



COMPOSITE REPLACEMENT PARTS FOR ARMY WHEELED TACTICAL VEHICLES



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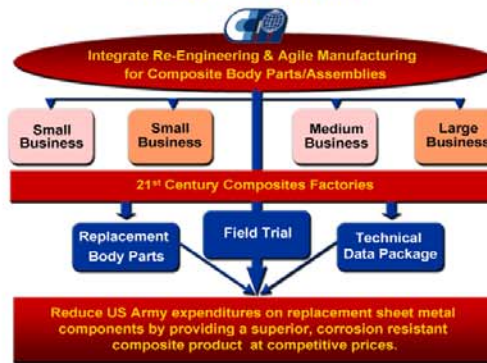
University of Delaware - Center for Composite Materials

OVERVIEW

The U.S. Army's Tank-Automotive Research, Development, and Engineering Center and the University of Delaware's Center for Composite Materials (UD-CCM) are developing a new state-of-practice for the manufacture of body parts/assemblies for Army wheeled vehicles. Due to corrosion of the current sheet-metal parts, each year the Army spends tens of millions of dollars on replacement body parts and up to billions of dollars on corrosion prevention and control. This replacement parts program is the first and only comprehensive Army program to address the root cause by replacing metal with composites. UD-CCM has the capability to redesign and manufacture the replacement parts starting from existing CAD data, from an existing part, or from scratch. Re-engineering capabilities include laser 3D scanning, creating a surface from the resulting point-cloud, creating solid 3D CAD models, finite element modeling, part manufacture, and testing. This program will ultimately allow exploitation of the benefits of composite materials for structural performance, weight reduction, corrosion resistance, durability, and the integration of armor and other multi-functional enhancements.



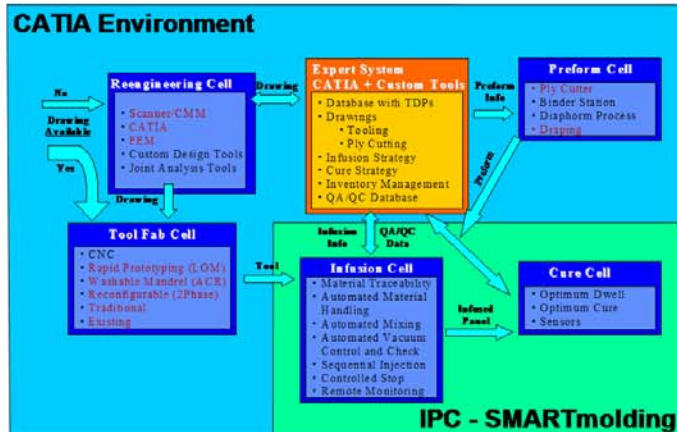
PROGRAM VISION



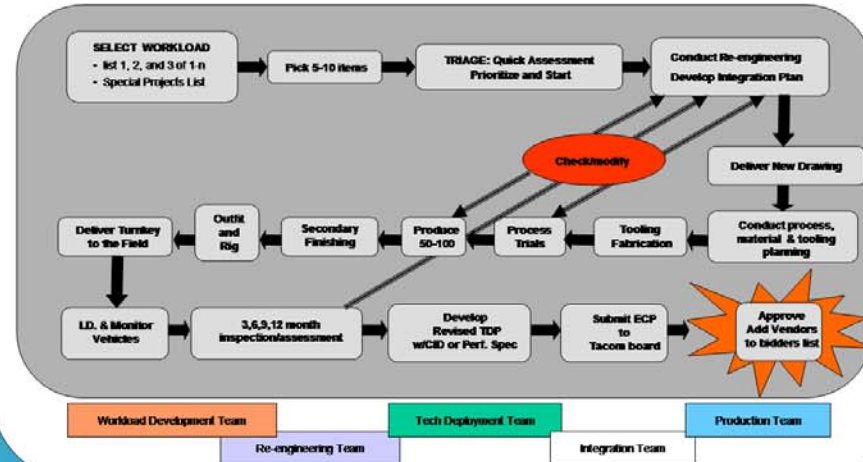
CCM PROGRAM ROLE



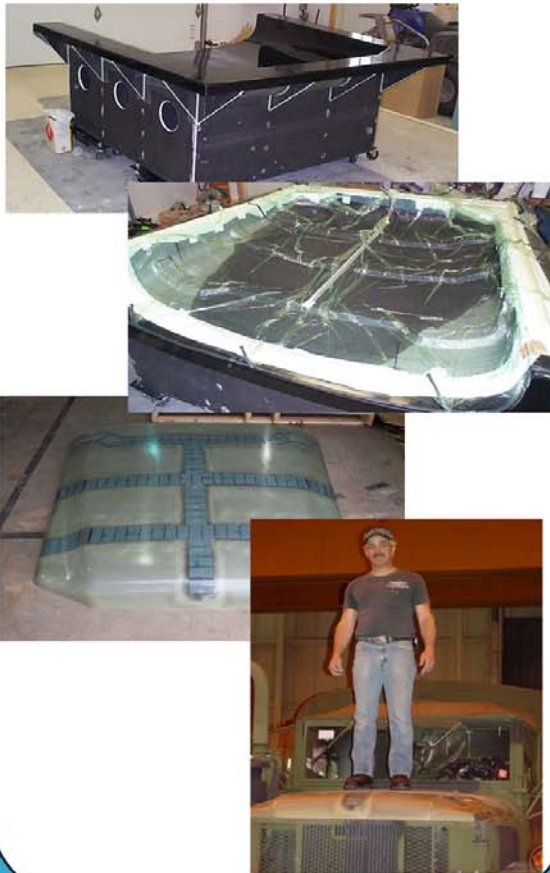
PROCESS & SYSTEM INTEGRATION



TYPICAL TASK FLOW



“PROTOTYPES” – TOOLING AND FABRICATION



CURRENT COMPOSITE BODY PARTS REPLACEMENT SUPPORT

- Utilize component replacement plan and testing to support and validate development of new workcell and integrated process technologies



HMMWV HOODS INSTALLED ON VEHICLES AT NATIONAL TRAINING CENTER



ACKNOWLEDGEMENTS

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