



**Motivation**

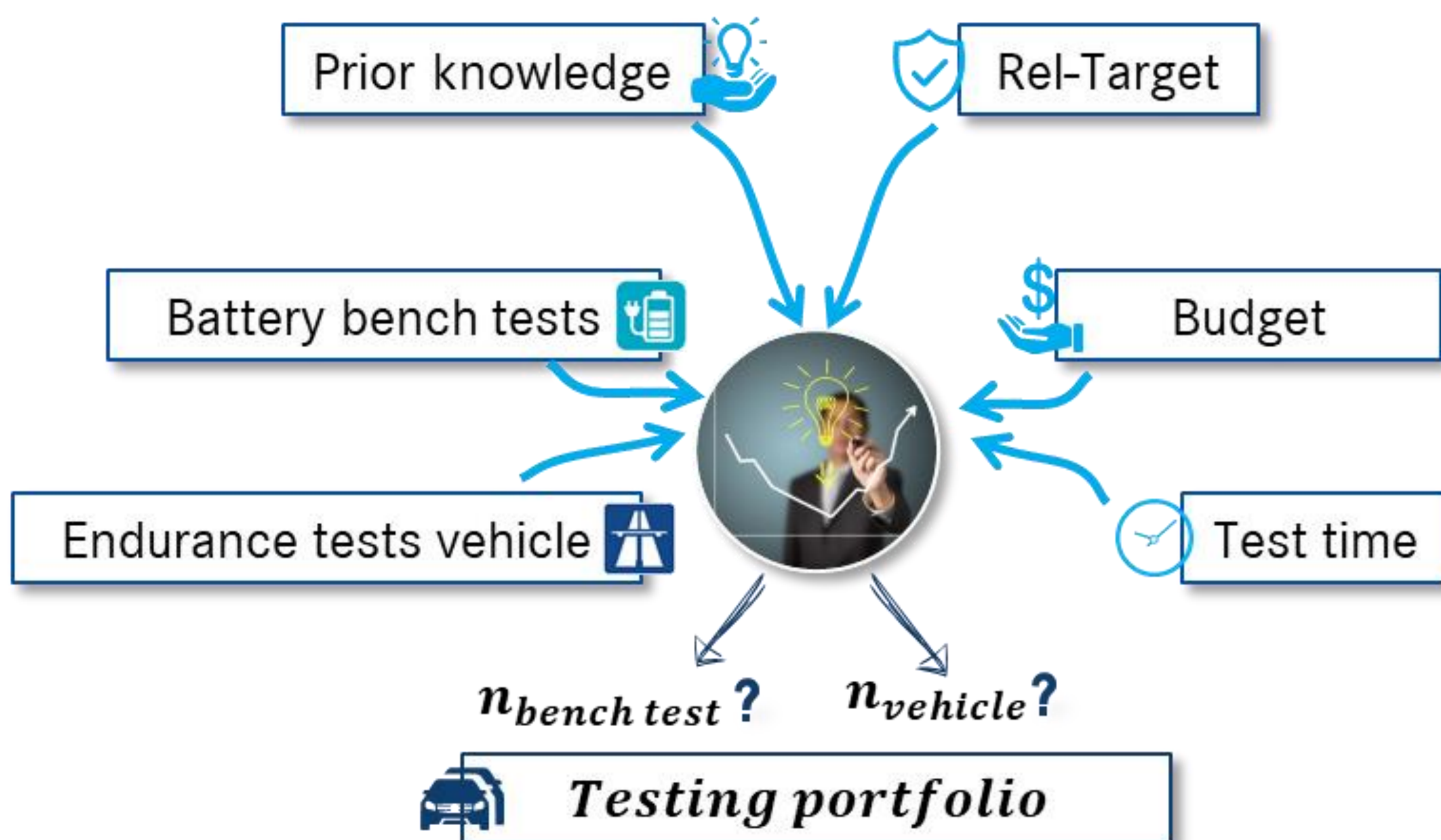
The automotive industry is in the process of transforming towards all-electric drive systems. In particular, the hv battery is becoming the focus of development. In order to prove reliability during the development phase, optimal test planning is therefore required. Here, the technical requirements as well as the economic framework conditions must be combined with the target of a precise reliability prognosis.

**Initial situation**

Defined test collectives exist for component, battery and complete vehicle endurance tests. The project budget and the available testing time are also defined in advance. If, in addition, the available prior knowledge from digital validation, the field behavior of a predecessor product and/or life tests of an interlocked product are used for test planning, further development of existing methods is required.

**Intended research results**

- Guideline for life cycle test planning of hv batteries in the automotive sector
- Development of a methodology to consider all information along the development process
- Development of a methodology for the validation of interlocked components within a hv battery



**Solution**

- Analysis of damage parameters and degradation models
- Derivation of test target values from field analyses
- Determination of refinement factors
- Modeling of cost functions
- Determination of a reliability prediction using uncertainty from life cycle simulations
- Combination of test levels
- Test planning with probability of test success

