Specification of the Problem

- Specification of the problem verbally and mathematically
- Domain expert clarifies doubts
- Optimization expert translates the problem into a mathematical description
- Specify all requirements the optimization needs to consider, for instance, execution time or algorithm overhead.

Optimization and Algorithm Design

- Solve the optimization problem using optimization techniques
- The optimization expert takes the lead in this phase
- This could be to select an algorithm that already exists, modifying an existing one to meet the needs, or design an algorithm from scratch
- This phase can include evaluating the performance on a test or the real optimization problem

Live Test

- This phase can be either considered being interwoven with the algorithm design or separately
- Evaluate the performance of the optimization method on the real problem
- This might require to set up infrastructure such as computational resources
- Writing interfaces to be able to call the actual optimization method

Verifications of Method and Results

- Verify the obtained results and check whether they satisfy the requirements defined during specification
- Evaluate the optimization method itself considering being failsafe and other requirements defined beforehand
- The optimization expert usually will take care of the technical and the domain expert of the domain-specific aspects

Repetition and Lesson Learned

- The last step should emphasize that multiple repetitions might be necessary to find a satisfying method
- If the result or method is not satisfying, all previous phases need to be reviewed
- Draw lessons learned from the optimization project after each iteration