

Synopsis:

REDUCE — Rapid Early Development Unit Cost Estimation



Rapid cost estimation software system



Cost estimation for demonstration part

Background

Affordability is a primary concern in today's manufacturing industry. During the early design stages, cost estimation becomes a necessity for optimization of product design. However, detailed information regarding the composite structure and its manufacturing processes is usually incomplete or uncertain at early design stages. In such cases, traditional cost estimation methods, such as activity-based costing (ABC) have been used. HPMI developed REDUCE – Rapid Early Development Unit Cost Estimation, a feature-based cost estimation approach for composite structures based on the fuzzy multi-attribute utility theory (FMAUT). This cost model enables rapid life-cycle cost estimation during early design stages.

Goals

- Develop a model for cost and affordability analysis with incomplete data composite structures in early design stages
- Provide an affordability evaluation tool for new product and process development

Projects/Research Highlights

- Develop FMAUT cost model
- Test cost model with Longbow production data
- Refine cost model with historical data

Benefits to Industry

- Realistic life-cycle cost/affordability estimation for new product and process development
- Sensitivity analysis of cost drivers
- Reduced subjectivity in cost estimation