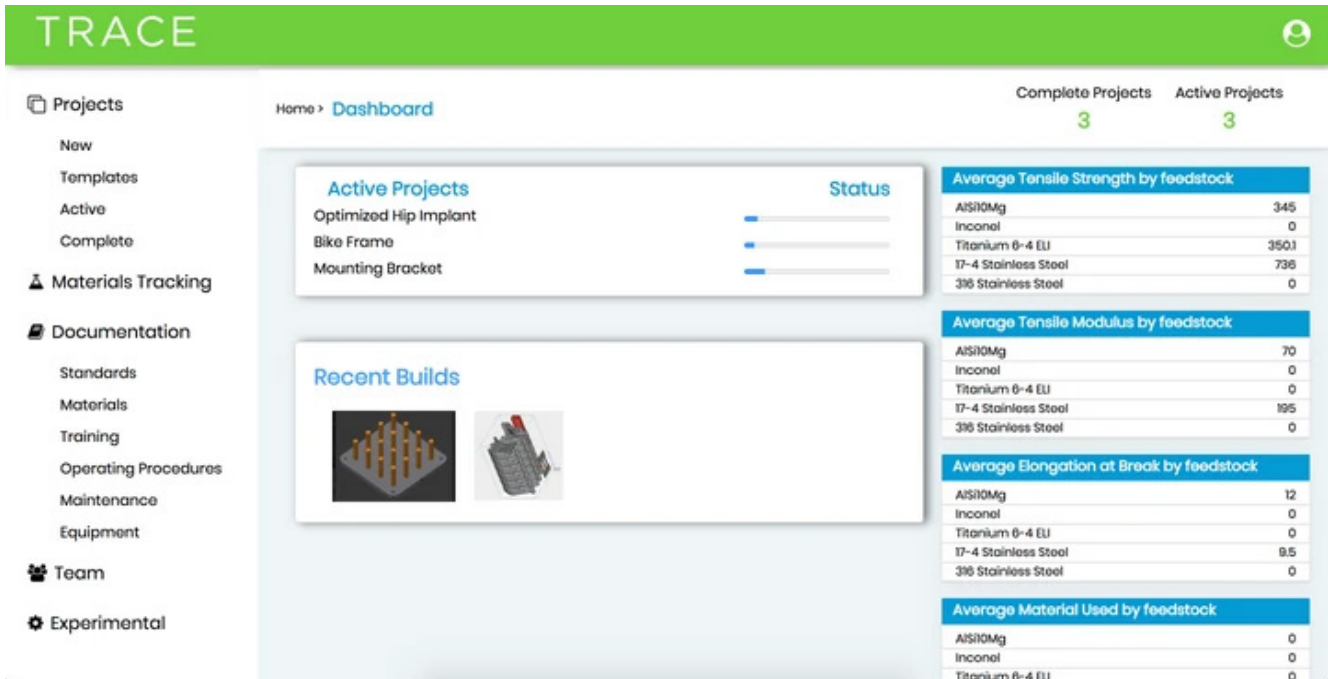


SUCCESS STORY

5001.001.002.002

Platform was developed to store data on AM processes

# Users of platform can access process and material data for various 3D printing utilizations



Screenshot of the TraceAM software

## PROBLEM

Currently, when users log into the America Makes Digital Storefront individuals see a text-heavy dashboard listing historical projects, with project data stored in a variety of formats (e.g., Word, Excel, PDF). Although this is perfectly suitable for accessing certain types of data (e.g., project final reports, TRX PPT presentations), it makes it difficult for a member to see comparative data or trend analysis. Early projects had limited guidance for project team members as to the exact format or pedigree they should adopt when reporting 3D printing data.

## OBJECTIVE

The objective of the project was to generate a user-friendly, searchable, and sortable platform of test results using a commercially viable software tool built specifically for managing 3D printing material and processing data in an organized and pedigreed manner. The goal of the work was to provide the America Makes community with a maintainable, smart resource to improve its understanding of the processes and help accelerate the adoption of the technology across industries.



**AMERICA MAKES  
TECHNOLOGY  
DEVELOPMENT  
ROADMAP**

This project aligns to:



**ASTM  
PROCESS CATEGORY**  
N/A

**EQUIPMENT**  
N/A

**MATERIAL**  
N/A

## TECHNICAL APPROACH

The first step of the project approach was to select several key headings that could be used to both sort and organize project data. This was done in conjunction with industry experts from Senvol, EOS, Deloitte, and Northrop Grumman, who together have decades of both hands-on AM experience and deep knowledge of data structures specific to the technology. As a starting point, we built a technical data pedigree outline and framework as shown in Figure 1 and Table 2. This was modified based on a review of the format of information available on the America Makes Digital Storefront. The TraceAM software stack has built-in data structure templates that will need to be extended to incorporate the items defined in Phase 1. This included modifying the underlying data schema and associated user interface components to not only incorporate additional metadata, but to be more flexible for users to “self-service” add them through the web interface. Once the data structure template was built, we then selected two previous or ongoing America Makes projects and uploaded the data from these projects into the new software structure.

## ACCOMPLISHMENTS

The project team successfully developed an authentication platform that allowed seamless integration with the current member user database. The TraceAM project team integrated a tool called Auth0 that will enable software access to be controlled in the same way as an America Makes member logs into their Digital Storefront account. One of the key pieces of the TraceAM software for the America Makes database is the search functionality. This will play an important role in helping members of the America Makes community navigate the system. The project team incorporated a Data Visualizer tool into the America Makes TraceAM deployment. This function had three levels of operation including Search, Browse, and Visualize. Each of these elements allows the users to review data that has been uploaded into the TraceAM system. The Search function is quite useful both in terms of historical data that has been captured in the America Makes Digital Storefront as well as data uploaded directly into the database field.

## PROJECT END DATE

October 2021

## EXPECTED DELIVERABLES

- Data model
- Training materials
- Access to Trace AM
- Final report

## FUNDING

**\$95,724 total project budget**  
(\$53,224 public funding/\$42,500 private funding)

## PROJECT PARTICIPANTS

### Project Principal:

3Degrees

### Other Project Participants:

Senvol  
Northrup Grumman  
EOS  
Deloitte

### Public Participants:

U.S. Department of Defense