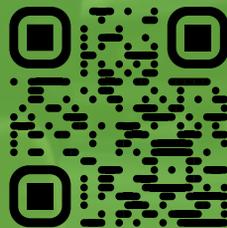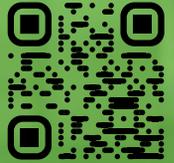# ELISA
Enabling **Linux** in
Safety Applications

Elements ▪ Processes ▪ Tools ▪ Documentation

ELISA, an open source project under The Linux Foundation, aims to define and maintain a common set of elements, processes and tools that can be incorporated into Linux-based, safety-critical systems amenable to safety certification – systems whose failure could result in loss of human life, significant property or environmental damage.

Find out more about the ELISA Project: https://elisa.tech

ELISA
Enabling Linux in Safety Applications

> "Assessing whether a system is safe, requires understanding the system sufficiently."
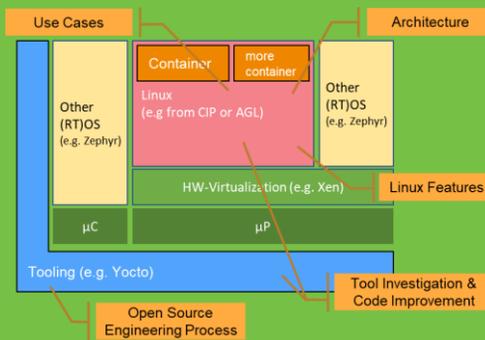
Horizontal Working Groups

- **Architecture**
- **Tools**
- **Linux Features**
- **Open Source Engineering Process**
- **Systems**

Exemplary reference architecture
from ELISA's Systems WG

Use Cases | Architecture

Other (RT)OS (e.g. Zephyr)

Container | more container

Linux (e.g from CIP or AGL)

Other (RT)OS (e.g. Zephyr)

Linux Features

HW-Virtualization (e.g. Xen)

µC | µP

Tooling (e.g. Yocto)

Tool Investigation & Code Improvement

Open Source Engineering Process

Use Case Verticals

Automotive | Medical | Aerospace

Automotive use case

E.g. Warning signs (tell tales) in instrument cluster

Space Grade Linux

Advance space technology innovation and competitiveness by developing a common Linux distribution that can be used in space applications.

ELISA contributes **building blocks** needed to ease the path for Linux-based safety-critical systems. These include:

- **System & kernel analysis processes & tools**
- **Argumentation & tools for a safety integrity standard equivalent development process**
- **Linux features, to enhance system safety**
- **Reproducible example systems**
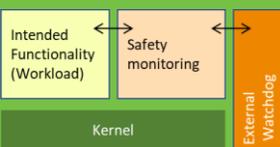
An essential element is the usage of an **external challenge-response watchdog**; a concept used widely in Automotive and other industries. The watchdog serves as the "safety net" for the safety-critical workload in the Linux system.

Intended Functionality (Workload) | Safety monitoring | External Watchdog

Kernel