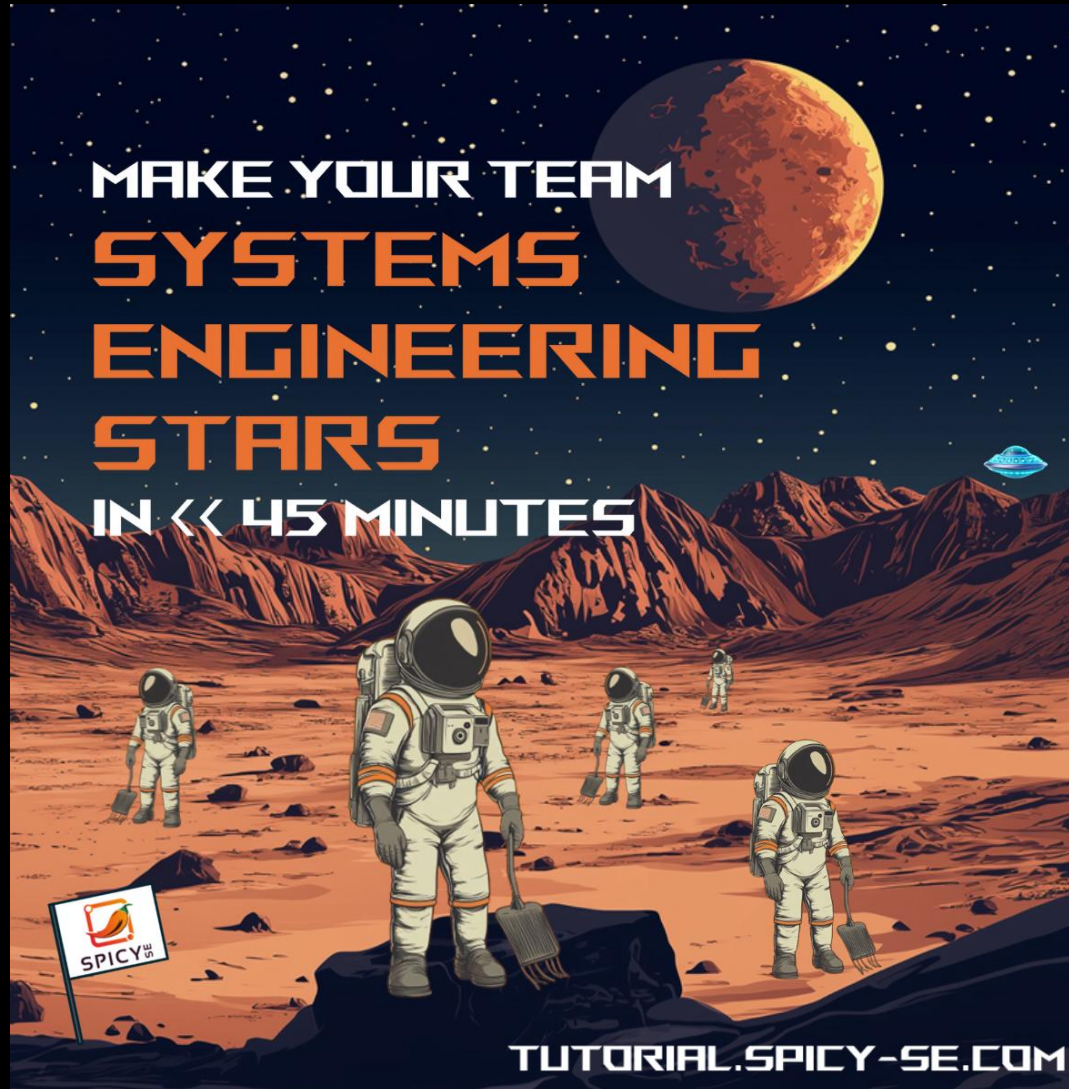


Spicy SE

Accelerating product development.

spicy-se.com
info@spicy-se.com





Webinar

The 5 biggest time killers in
(autonomous driving) development
and how to solve them with SE.

Starting soon

Curious? Follow us on LinkedIn



Robert



Torben



Robert

has a Master's degree in Mechanical Engineering.

He has worked as a Systems Engineering consultant in different industries. Robert has also been a Product Owner in agile engineering teams and has written code for the first vehicle with "SAE Level 3" automation.

He is Co-Founder of Spicy OOD, where Spicy SE is developed.



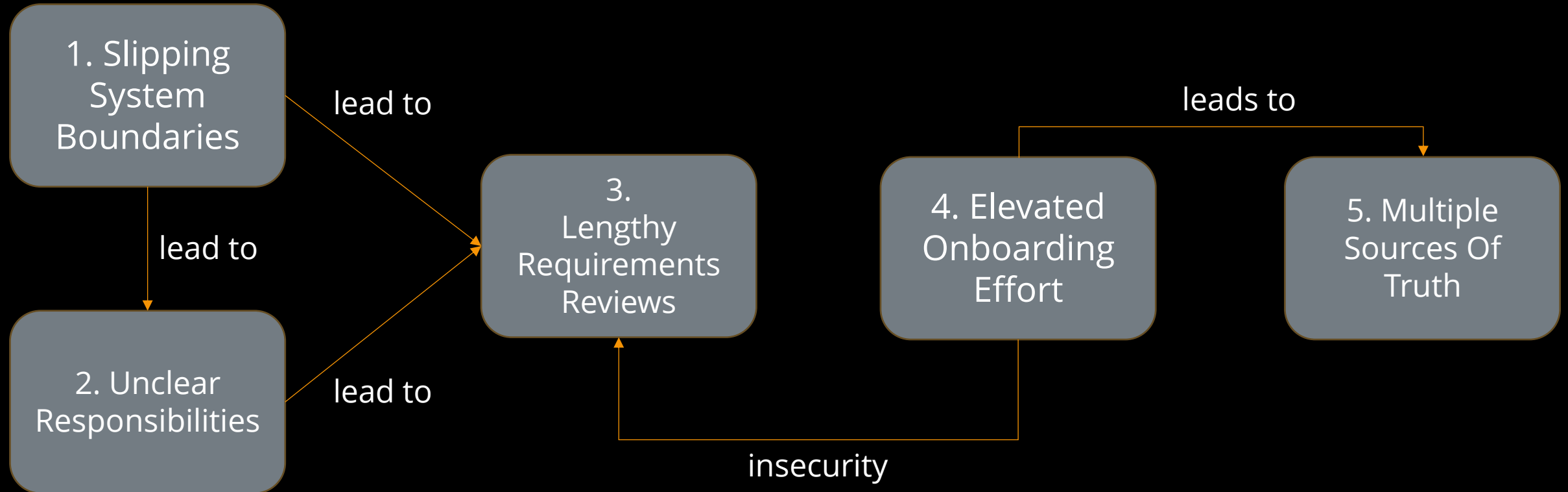
Torben

has a Ph.D. in Mechanical Engineering.

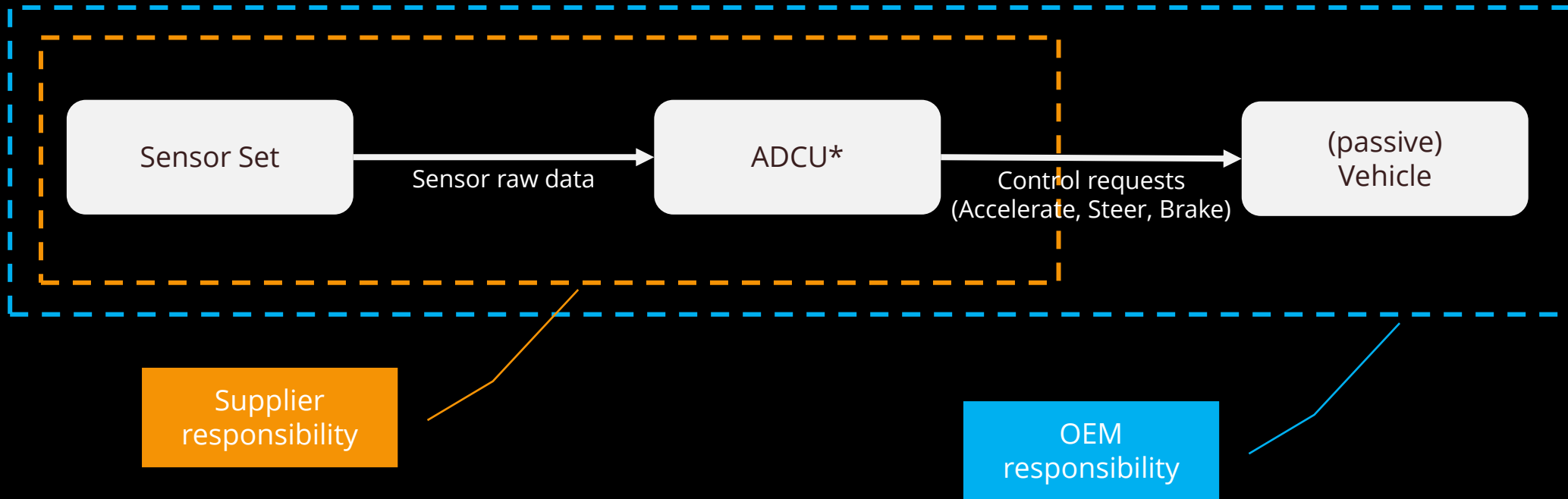
He has worked as an embedded software programmer as well as a systems engineer and has led engineering development teams in autonomous driving. Torben also built a "driving functions" department for a large Tier 1 supplier.

He is Co-Founder of Spicy OOD, where Spicy SE is developed.

The 5 Time Killers “System Architecture”



Slipping System Boundaries

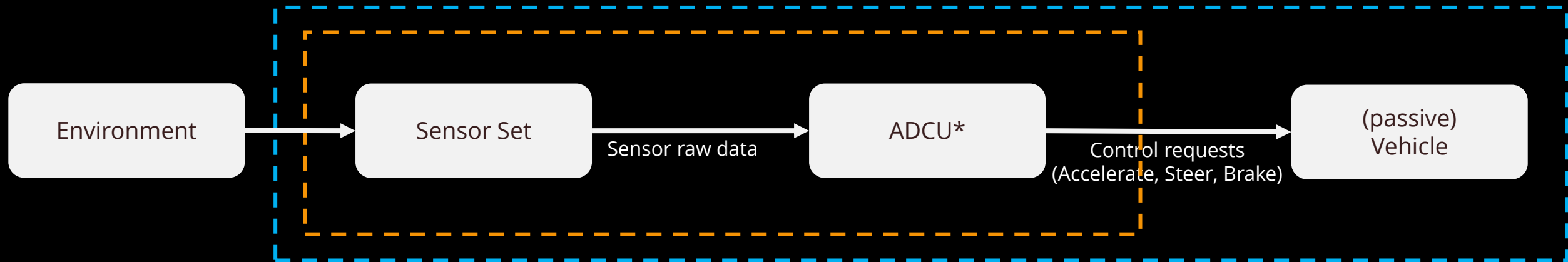


How to handle tests that need to be executed in the vehicle?
Who is responsible?

Slipping System Boundaries

Design
anticipated

OEM requirement: If the camera is blocked, the vehicle shall stop in lane.



Slipping System Boundaries



Design
anticipated

OEM requirement: If the camera is blocked, the vehicle shall stop in lane.

Autonomous
Vehicle

If the environment cannot be perceived with confidence, the vehicle shall stop in lane

AD System

If the environment cannot be perceived with confidence, the AD System shall send a stop request

Sensor Set

If the environment cannot be perceived with confidence, the Sensor Set shall set the confidence value, which is transmitted to ADCU, to 0.

ADCU*

If the ADCU receives a confidence value below 15%, it shall send a stop request to the vehicle.

Camera

If the camera detects blockage, it shall send a flag camera_blocked = 1.

Slipping System Boundaries



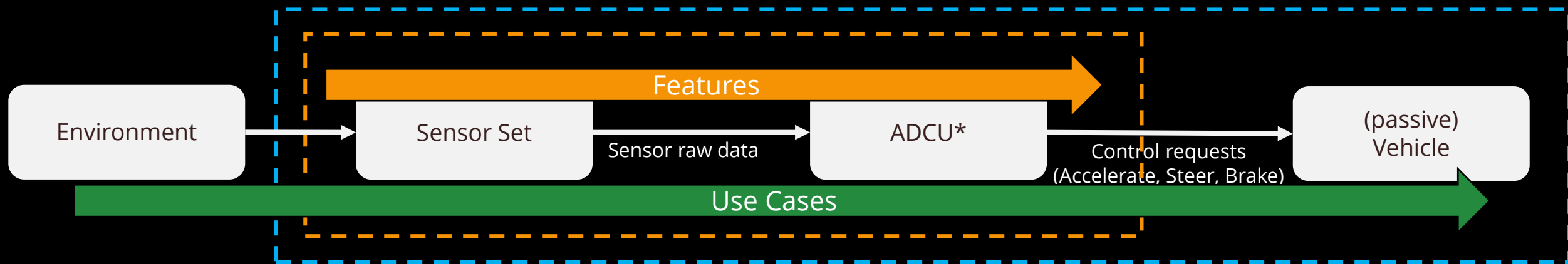
Kill the time killer:

Define clear system boundaries with clear interfaces.

Unclear Responsibilities

Multiple Teams working on different:

- Physical components and boundaries
- Features
- Use Cases



→ Everyone can provide opinions/ veto to decisions, but who takes the final responsibility?

Unclear Responsibilities

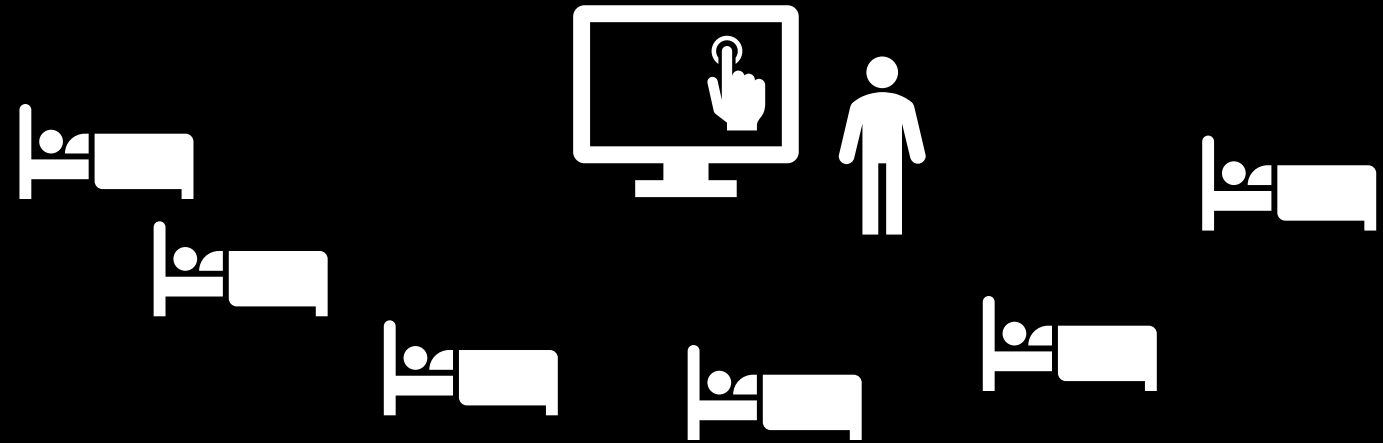


Kill the time killer:

Clear responsibilities without the option to duck away.

Requirement Reviews

- **Synchronized** online review meetings.
- One moderator guiding the session, operating the SE tool
 - Participants often **unprepared**
 - Participants **not attentive**
 - **No feedback** means consent
 - **Agreement** registered in “comment” field



→ The review of every single requirement takes forever.

Requirement Reviews



Kill the time killer:

Desynchronize requirement reviews. Push Accountability.

Elevated Onboarding Effort



New employees are motivated to start their work and keen to follow the companies process and use its tools.

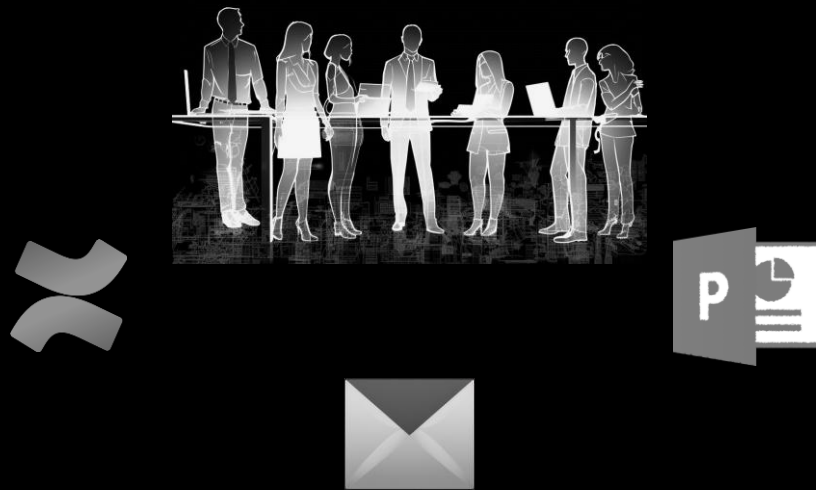


If onboarding to tools is too complicated it kills employees' motivation.



This overcomplication can lead to several other issues like the → **multiple sources of truth.**

Multiple Sources of Truth



In the end the latest data is always stored anywhere and the data in the SE tool is outdated.



Engineers prefer working in tools they know, which are easy to use and easily accessible, like MS Office tools, Confluence, or even emails.

Nevertheless, information must be stored in a legally compliant Systems Engineering tool.

Elevated Onboarding Effort



Kill the time killer:

Challenge: Make onboarding as simple and quick as possible.

Multiple Sources of Truth



Kill the time killer:

Store all SE data directly and link to dedicated places for data of expert areas.

Summary



1. Slipping System Boundaries

Kill the time killer:
Define clear system boundaries with clear interfaces.

2. Unclear Responsibilities

Kill the time killer:
Clear responsibilities without the option to duck away.

3. Requirement Reviews

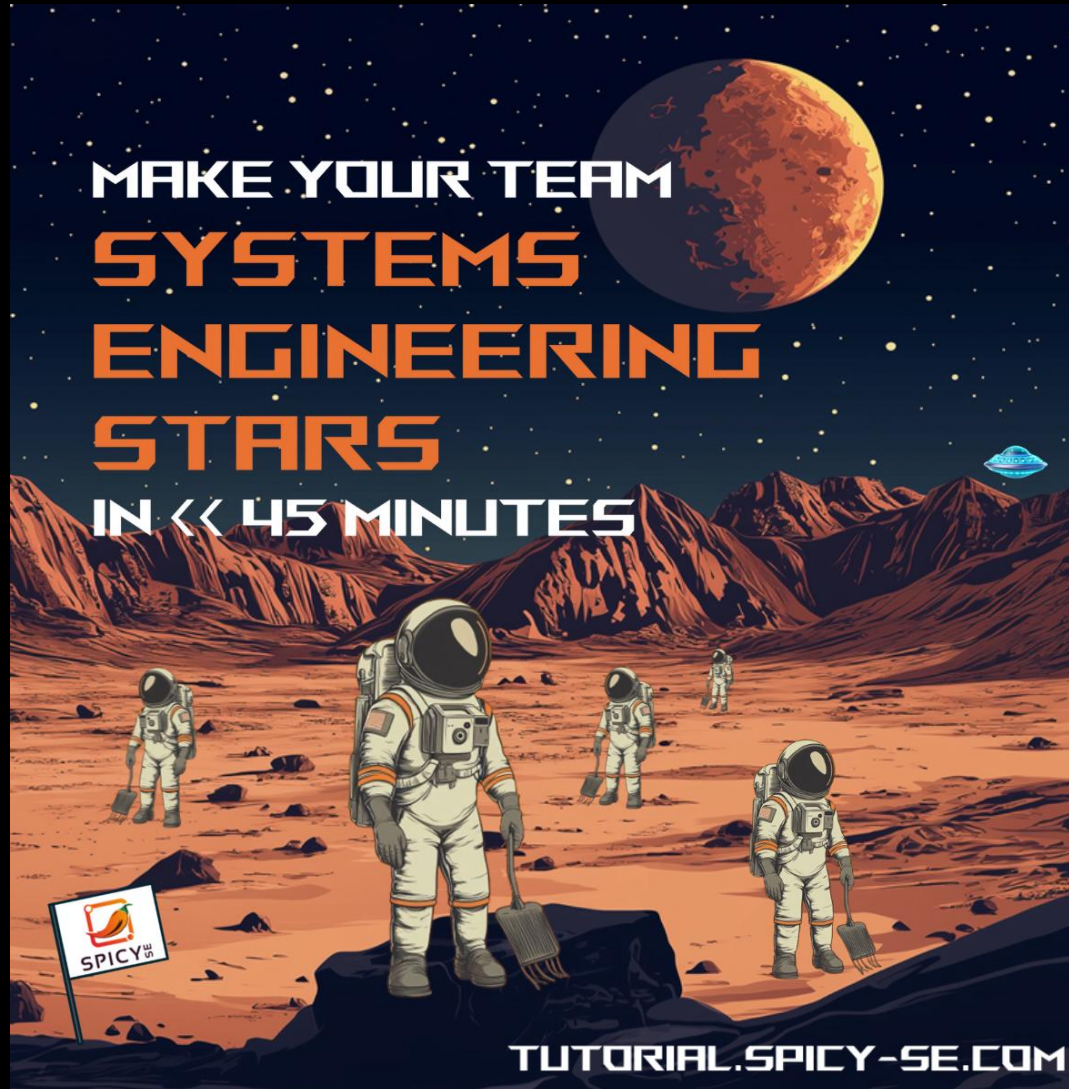
Kill the time killer:
Desynchronize requirement reviews. Push Accountability.

4. Onboarding, Training, and Mentoring Effort

Kill the time killer:
Challenge: Make onboarding as simple and quick as possible.

5. Multiple Sources Of Truth

Kill the time killer:
**Store all SE data directly
and link to dedicated places for data of expert areas.**



Discussion

Curious? Follow us on LinkedIn



Robert



Torben