

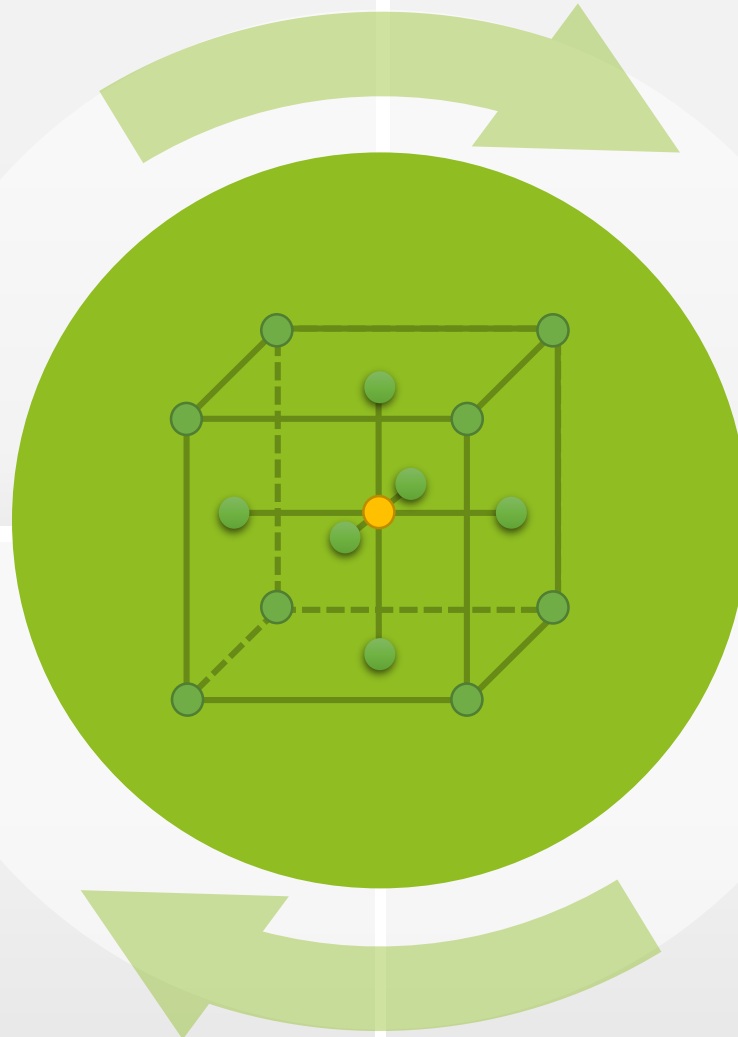
# Design cost-efficient Experiments

## Background

- Developing new products requires information about complex system behaviour
- Multiple influence factors might play a role
- Trial-and-error tests or simple permutation experiments do not solve the problem

## Customer benefit

- Feasibility of complex system characterization
- Reduced costs and time for testing
- Identification of relevant influence factors and their effects
- Statistically validated understanding of impacts and interactions in a complex system



## Requirement

- Design of an efficient test program within restricted budget and time
- Gain as much information as possible with least effort
- Use a step-by-step approach for intermediate optimization

## Solution: Design of experiments

- Testing planning with an effective statistical process to
  - Identify influencing factors and their interactions
  - Elaborate optimal settings to improve quality and reduce failures
  - Gain maximal information of complex system behaviour