THE CONNECTED FACTORY FOR SMMs - OPPORTUNITIES AND CHALLENGES
MANTEC’s 9 county region includes over 2,400 manufacturers in diverse industries.
MANTEC SERVICE AREA

- Largest industry sector in Adams, Franklin, Lebanon and York Counties
- 108,331 employees in South Central PA
- 14.16% of total South Central PA workforce
- 2,400 establishments in South Central PA

Glatfelter
Why Manufacturing Matters

- Diversity of manufacturing - we make everything!
Technology

- Integrating IT systems throughout the enterprise
- Automation
- Robotics
- Additive Manufacturing/3-D Modeling
- Predictive Maintenance
- ERP
- Cybersecurity

JLS Automation
## Digital Intensity Solution Matrix

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CRM</td>
<td>Simulation &amp; Analysis</td>
<td>M2M Collaboration</td>
<td>Inventory Management</td>
</tr>
<tr>
<td>Market Insights</td>
<td>3D Digital Modeling</td>
<td></td>
<td>Logistics</td>
</tr>
<tr>
<td>Remote Sales Staff</td>
<td>Transformative Products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Media</td>
<td>Distributed Manufacturing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interactive Website</td>
<td>Materials Resource Planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaborative Engineering Tools</td>
<td>Product Lifecycle Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplier Integration</td>
<td>Enterprise Resource Planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OEM Integration</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 5. IT Infrastructure & Cybersecurity

<table>
<thead>
<tr>
<th>Critical Security Control Domains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventory of IT Assets (Hardware/Software)</td>
</tr>
<tr>
<td>Security Configuration (Laptops, Servers, etc.)</td>
</tr>
<tr>
<td>Security Configuration (Firewalls, Routers, etc.)</td>
</tr>
<tr>
<td>Vulnerability Assessment &amp; Remediation</td>
</tr>
<tr>
<td>Maintenance, Monitoring, and Analysis of Audit Logs</td>
</tr>
<tr>
<td>Malware Defenses</td>
</tr>
<tr>
<td>Application Software Security</td>
</tr>
<tr>
<td>Remote Access/Security Controls</td>
</tr>
<tr>
<td>Data Protection/Recovery Capability</td>
</tr>
<tr>
<td>Cyber Awareness Training</td>
</tr>
<tr>
<td>Account Monitoring &amp; Controlled Access, etc.</td>
</tr>
<tr>
<td>Incident Response and Management</td>
</tr>
<tr>
<td>Defense Industrial Base DFARS/AR Compliance</td>
</tr>
</tbody>
</table>
The Connected Factory

OPERATIONAL EXCELLENCE & QUALITY
GROWTH & INNOVATION
TECHNOLOGY
WORKFORCE DEVELOPMENT
SMART MANUFACTURING/LEAN AUTOMATION
SMART MANUFACTURING/LEAN AUTOMATION
SMART MANUFACTURING/LEAN AUTOMATION
Examples or Predictive Maintenance
Utz Quality Foods, Inc.
Bill and Salie Utz started the Hanover Home Brand Potato Chips in Hanover, PA. The hand-operated equipment Salie made about fifty pounds of potato chips per hour. While Salie stayed home making chips, Bill delivered them to “mom and pop” grocery stores and farmer’s markets in the Hanover, PA and Baltimore, MD area.

Through the years, the family owned and operated business, run by Bill Utz’s grandson Mike Rice as CEO, continued to thrive and grow. In 2010, 80 years after its founding, Utz had grown to over $200 million in annual sales.

Today, Utz is the largest independent privately held snack brand in the United States. It continues to be family owned and operated, with almost $650 million in sales, a 1,300 + plus route sales force, with 11 production facilities on both coasts and 61+ Utz DC’s & 13+ Distributor locations to support Utz’s DSD and National operations. Through our National Sales Accounts, Utz products can be found in all 50 States, Canada, and Mexico and some overseas countries as well. Club stores such as Sam’s, Costco’s and BJ’s and Mass stores like Wal-Mart & Target all sell Utz products as well.
UTZ Manufacturing Locations:

- Hanover, PA
  - UTZ Campus
  - Plant #1: Grandma Utz Chips
  - Plant #2: Pretzels
  - Plant #3: Corp Office, Chips, Corn Torts
  - Plant #4: Cheese Curls, Popcorn, Corn Chips
- Fitchburg, MA
  - Chips, Potato Stix
- Wilkes-Barre, PA
  - Kettle Chips
- Lititz, PA
  - Pretzels and Gluten-Free Pretzels
- Pittston, PA
  - Veggie Straws, Stix
- Oxnard, CA
  - Kettle Chips
**SELECTION PROCESS**

Requirements:
- Real time data
- Paperless environment
- Improved Communication
- Use of OEE as a performance measure
- Data that is detailed, and can be used to drive action
- Ability to focus on issues with the biggest impact

Selection Criteria:
- Stability of supplier
- IT infrastructure
- Complexity of implementation
- Cost
- User friendly operator interface
- Organizational Fit
Manufacturing Data System

- Selection of Redzone software

- Improve cost per Lb by increasing throughput & reducing Operational costs
  - Real-time visibility and data capture of all processes to drive immediate action
  - Address minor “hidden” losses; downtime, speed loss, C/O, Ops DT

- Provide factual quantifiable data to support decisions & operations focus
  - Eliminate manual paper collection & “non-value” admin burden
  - Data to identify biggest opportunities & support capital decisions

- Transfer Sustainable Model for Efficiency Improvements
  - Empower the shop floor with information & skills for quick action
  - Consistent way of measuring & managing performance across all plants

Timeline:
- 2015
  - Plant 4: Phase 1
  - Plant 4: Phase 2
- 2016
  - Plant 3
- 2017
  - Plant 1
  - Plant 2
- 2018
  - Regional Plants?
REAL TIME EQUIPMENT MONITORING

Real-time OEE Management & Automated Data Capture
<table>
<thead>
<tr>
<th>UNITARY SYSTEMS</th>
<th>APPLIED SYSTEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COMPAK™</strong></td>
<td><strong>RECSWIM®</strong></td>
</tr>
<tr>
<td><strong>AW / HCD SERIES</strong></td>
<td><strong>RCP SERIES</strong></td>
</tr>
<tr>
<td>SUPPLY AIR 700 - 8,000 CFM</td>
<td>SUPPLY AIR 3,500 - 7,000 CFM</td>
</tr>
<tr>
<td>2 - 12 TONS</td>
<td>10 - 12 TONS</td>
</tr>
<tr>
<td>VERTICAL</td>
<td>HORIZONTAL</td>
</tr>
<tr>
<td>AW (H/V) - AIR &amp; WATER HEATING</td>
<td>AW (H/V) - AIR &amp; WATER HEATING</td>
</tr>
<tr>
<td>HCD (H/V) - HIGH CAPACITY DEHUMIDIFIER</td>
<td>HCD (H/V) - HIGH CAPACITY DEHUMIDIFIER</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Now, PoolPak® technicians can access your unit's system performance from anywhere. Offering you peace of mind, Virtual-Tech® Plus alerts PoolPak® when an error occurs. With online data-logging and trending, equipment adjustments can be made within minutes to ensure your pool facility is kept under optimal control at all times. If a repair is needed, Virtual-Tech® Plus saves the cost of an initial costly service technician inspection.

Virtual-Tech® Plus is standard for all PoolPak® MPK models. As of May 1st, 2016, Virtual-Tech® Plus VHR is standard for all ClimatePak® VHR models.

**Virtual-Tech® Plus Features:**

- **Wireless** - using on-board cellular data service, requires no wiring, networking or firewall issues
- **No Install Required** - configured at the factory, only requires unit power to start transmission
- **Remote Diagnostics** - PoolPak® factory can troubleshoot an issue remotely before having to send a service tech for an extra inspection visit
- **Data Trending** - PoolPak® factory can choose up to 20 vital system parameters (more than 500 available points) to track over time
- **Efficient Operation** - PoolPak® can provide real-time energy savings from your equipment choice
- **Building Automation** - works in parallel with other BAS options (LonWorks®, Modbus®, and BACnet)

Virtual-Tech® Plus is the ideal for maintaining facility operation at all times.