

# AGILE DEVELOPMENT OF A COMPLEX IoT DEVICE

Enabling a micromobility start-up from idea to series production

## CHALLENGE

### Task

- agile development of a complex IoT device in the context of micromobility
- tailoring of a streamlined innovation process
- component responsibility
- advancement from SOP via FOTA

### Objective

- "first mover" – fast series production in a new market segment

### Framework

- diverse business models incl. B2B and backend
- system based on 12 ECUs
- backend connectivity (4G)
- external stakeholders
- mobile device interface (Bluetooth)
- variety of use cases/different user groups
- strong standard conformity
- serial hardware unknown
- very agile environment

### Technologies

- introduction of development process
- CI/CD
- embedded development
- standard-compliant development, such as CE conformity, ISO 61508, ISO13849
- lean SPICE
- agile development framework
- test management, V&V
- requirements management

## Smart Product

## SOLUTION

### Approach

Agile development (changing goals/possible use cases)

Parallel pursuit of a 3-step development

- I. evolutionary PoC (rapid prototyping)
- II. transfer to production-ready small series
- III. product samples for certification

### Benefits

- resolution of complexity
- fast development via successive product definition
- backbone for start up (incl. combined teams)
- preservation of start up flexibility
- continuous triangulation between customer's feature request, practicability, and development expenses
- holistic functional safety & security (analysis, concepts, implementation)