

**This document is classified as VIVACE Public**

# **REPORT DESCRIBING VALUE CHAIN RESPONSES TO RISK SCENARIOS, INCORPORATING EARLIER FINDINGS ON THE BUSINESS ENVIRONMENT, BUSINESS INTERFACES AND BUSINESS MODELS (FROM 2.1.2)**

## **Executive Summary**

This document describes the progress made with the aero-engine value chain modelling work of 2.1.1. Two new agent-based simulation models are described – the Regional Fleet Development Model (RFDM) and the Value Chain Model (VCM). RFDM focuses on the market demand for engines in different global regions whilst the VCM focuses on the downstream supply of engines from the OEM and its supply base. Both models allow input data and parameters to be set by the user when investigating a particular scenario and allow the impact of new business models and different types of contractual relationships to be evaluated. Detailed experimentation and results from both models are described. The results demonstrate how the agent-based simulation approach can be used by decision makers to understand, explore and evaluate different scenarios and thus support strategic decision making. Strategic decision making is currently dominated by qualitative approaches and ‘gut feel’. The agent-based simulation modelling approach presented here allows for a more rigorous, quantitative strategic decision making process in the aero-engine industry in the future.