

TIME Integrated Product Realization Process

PROBLEM / OBJECTIVE

The Army requires a modern e-business solution for interfacing with a community of contractors for rapidly producing munitions in both peacetime, as well as national emergencies while shrinking its manufacturing base. By utilizing the product realization process (PRP) under Totally Integrated Munitions Enterprise (TIME), state-of-the-art engineering and web-based collaboration tools can be used within a virtual enterprise to allow a fluid, conglomerate of contractors to readily communicate throughout all phases of a munitions lifecycle from initial concepts through design to manufacturing. The effective result would be an efficient e-process requiring less development and deployment time/cost for all munitions.

ACCOMPLISHMENTS / PAYOFF

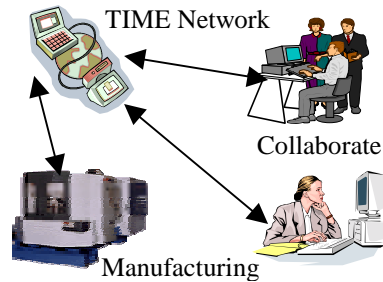
Process Improvement:

The foundation for the TIME product realization process was developed and implemented within a test bed at the Louisiana Center for Manufacturing Sciences (LCMS). The test bed environment improved collaborative communication across distributed team members throughout all phases of the product realization process. A majority of the tools used within the test bed proved to be reusable across many business processes.

Best-in-class tools in 5 main areas: CAD/CAM/CAE, Collaboration, Simulation, Product Management, and Workflow were selected and installed within a test bed at LCMS. The test bed was used to evaluate software and processes for exchanging technical data.

Implementation and Technology Transfer:

Through adherence to standards, implementation of open architecture and the proper selection of open software tools, tests showed that technical data could be quickly disseminated to designers and manufacturers within the virtual enterprise. The tools used within the test bed allowed mechanical parts to be viewed, altered, approved and manufactured over a web-based virtual enterprise while still allowing participants to process and act upon the information using the CAD/CAM/CAE tool preferred by their own organization, which may not be the same as others collaborating on the project.



This task was demonstrated to the US Army Armament Research, Development and Engineering Center (ARDEC) as an element under the TIME contract. The demonstration contained elements such as 1) Web-based video conferencing, 2) Internal and external web-based collaboration to exchange part data, graphics, documentation, and desktop applications, 3) Synchronized modification of mating parts developed on different CAD systems, 4) Change notification and approval through web-based workflow, and 5) Machining of the modified mill part on the Open Modular Architect Controller (OMAC).

Expected Benefits:

Using integrated technologies under TIME, the Army will be able to streamline its product realization processes, as well as its business processes. High fidelity communication, such as design or manufacturing data, among 1st tier suppliers and lower tier sub contractors can be achieved with a similar foundation used for the TIME product realization process. As the Army enforces virtual enterprises for its e-business strategy, the manufacturing base may be reduced while maintaining reserves and improving the manufacturing rapid ramp-up in case of national emergencies.

TIME LINE / MILESTONE

Start date: January 1999

End date: December 2000

FUNDING

\$241K direct; plus related other TIME elements.

PARTICIPANTS

TACOM-ARDEC
Louisiana Center for Manufacturing Sciences
Raytheon Professional Services