

# MUST

## Military Uniform System Technology

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and Design  
Central Michigan University



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### MUST focuses on:

- Improving collaboration between military and commercial manufacturers
- Developing an integrated knowledge base to improve the design, fielding and sustainment of individual military equipment items



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## Vision for Military Uniforms and Individual Equipment: *Collaboration*

- Commercial Manufacturers/Industrial base
- Military Service Branches (Army, Navy, Air Force)
- Defense Logistics Agency (DLA)

*to ensure that all segments have the most recent valid data on hand to make the best operational and financial decisions to support the Warfighters*



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## Commercial Manufacturers Role

- Provide updated information to the DLA and the Services
- Provide current test results for individual lot numbers to meet MILSPEC requirements
- Supply the required technical support to DLA and the Services to incorporate their products into the finished good items



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## Military Service Branches Role

- The individual Services (Army, Navy, Air Force) still maintain the design, testing and initial fielding of the items
- Provide components and product descriptions for uniforms and accessories



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## DLA Troop Support Role

- DLA TS is the “Group Purchasing Organization (GPO)” for the Services; lead supply chain and logistics functions
- Procurement process
- Technical support
- Communications link between the Services



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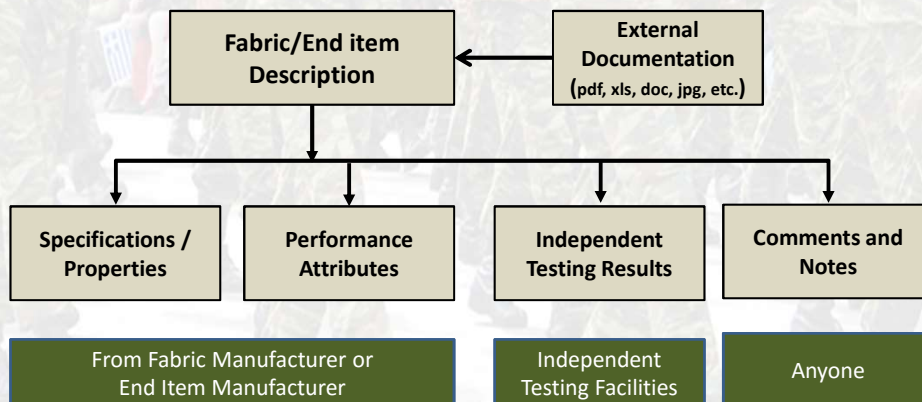
## Scope and Vision of Must

Provide the *infrastructure* to allow for knowledge transfer between the Fabric Manufacturers, Testers, End-Item Manufacturers, Finishers and DLA / Military Services



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## Goal 1: Build a Commercial Fabric and End Item Repository



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## Establish a secure, web-based portal for Industrial Base to upload specs

**MUST** Military Unique Sustainment Technology

**Commercial Fabric and End Product Specification Repository**  
 \*\*\* Upload ONE document at a time \*\*\*

\* COMPANY NAME:

\* CONTACT NAME:

CONTACT EMAIL:

CONTACT PHONE:

RECEIVE EMAIL UPDATES:

CATALOG NO:

\* DESCRIPTION:

\* BERRY AMENDMENT COMPLIANT: Yes  No  [Berry Amendment Info](#)

\* SINGLE FILE TO UPLOAD:  No file selected.

Companies Already Uploaded Specs

- Alsite Structure Rentals
- Apex Mills
- BioThane Coated Webbing
- Bolger & O'Hearn
- BondCote Corporation
- BrittanyUSA
- Diversitex
- EMS-GRILTECH
- First Line Technology
- FTL DESIGN ENGINEERING STUDIO
- ITG/Burlington
- ITG/Carlisle
- ITG/Safety Components
- Loric
- MMI Textiles
- Polartec
- Propper / Tencate
- Seaman Corporation
- Snyder Manufacturing Inc
- Springfield LLC
- Sprung Instant Structures

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## Tech Specs: *Hard Copy to Electronic*

- Collaborating with our MUST partners to develop and test an electronic format for the finished item specifications

TESTS, UNIT OF MEASURE	RESULTS			REQUIREMENT
	11445949/002	11445949/003	11445949/005	
Break Strength, lbs. (ASTM D-5034)				
Warp	208	201	203	
	198	202	194	
	197	199	203	
	209	202	197	
	194	192	194	
Average:	201	199	198	190 Minimum
Fill	184	159	188	
	179	158	190	
	186	161	186	
	180	167	184	
	186	166	186	
	189	168	187	
	186	166	184	
	184	163	186	
Average:	184	164	186	150 Minimum
Dimensional Stability, % (AATCC 135 (3) III A II 1)				
Warp	2.5	2.3	1.9	
	2.4	2.4	2.0	
	2.4	2.4	2.5	
Average:	2.4	2.4	2.1	4.0 Maximum

## Repository Benefits

- Provide DLA TS and Services with current and future specifications which could reduce the requirement for sources sought
- Provide Fabric Manufacturers with current testing requirements for MILSPECS
- Provide for detailed test results
- Expand competition and industrial base



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## Test Results *Documentation*

- Can be uploaded into the Repository
- Repository generates a DD1222 form and documentation for the DLA Testing Center
- DLA Testing Center can complete the DD1222 form and pass/fail the lots



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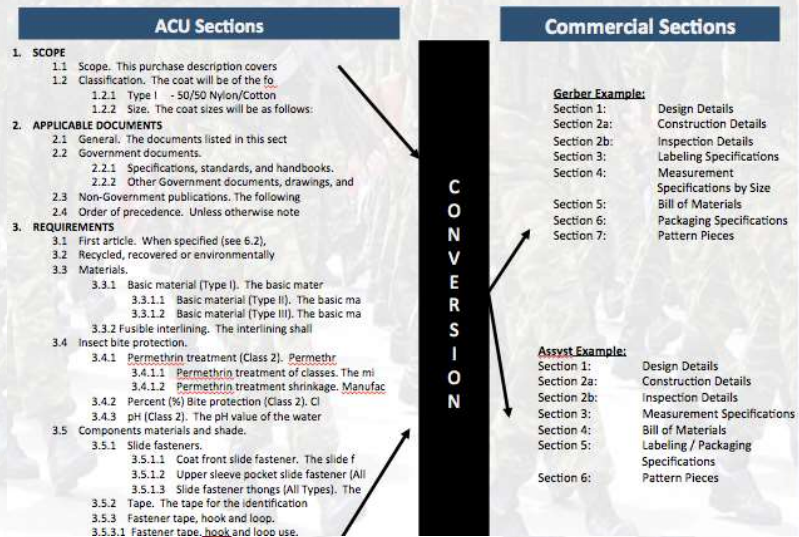
# Goal 2: Build an Electronic Purchase Description(PD)

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# ...And Map PD to Commercial Alternative



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## Benefits of Electronic Purchase Description and Commercial Alternative

- End-item manufacturers can substantially reduce the manual handling of the Purchase Description
- Automatically integrate information from external sources into the commercial output
- Provide mechanism for new manufacturers to enter into military market
- Provide feedback back for potential improvements to current and future Military Purchase Descriptions



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## Our Industry Partners Make This Possible!

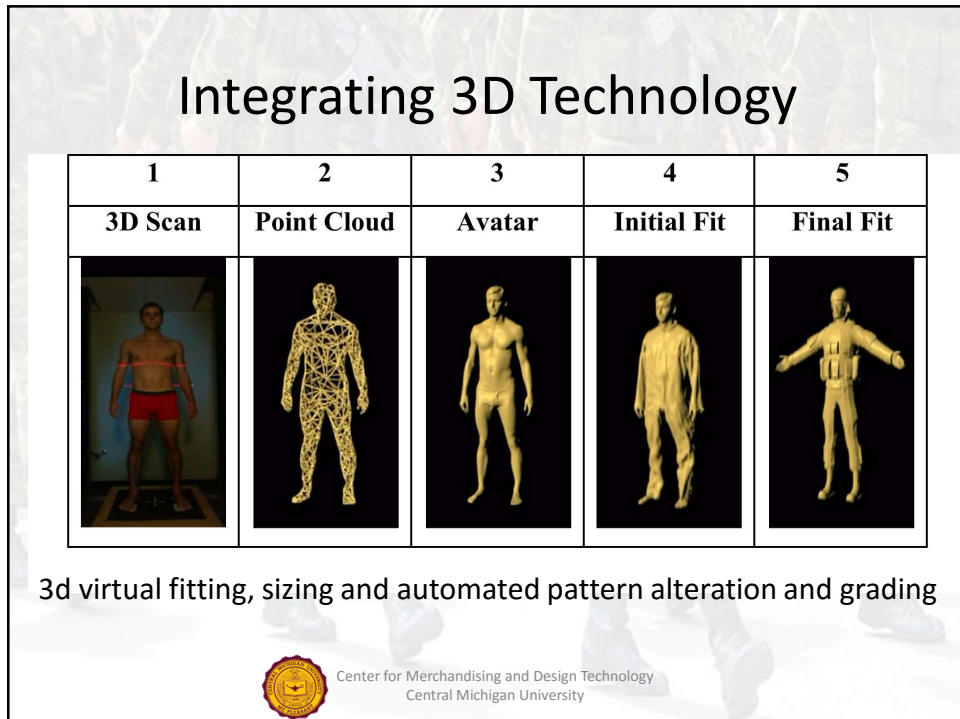
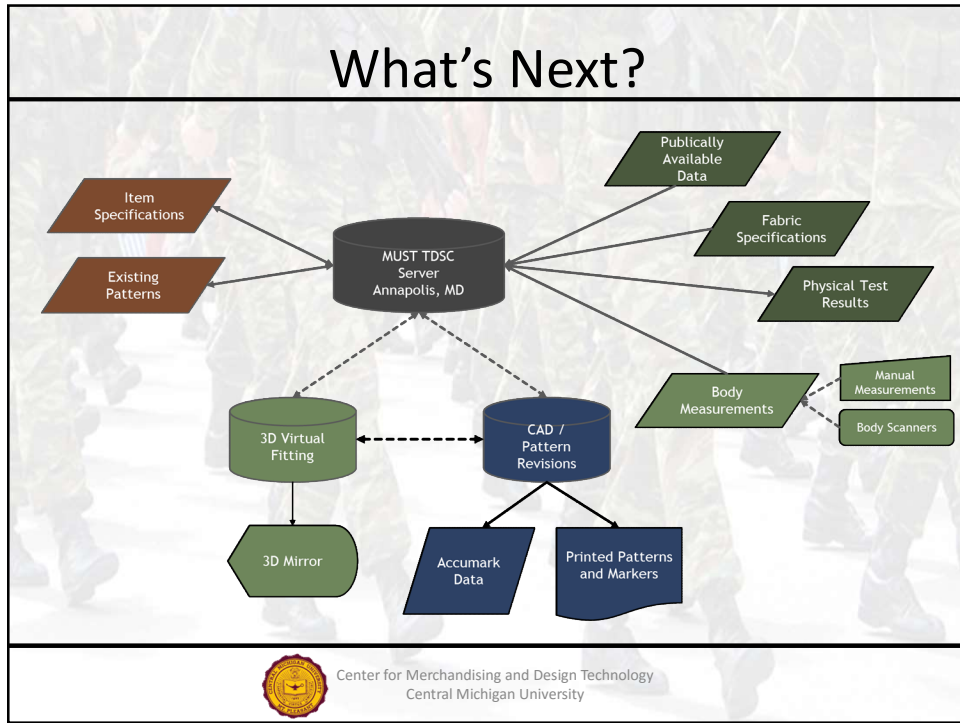


They are our conduit to our manufacturers and testing companies to develop this electronic upload protocol.

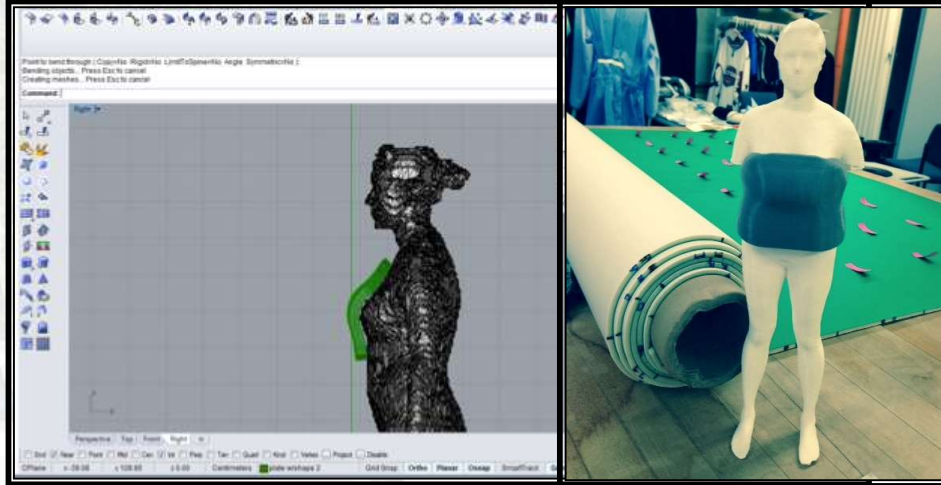


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## 3D Printing armor plates for female cadets



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## Future Focus

- How can these technologies operate in real world environments?
- Expand the TDSC to demonstrate these technologies and their output in real-time
  - Industry partners
  - Universities
  - Military End users
- Using web based technologies



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# Thank You

To participate in MUST:

<https://must.webapportal.net/>

Maureen S. MacGillivray, PhD.  
Central Michigan University  
***Email: Macgi1ms@cmich.edu***



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