



株式会社 ヴィッツ

～ヴィッツの“新しい”は世の中の“新しい”～

as Wing
Infinity
by Trusty
Technology
om Zero

The Case Study about Building FRAM Model for Driving a Car

WITZ Coporation

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My first FRAM - FRAMingo





Discussion Topic

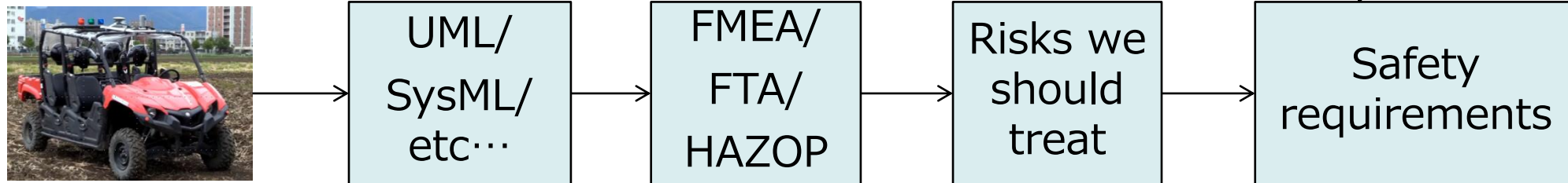
- How do we use FRAM in system design?
- Let's share how to use FRAM in system design!
- I am trying to use FRAM model for safety analysis for self-driving car system.
- I will introduce our case study.

Outline of my research

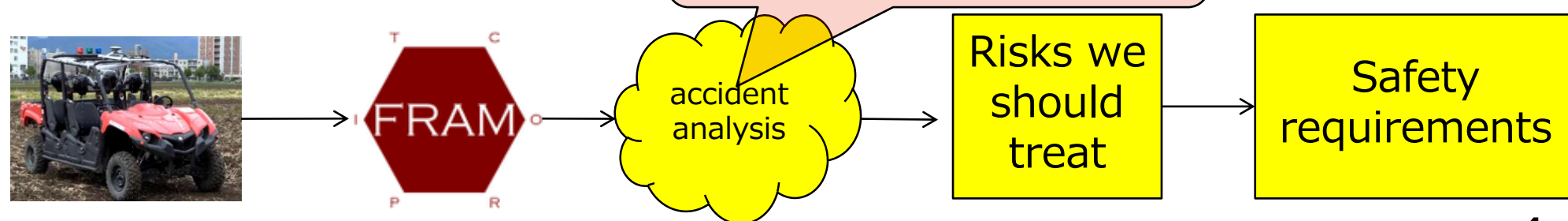
Process for defining safety requirements



Applied previous approach



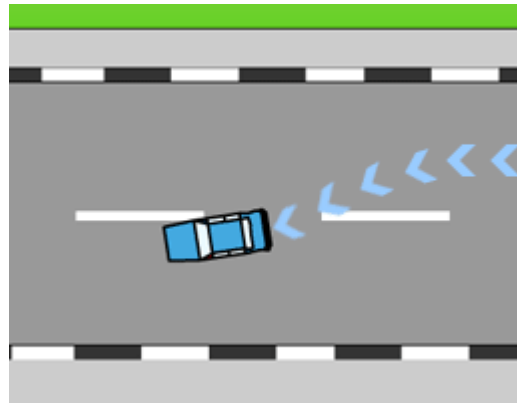
Applied FRAM approach



Lane change

Shifting from one lane to another (lane change) is a frequent maneuver while driving.

It is a maneuver that a self-driving car must be able to do perfectly.

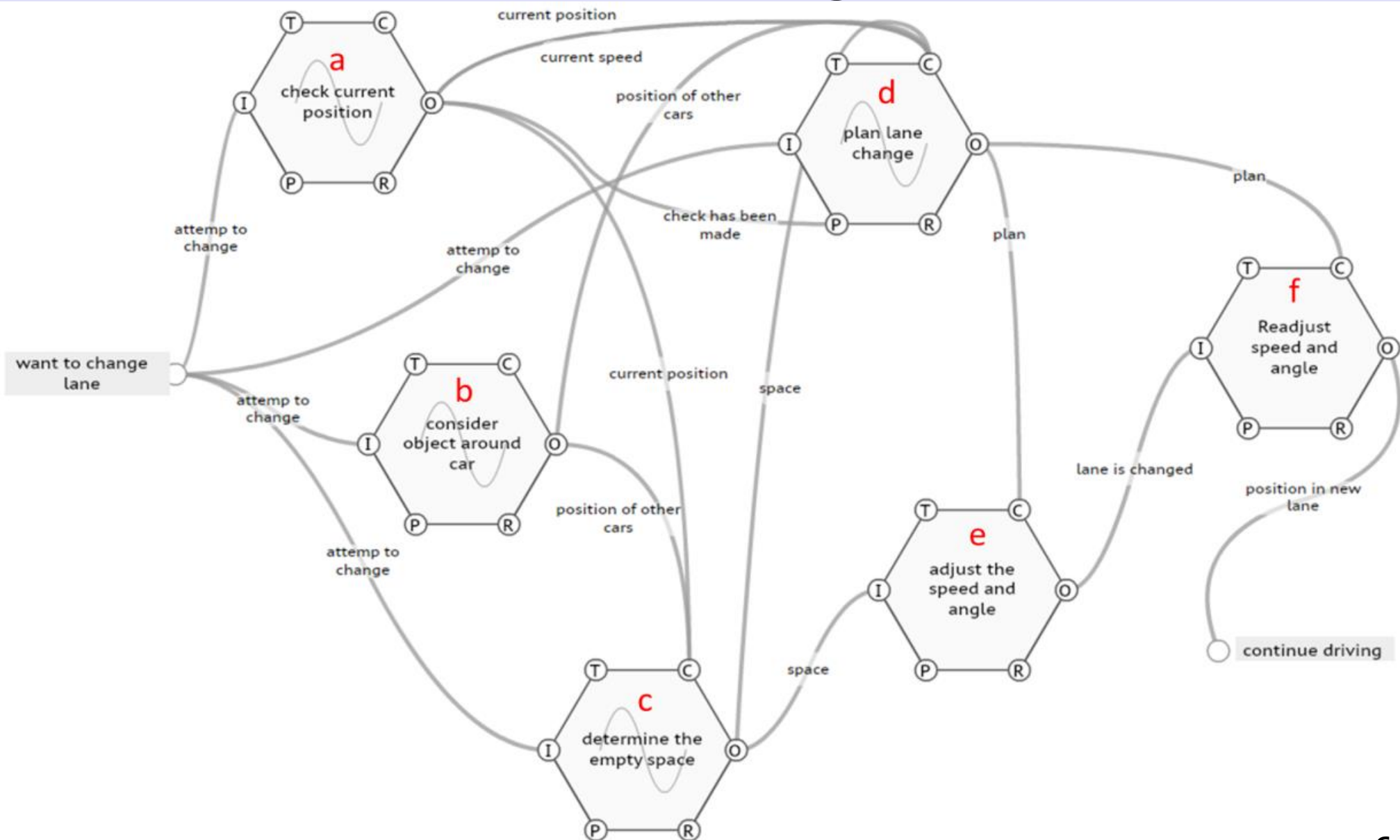


What do we do to change the lane successfully?

- checking around car(front and side)
- predicting another car
- planning path
- accelerate and adjust handle
- deaccelerate and readjust handle ...

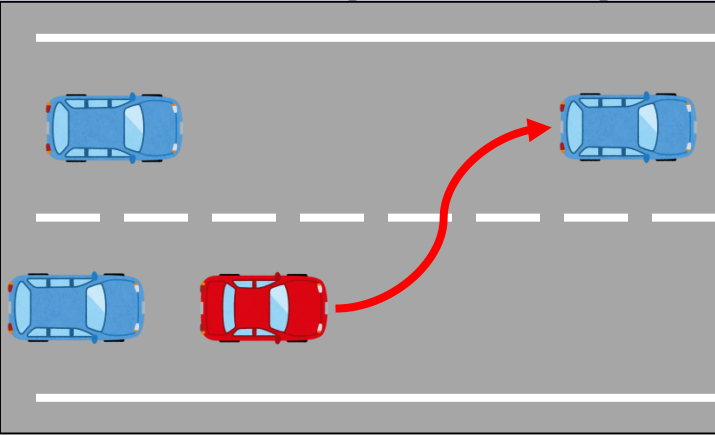


FRAM model of lane change



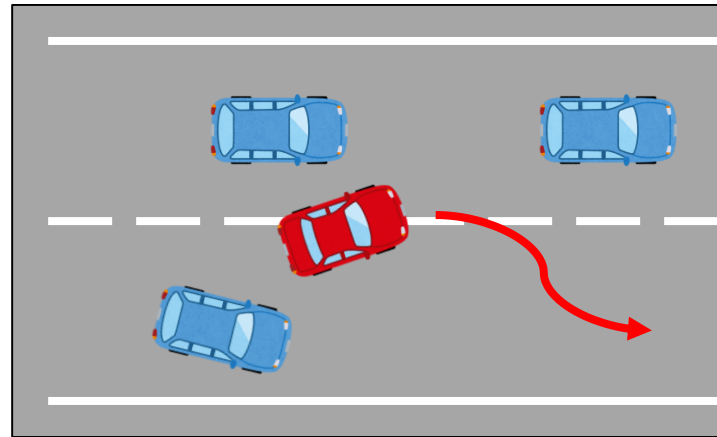


Safety analysis from a actual accident

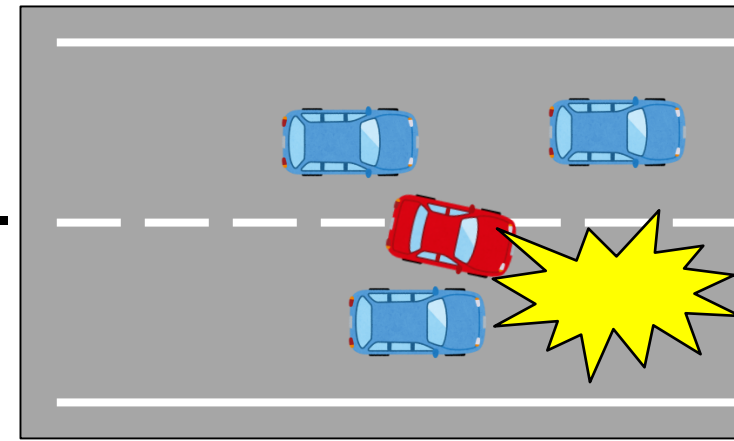


The red car want to change lane to upside lane and start changing lane.

The red car suspended changing lane.
And the red car backed to previous lane.

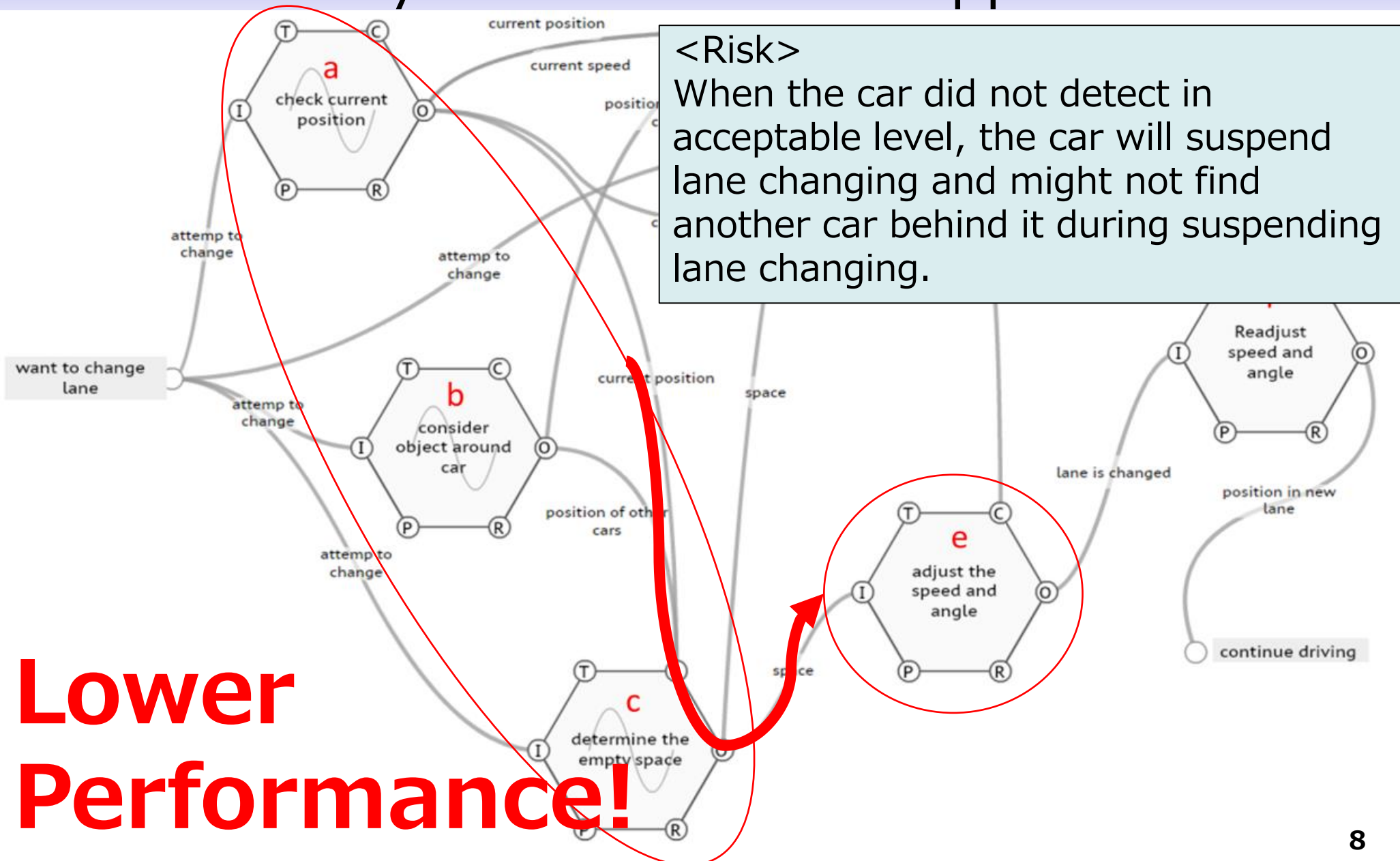


The backside car was speed up. Then,
the red car and backside car was crashed.



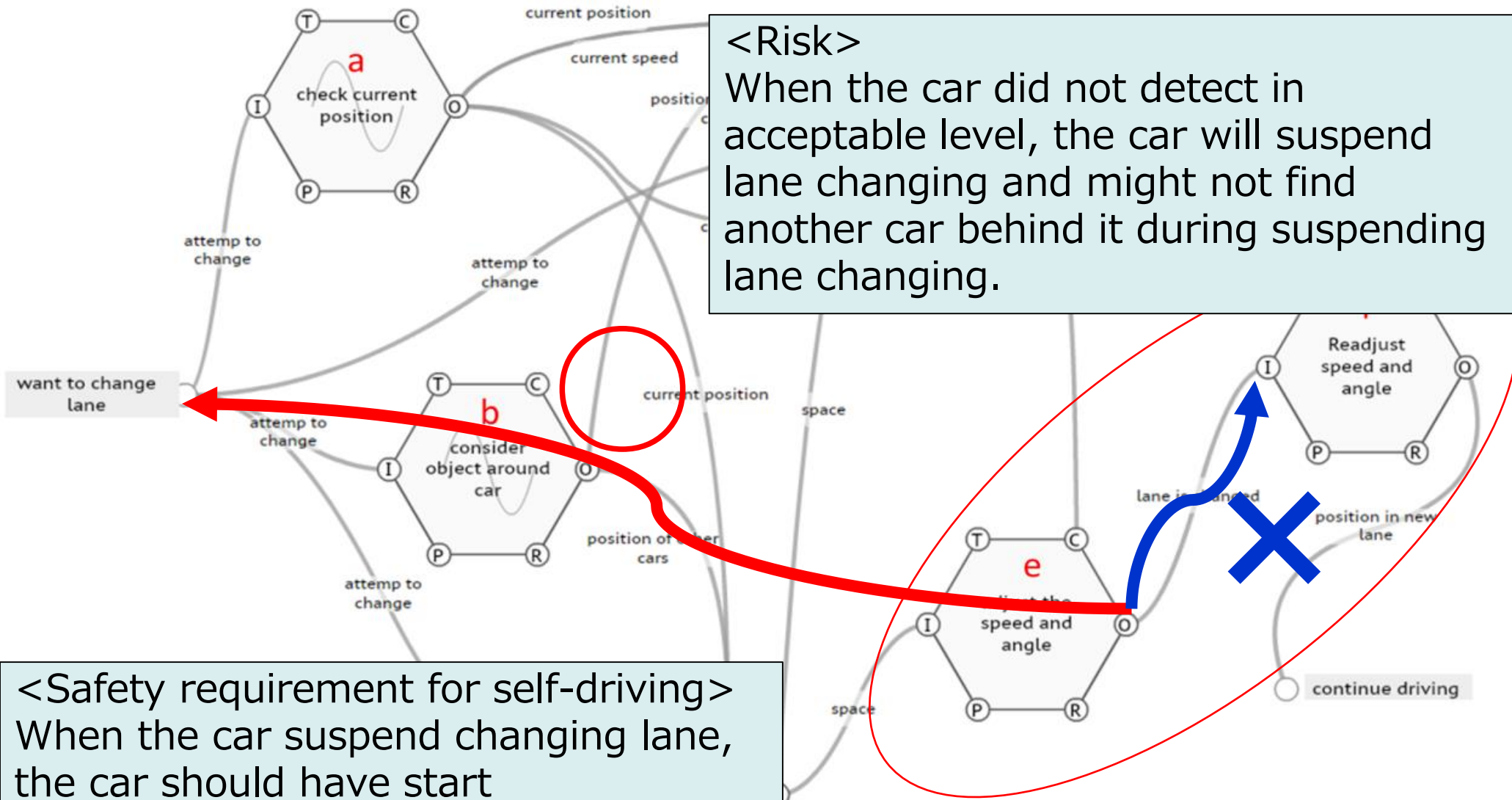


Risks - Why is this accident happened?

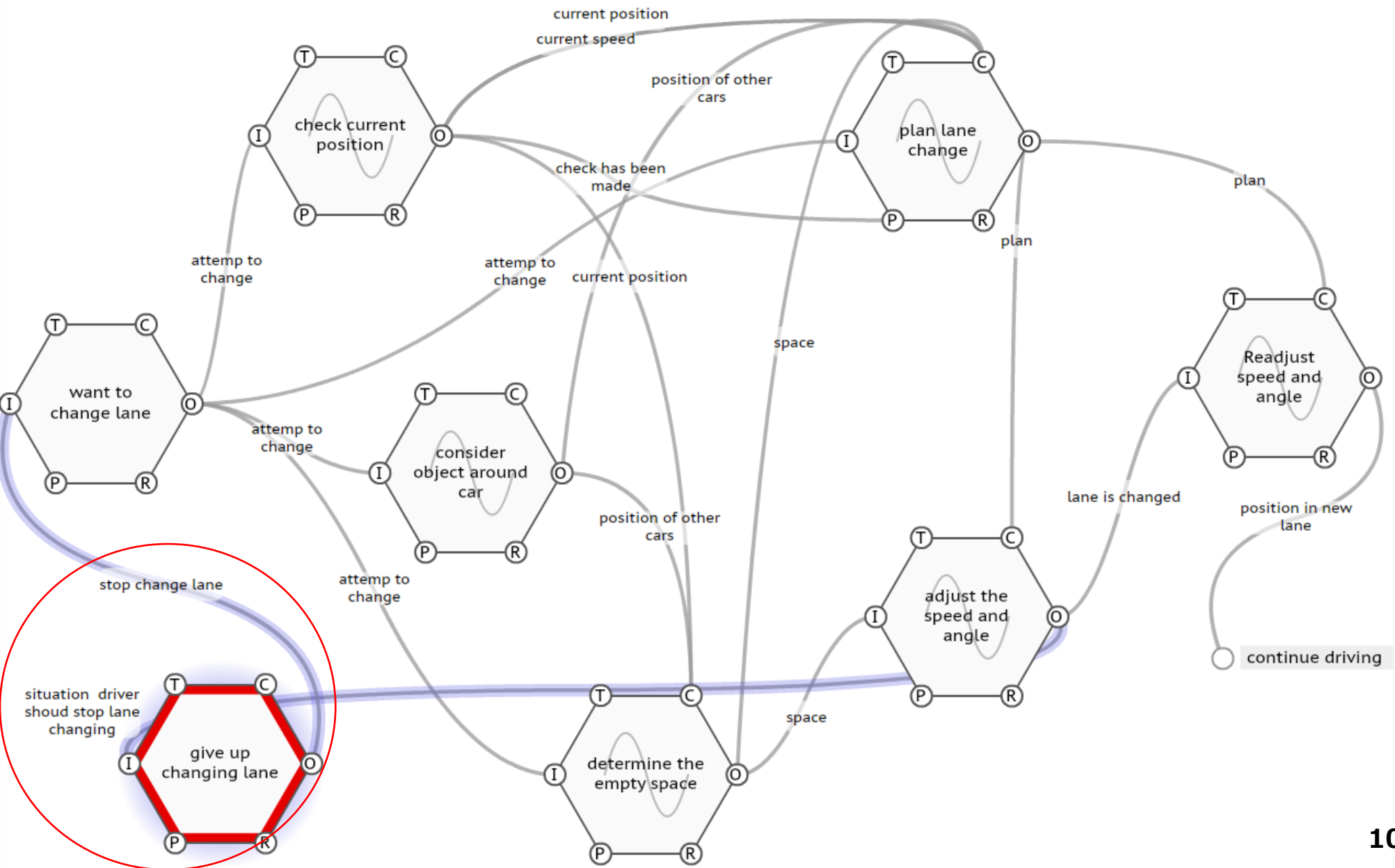




Risks - Why is this accident happened?



Safety Requirements for self-driving car system

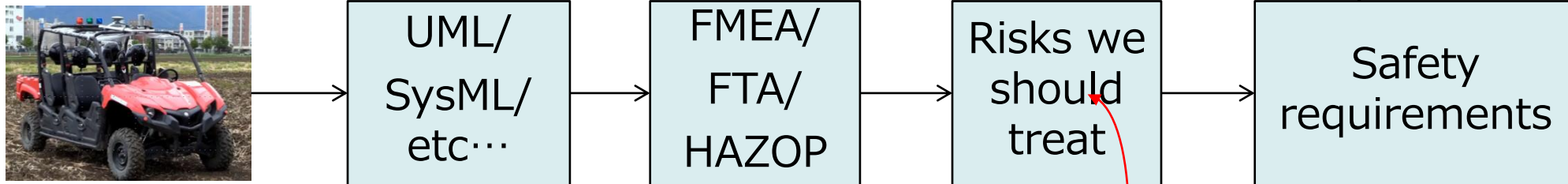


Conclusion and Future work

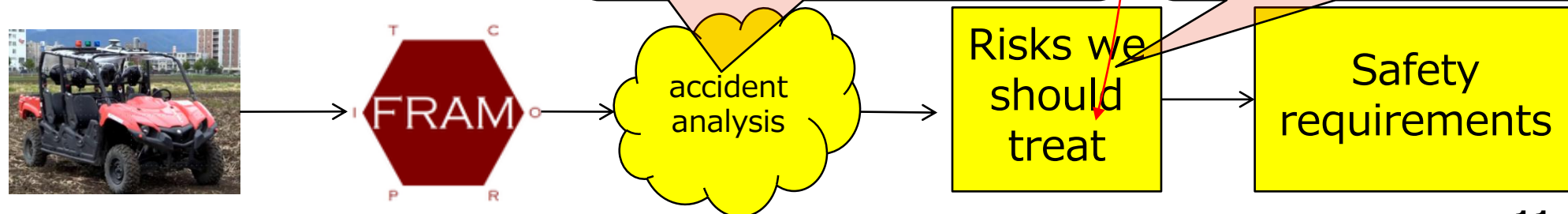
Process for defining safety requirements



Applied previous Methods



Applied FRAM Methods



Thank you !

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