

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

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

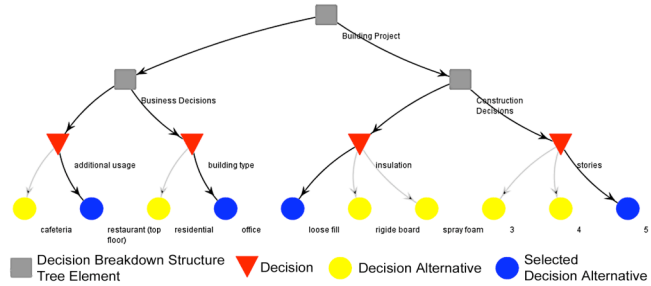


Fig. : A simple Decision Breakdown Structure

Overview: iDecision is a research project which aims to provide a collaborative decision making and decision optimization assistant. iDecision uses a Decision Breakdown Structure (DBS) (Kam, 2005) to model decisions, their alternatives, preferences and goals of decision makers. This model can be used to optimize decisions with the help of Genetic Algorithms (GA) in order to find a decision alternative combination which meets the interests of the decision makers in an optimal way. The data model of iDecision is stored in a versioned data structure (similar to SVN or CVS) which enables the retrieval of any model state.

Goals : The aim of this project is to further develop iDecision. Developments will take place in close collaboration between the involved students and the researcher at i4Ds and ETHZ.
Requirement: Documentations must be composed in English.

Tasks: There are no predefined requirements – students and supervisors will agree in successive meetings about further tasks. This provides students the opportunity to bring in own ideas and interests. Possible tasks involved in this project are:

- Usability enhancement like drag and drop, copy and paste and tree layout enhancements in the graph representation
- Multimedia content enhancement: Provide the possibility to link DBS elements with files and web pages
- Development of a simple software copy protection, e.g. through the introduction of a software expiration mechanism
- Development of a conflict detection and repair functionality for the versioned data structure

Technologies: Java, GA-Framework, JUNG (Java Universal Network/Graph Framework), Model-Server, Ant

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*. CIFE, Stanford University, USA
Märki, F.; Fischer, M; Kunz, J.; Haymaker, J. (2007): *Decision Making for Schedule Optimization*, CIFE, Stanford University, USA
Haymaker, J.; Chachere, J. (2007): *Coordinating goals, preferences, options, and analysis for the Stanford Living Laboratory feasibility study*, CIFE, Stanford University, USA

Links: www.i4Ds.ch

Project typ: P5 P6 [Bachelor Thesis]

Team size : 1 Student 1-2 Students 2 Students