Learning with Purpose

UMASS LOWELL

A HUB FOR INNOVATION AND COLLABORATION

NOVEMBER 12, 2019

Arlene Parquette
Associate Vice Chancellor
Industry Partnerships and Economic Development
LOWELL AND UMASS: HISTORY OF INNOVATION IN TEXTILES AND SMART MATERIALS

First Textile Mill
1823
Birthplace of American Textile Industry

Lowell Textile Institute
1895

Lowell Technological Institute
1953
Plastics, leather, paper and electronics

UMass Lowell
1991

Advanced Composite Materials & Textiles Research Lab
1985

Nanomanufacturing Center
2004

Center for High-Rate Nanomanufacturing
nanomfgcenter.org
Harnessing Emerging Research Opportunities to Empower Soldiers

1985

Advanced Composite Materials & Textiles Research Lab

2004

Nanomanufacturing Center

NERVE Center

Printed Electronics Research Collaborative

2013

2015

1985

Fabric Discovery Center

2013

2018
UMASS LOWELL’S ROLE IN ECONOMIC DEVELOPMENT

• Translate Research into Opportunities
• Nurture the Startup Community
• Build Strong Corporate Partnerships
• Develop the Next Generation Workforce
U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT
COMMAND
SOLDIER CENTER

Opening Remarks

COL, AD Frank Moore US Army CCDC SC MILDEP
Mr. Mathew M Correa US Army CCDC-SC Acquisition Career Management Advocate
<table>
<thead>
<tr>
<th>Action</th>
<th>Total Casualties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revolutionary War</td>
<td>4,435</td>
</tr>
<tr>
<td>War of 1812</td>
<td>2,260</td>
</tr>
<tr>
<td>Mexican War</td>
<td>13,283</td>
</tr>
<tr>
<td>Civil War</td>
<td>655,000 (est)</td>
</tr>
<tr>
<td>Spanish-American War</td>
<td>2,446</td>
</tr>
<tr>
<td>World War I</td>
<td>116,516</td>
</tr>
<tr>
<td>World War II</td>
<td>405,399</td>
</tr>
<tr>
<td>Korean War</td>
<td>36,574</td>
</tr>
<tr>
<td>Vietnam War</td>
<td>58,209</td>
</tr>
<tr>
<td>Persian Gulf War</td>
<td>382</td>
</tr>
<tr>
<td>Global War on Terrorism</td>
<td>&gt;6,000 (3)</td>
</tr>
</tbody>
</table>

90% of the casualties are inflicted on 4% of the force (the close combat warfighters) and only 1% of the RDT&E funding is spent on close combat.

Notes:
1 Taken from Congressional Research Service Report for Congress dated June 29, 2007
2 Added in estimates for Confederate Soldiers
3 Ongoing
Nov 12/13 desired outcomes

Objectives:
1. Strengthen collaboration and partnership across the Warfighter innovation enterprise.
2. Enhance public/private partnerships in support of DOD activities.
3. Enhance Industry interactions with DOD Institutes.
4. Increase and expand Industry and Academia knowledge of the Army’s priorities to accelerate technology innovation.

- Sustain / Enhance Future Force Modernization collaborative behaviors post event
- Ensuring our warfighters/homeland defenders continue to have best of breed technologies to achieve Overmatch
The primary end state of the 2019 Army Modernization Strategy, is a modernized Army capable of conducting Multi-Domain Operations (MDO) as part of an integrated Joint Force in a single theater by 2028, and ready to conduct MDO across an array of scenarios in multiple theaters by 2035.

Key assumptions:
- The Army’s budget will remain flat, resulting in reduced spending power over time.
- Research and development will mature in time to make significant improvements in Army capabilities by 2035.
- Adversary modernization programs will stay on their currently estimated trajectories in terms of capability levels and timelines.
We have DoD representation across the acquisition lifecycle with a collective buying power of over 250M

- Requirements
- 6.2/6.3 S&T efforts
- PEO requirements
- Manufacturing Initiatives
- User representation

Universities
- Local and geographical dispersed focused on the intersection of smart materials and wearable sensors

Industry
- Large Mid and Small (traditional and non traditional DoD suppliers)

Figure 2. Integrating Modernization Across the Army

Wearable Sensors are Key Enablers for DoD based Artificial Intelligence Fueled by Future Force Modernization Behaviors