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## Quality Management Framework for ensuring Engineering Simulation and Modeling Process

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### **Abstract**

This paper applies quality management techniques, such as QFD and FMEA, to digital product models, with a particular emphasis on engineering simulation and 3D CAD representations to tackle challenges like redundancy and lengthy correction cycles. It underlines the significance of meeting user requirements and utilizes tools to ensure compliance with technical standards in digital settings. By modularizing quality management methods, the approach improves both economic efficiency and the quality of the models. An industrial case study involving car seat modeling showed decrease in revision time and an enhancement in data quality. These findings emphasize the value of holistic lifecycle strategies, dedicated leadership, and tailored training to better fulfill user needs and strengthen competitiveness.

### **Index Terms**

Simulation, Modeling, 3D CAD, FMEA