



+ Qualicision

# Qualicision Functional Decision Design Engine

## Software for Qualified Decisions and KPI-oriented Optimization

Qualicision stands for qualified decision support in the optimization of business processes. Qualicision technology is based on complementary extended fuzzy logic and helps to integrate decision-making know-how in the form of software into business processes. In business processes, fuzziness not only arises by uncertainty of the used process data. It also arises, in particular, from the variety of data and the interactions between the possibilities for managing the business processes and the process objectives, the so-called key performance indicators (KPIs). In Qualicision-optimized business processes the inter-

actions are determined in the form of matrices (impact matrices) using the process data. From the impact matrices, a mathematical conflict and compatibility analysis is used to calculate which decision alternatives are to be selected in order to achieve the process objectives as precisely as possible. From a technical point of view the conflict and compatibility analysis allows managing the so-called combinatorial diversity of the control possibilities with regard to the optimization of the KPIs. Qualicision is a non sector-specific optimization and decision-support technology and many applications are installed worldwide.



Application fields are optimization of production sequences in the automotive industry and in manufacturing companies in general, management of transport processes, optimisation of business processes in, for example, bus and tram depots. Further examples are the maintenance management of electrical networks, the optimisation of production control processes and forecasting methods.

**The Data Modelling**

Qualicision-based data modelling is performed by using the Qualicision Functional Decision Design Engine (QFDD). After modelling QFDD generates a data format that is read and processed by the Qualicision-based optimization methods. Thus all elements of the Qualicision data modelling can be represented. These include KPI goal functions, impact matrices, KPI relationship matrices, the corresponding editors, the data tables, and other visualisation functions.

**Qualicision Selection Decision / Rankings**

Qualicision stands for qualified selection decisions or the creation of rankings for selectable alternatives. In a decision-making situation a decision-maker aims at process objectives or process KPIs that are to be achieved. The process objectives have different priorities corresponding to the preference of the decision-maker. Qualicision evaluates the currently available decision alternatives with regard to the fulfillment of the process objectives and presents them in an impact matrix, which is examined by means of a conflict and compatibility analysis. The result is a balanced decision or a ranking of decision alternatives that reflects the priorities with regard to the decision-maker's process objectives.

**Qualicision Classification - Example: Predictive Maintenance with Automated Data Classification**

A maintenance-relevant object, e.g. a machine, delivers sensor data. Qualicision automatically classifies them as data records, according to the defined and relevant maintenance criteria. Furthermore, with Qualicision it is possible to determine different criteria priorities in order to give them a higher or lower weight in their interactions. Thus the maintenance-relevant signals are grouped in categories. As a decision support solution Qualicision enables automatic



situational or predictive maintenance based on large data volumes (big data).

**Qualicision Forecast - Example: Demands**

When making long-term production demand forecasts Qualicision reads and processes the parameter data such as the crude oil price, dollar rates or the global economic situation. Parameter data fluctuations over time combined



with varying production strategies hereby directly influence the forecast.

**Reference Applications**

- + Sequencing**
- + Workforce Management**
- + Depot Management**
- + Predictive Maintenance**
- + Demand Management**