SoftAWERE - Project Summary

Tools for energy- & resource-efficient software development.

Digitization is giving rise to new business models and services that are predominantly based on software-related innovations. For example, artificial intelligence (AI) is enabling information technology (IT) to solve problems and initiate actions on its own. On the basis of assistant-supported functionalities, greater automation is taking place in transportation systems and in the manufacturing industry, and algorithms are being used to identify patterns and regularities in large data sets that give rise to new business ideas.

The disciplines of software development and data processing have so far not been constrained by technology. This is because inefficient programing is often compensated for by ever faster processors and more main memory, and the ability of networks to transfer ever more data in ever-shorter time does not contribute to data economy. High hardware utilization, due to inefficient or bloated software, in turn, has a direct impact on energy consumption and the hardware renewal cycle.

To ensure transparency in the software development community and provide developers with tools to reduce energy consumption as a first step, the German Federal Environment Agency (Umweltbundesamt) has launched a research project funded by the German Federal Ministry of Economics and Technology (BMWi).

The project is to consider the following **focus tasks**:

- Tools that support software developers in programing energy-efficient and hardware-saving software.

- Investigate the feasibility of labelling energy-efficient software and develop a concept for evaluating energy efficiency.

- Establish awareness of the problem of energy and resource consumption of software through various communication channels to the developer community.

- Increase transparency of energy consumption of software toward third parties. For this purpose, the feasibility of a national rating system for energy-efficient software and the possibility of a graphical representation for energy-efficient software will be investigated and a concept for the evaluation of energy efficiency will be developed.

In addition, the project is intended to support the achievement of climate protection goals and serve as a basis for finding further solutions in the future.