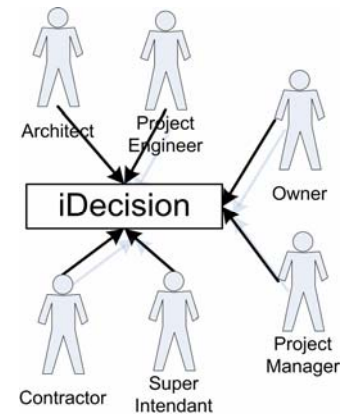


**Title:** iDecision – a decision making and decision optimization assistant

**Supervisors:** Prof. Dr. Manfred Vogel  
Fabian Märki



**Overview:** iDecision is a collaborative research effort between i4Ds (Institute of 4D–Technologies, FHNW) and CIFE (Center for Integrated Facility Engineering, Stanford University). Its aim is to provide an internet based decision making and decision optimization assistant. It is designed as a plugin for iRoomTable, an internet based meeting assistant.

**Problem definition:** iDecision uses a Decision Breakdown Structure (Kam, 2005) to model decisions, their alternatives, preferences and goals of decision makers. This model can be used to optimize the decisions in order to find a decision alternative combination which meets the interests of the decision makers in an optimal way.

**Task formulation:** The development of iDecision should take place as a close collaboration between the involved students and the project participants of i4Ds. Students will be involved in the development of a suitable application server data structure modelling decisions, their alternatives, preferences and goals of decision makers. Furthermore, graph algorithms and graph representations will be developed to enable users to create decision models. Finally, a Genetic Algorithm (GA) Framework (developed at i4Ds) will be used to optimize the decisions and their alternatives.  
Requirement: Documentations must be composed in English.

**Technologies:** Java, Hibernate, Application server (JBoss), GA-Framework, JUNG (Java Universal Network/Graph Framework), Ant, NSIS (Nullsoft Scriptable Installation System)

**References:** Kam, C. (2005): *Dynamic Decision Breakdown Structure Ontology, Methodology, and Framework for Information Management in Support of Decision-Enabling Tasks in the Building Industry*. Department of Civil Engineering, Stanford University, USA.

Märki, F.; Fischer, M; Kunz, J.; Haymaker, J. (2007): *Decision Making for Schedule Optimization*, Department of Civil Engineering, Stanford University, USA.

Haymaker, J.; Chachere, J. (2007): *Coordinating goals, preferences, options, and analysis for the Stanford Living Laboratory feasibility study*, Department of Civil Engineering, Stanford University, USA.

**Links:** [www.i4Ds.ch](http://www.i4Ds.ch) <http://cife.stanford.edu/>