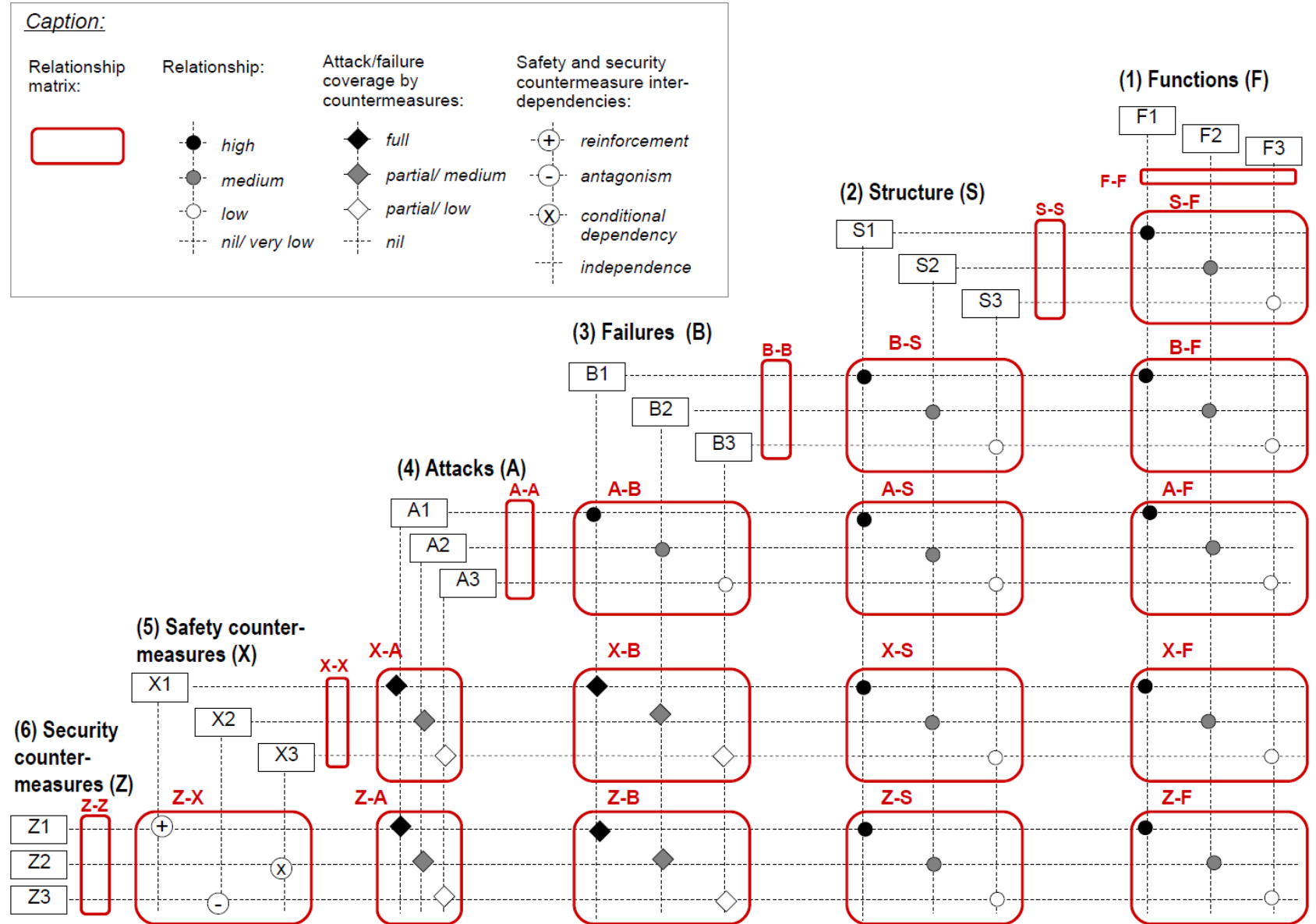
[1] "CESAM: CESAMES systems architecting method. A pocket guide." 2017, URL: <http://www.cesames.net/wp-content/uploads/2017/05/CESAM-guide.pdf> [accessed: 2018-03-27]

SSM (Six-Step Model) [2]



[2] G. Sabaliauskaite, L. S. Liew, and J. Cui, "Integrating autonomous vehicle safety and security analysis using STPA method and the Six-Step Model," *International Journal on Advances in Security*, vol. 11, no. 1&2, pp. 160–169, 2018.

Six-Step Model, SSM [2]



[2] G. Sabaliauskaite, L. S. Liew, and J. Cui, "Integrating autonomous vehicle safety and security analysis using STPA method and the Six-Step Model," *International Journal on Advances in Security*, vol. 11, no. 1&2, pp. 160–169, 2018.



Thank You!

Six-Step Model

| | Functions | Structure | Failures | Attacks | Safety countermeasures | Security countermeasures |
|--------------------------|-----------|-----------|----------|---------|------------------------|--------------------------|
| Functions | ↔↓ | ←↓ | ←↓ | ←↓ | ←↓ | ←↓ |
| Structure | →↑ | ↔↓ | ←↓ | ←↓ | ←↓ | ←↓ |
| Failures | →↑ | →↑ | ↔↓ | ←↓ | ←↓ | ←↓ |
| Attacks | →↑ | →↑ | →↑ | ↔↓ | ←↓ | ←↓ |
| Safety countermeasures | →↑ | →↑ | →↑ | →↑ | ↔↓ | ←↓ |
| Security countermeasures | →↑ | →↑ | →↑ | →↑ | →↑ | ↔↓ |