

BAE Systems - U.S. Combat Systems (USCS) Advanced Manufacturing Engineering Teams with the Small Business Office....

BAE Systems USCS Advanced Manufacturing Engineering has partnered internally with the Small Business Office within the Supply Chain Department to ensure the methods we have developed to deliver 3D model / Technical Data Packages (TDP) can be used by any supplier regardless of CAD system.

For the last several years, BAE Systems has been working in an R&D environment with the Army Research Laboratory to develop and apply Model Based Enterprise (MBE) capabilities. The Army views this as an effective way to significantly cut waste and provide a lean development process. Traditional drawings are eliminated and all required information is contained in an annotated master model. Through this new technology, BAE Systems as well as downstream customers such as suppliers, benefit through the reduction of error rate and re-works as well as reduced labor in data and document creation.

Currently, the conventional processes for creating a design are inefficient because they rely on the manual re-keying or re-creation of the product definition. Delivery of the product definition is paper based. In-process changes may or may not get incorporated into the model and result in confusion and a high error rate / rework.

Using the MBE approach streamlines the process by eliminating the traditional 2D Drawing. It also incorporates the needed downstream interfaces so the product definition can be reused vs. re-created. This approach also allows for a single source master, reducing confusion and errors.

The question is – how does BAE Systems develop a Model Based Enterprise that is compatible with the hundreds of different suppliers, many that are small diverse businesses, which are crucial to our success? The answer lies in the efforts and solutions provided by some of the MBE technology development partners and suppliers...

Recently, BAE Systems employees Aaron Lemire and Nathan Fisher from Advanced Manufacturing Engineering in York, PA traveled to College Station, Texas to meet with the engineers from a small Native American woman-owned company that is a supplier to USCS. This supplier, BMI Defense Systems, is receiving mentoring services from USCS as part of a DoD Mentor-Protégé Agreement. The mentoring provided by Aaron and Nathan was to teach BMI engineers how to implement MBE technology and utilize the 3D solid modeling and annotating features of Pro/Engineer to their fullest.

Additionally, a goal that Mitzi Whittenburg in the Small Business Office is trying to achieve is the incorporation of consulting services from a Historically Black College or University (HBCU). This is a requirement of a Mentor-Protégé Agreement with the Office of Small Business Programs U.S. Department of Defense. Thus, Aaron and Nathan continued their travels after meeting with BMI in College Station to Prairie View A&M University in Prairie View, Texas to meet with the head of their Mechanical Engineering Department.

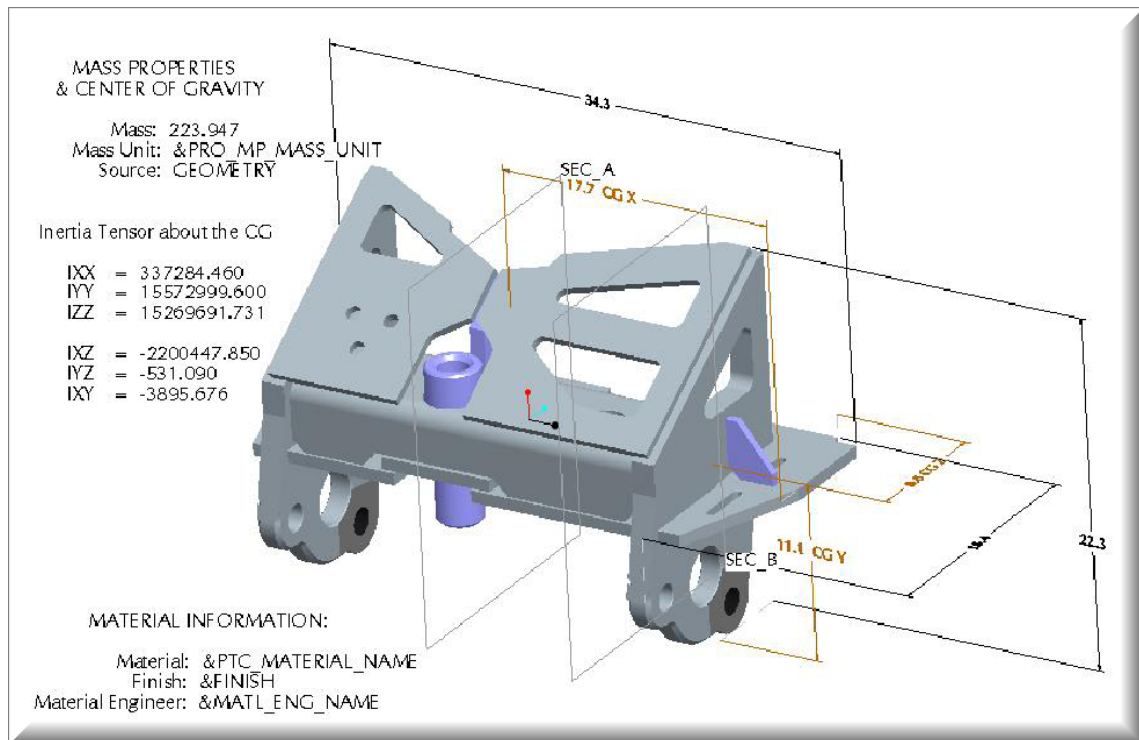
As a result, through working as a cross-functional team, a Statement of Work has been created for Prairie View A&M University to provide the following engineering consulting services to BMI Defense Systems and USCS through a Professional Services Agreement:

- USCS works with Prairie View A&M University to train them on our Model Based Enterprise (MBE) Schema and the Adobe Technical Data Package (TDP)
- Prairie View A&M University then takes a sample and determines if they can recreate that schema in Unigraphics in addition to documenting the process for doing it in Unigraphics

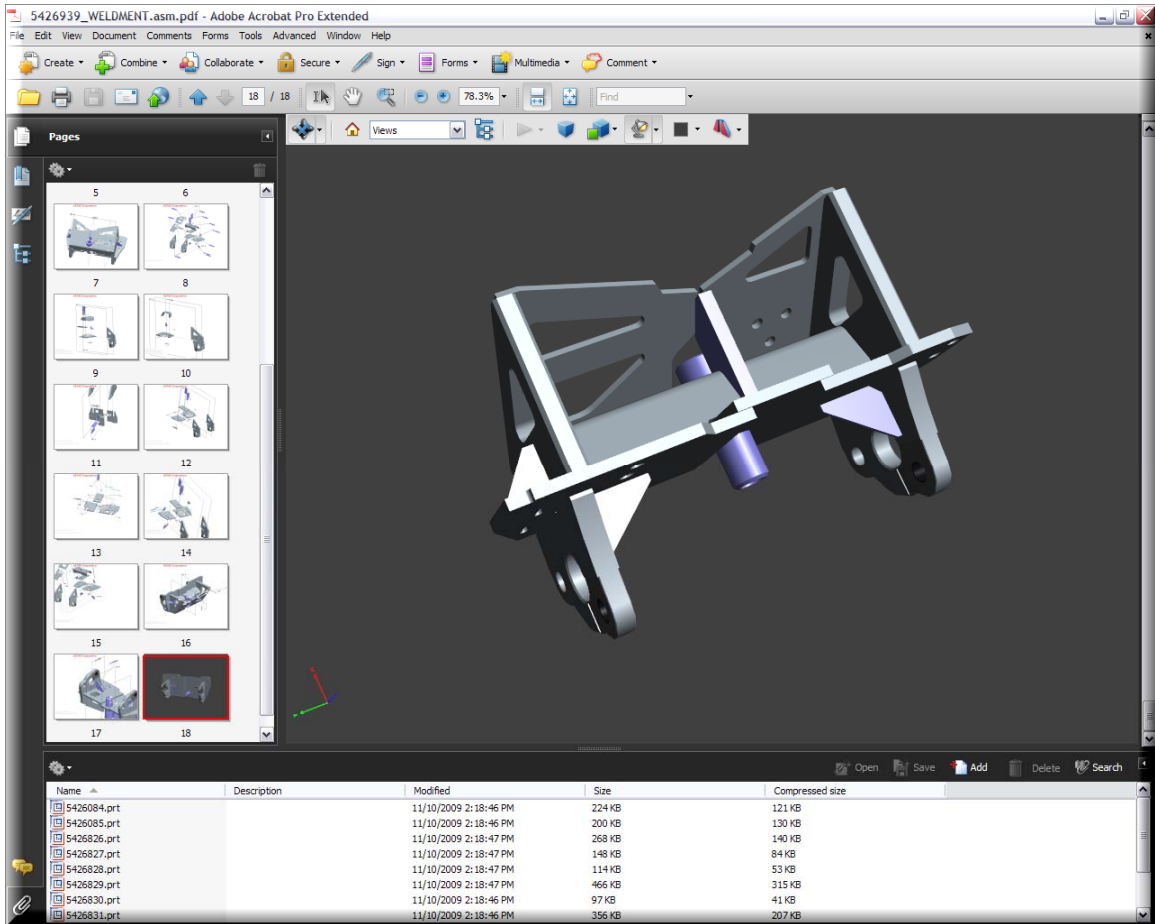
- Prairie View A&M University then works with BMI Defense Systems to determine if they can send them a part that they can build using a 3D model designed in Unigraphics

In conjunction with this effort I-Cubed, another small business, who developed the software for creating the Adobe TDP has volunteered to provide their software to Prairie View. Engineering business integration specializing in CAD integrating and data transportation is the expertise provided by I-Cubed. They will work with the team to further develop their solution, which automates the creation of the Adobe PDF while imbedding both 2D views and interactive 3D views that can be accessed through the free Adobe reader. In addition, it allows for the attachment of CAD and other related documents into a single PDF enabling the entire TDP to be sent as a single file.

This process will allow USCS to utilize MBE for all of its suppliers regardless of which CAD systems they use. At the same time, this is the first HBCU contract for USCS which is a milestone achievement for the small business program. It also coordinates those efforts with our protégé and strengthens the ties between our Advanced Manufacturing Engineering and Supply Chain Departments.



Example of a 3D annotated model that will be provided to suppliers.



Example of an Adobe PDF Technical Data Package.

For more information visit: www.model-based-enterprise.org