

Value-oriented concept selection in aero-engine sub-systems design: the EVOKE approach

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Abstract. Value Driven Design methodologies extend the Requirements Management and Systems Engineering processes to reduce time and costs needed to identify the right solution direction to be pursued in detailed design. Emerging from the findings of an EU FP7 research project, the paper describes an approach, named EVOKE, that uses value as a basis for preliminary concept selection in the design of system components. EVOKE takes as input a list of value dimensions and drivers communicated by the system integrators, together with information about the high-level engineering characteristics of a candidate design, to enable early stage value analysis to be executed by sub-system manufacturers. The approach and its technological enablers are described in detail through the use of a case study related to the design of new intermediate compressor case for turbofan engines.