Supply Chain Operations

Paul Keel, Senior Vice President
3M Investor Day
March 29, 2016
Agenda

- 3M’s strong supply chain is a competitive advantage
- Our strategy centers on four key elements:
  - Regionalizing supply chains
  - Harmonizing global processes
  - Leveraging disruptive process technology
  - Building on our strong foundation in Lean Six Sigma
- Today we will highlight three value drivers that support this strategy:
  - Supply Chain Centers of Expertise (COEs)
  - Business Transformation
  - Footprint Optimization
Our playbook is central to supply chain value creation

Portfolio Management

Investing in Innovation

Business Transformation
Supply Chain benefits from and reinforces the four Fundamental Strengths

**Technology**

Ability to share and combine elements of 3M’s broad technology portfolio to produce unique, differentiated products, translating to premium margins.

**Manufacturing**

Utilization of 3M manufacturing footprint and technology, including process trade secrets, leading to higher-performing products and lower unit costs.

**Global Capabilities**

Subsidiary front- and back-office footprint that allows for the effective development, adaptation and commercialization of products.

**Brand**

Brand equity in the 3M brand and in strategic brands that are shared across business groups.
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3M’s supply chain is a major competitive advantage

**Leveraging 3M’s Fundamental Strengths**

**Technology**
Proprietary process technology to supply innovative products

**Manufacturing**
Scale and vertical integration to drive best-in-class cost structure

**Global Capabilities**
Global capabilities to serve global customers

**Brand**
Iconic brand that is synonymous with quality

**Gross Margin vs. Investment Peers**

<table>
<thead>
<tr>
<th>Gross Margin, 2015</th>
<th>Percent of Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>3M</td>
<td>49.1%</td>
</tr>
<tr>
<td>Top Quartile</td>
<td>47.9%</td>
</tr>
<tr>
<td>2nd Quartile</td>
<td>39.3%</td>
</tr>
<tr>
<td>3rd Quartile</td>
<td>32.8%</td>
</tr>
<tr>
<td>4th Quartile</td>
<td>25.7%</td>
</tr>
</tbody>
</table>

*Peer group includes DHR, PG, ITW, EMR, GLW, DD, TYC, KMB, TEL, ETN, HON, CAT, UTX, PH, DOW*
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Our supply chain strategy centers on four primary elements

**Regionalize Supply Chains**
Shorten global supply chains to reduce complexity, amplify operational impact, enhance customer service and build high performing talent

**Harmonize Global Processes**
In alignment with Business Transformation, deliver world class productivity, working capital management and asset utilization

**Accelerate Disruptive Technology**
Deliver even higher quality, lower cost and more innovative products to customers

**Lean Six Sigma**
The foundation of 3M’s culture of customer centricity and operational excellence
## Regionalizing supply chains to reduce complexity

<table>
<thead>
<tr>
<th>Value Generator</th>
<th>Supply Chain Implementation</th>
<th>Value Creation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce complexity</td>
<td>▪ Shorter supply chains&lt;br&gt;▪ Fewer sites and SKUs&lt;br&gt;▪ Common processes aligned with ERP</td>
<td>• Faster cycle times&lt;br&gt;• Lower unit costs&lt;br&gt;• Higher quality</td>
</tr>
<tr>
<td>Amplify operational impact</td>
<td>▪ Integrated demand and supply plans&lt;br&gt;▪ Faster technology deployment&lt;br&gt;▪ Enhanced asset utilization</td>
<td>• Less working capital&lt;br&gt;• Greater capital efficiency and ROIC&lt;br&gt;• Lower unit costs</td>
</tr>
<tr>
<td>Enhance customer service</td>
<td>▪ End-to-end demand visibility with ERP&lt;br&gt;▪ Reduced hand-offs&lt;br&gt;▪ Long-term capacity planning</td>
<td>• Higher impact new product launches&lt;br&gt;• Improved customer experience&lt;br&gt;• Fewer backorders</td>
</tr>
<tr>
<td>People</td>
<td>▪ Unified objectives and metrics&lt;br&gt;▪ Access to multiple career paths&lt;br&gt;▪ Benefits in recruiting and developing talent</td>
<td>• Employee engagement&lt;br&gt;• Development&lt;br&gt;• Increased productivity</td>
</tr>
</tbody>
</table>
Investing in Innovation with disruptive manufacturing process technology

A third of our technology platforms and a quarter of our patents are manufacturing process related.
We have a rich portfolio of disruptive manufacturing process technologies with proven results.

<table>
<thead>
<tr>
<th>Disruptive manufacturing process technologies</th>
<th>Average IRR of projects deployed in 2013-2015 Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low surface-energy coatings</td>
<td>100%+</td>
</tr>
<tr>
<td>Micro-tribology transport systems</td>
<td>100%+</td>
</tr>
<tr>
<td>Precision die coating</td>
<td>58%</td>
</tr>
<tr>
<td>Robotics &amp; automation</td>
<td>65%</td>
</tr>
<tr>
<td>In-line optics</td>
<td>50%</td>
</tr>
<tr>
<td>Digital process printing</td>
<td>45%</td>
</tr>
</tbody>
</table>
Lean Six Sigma is the foundation of 3M’s culture of customer centricity and operational excellence.

- **2001 – 2004**: Six Sigma Launch
  - Introduced Six Sigma

- **2005 – 2008**: Six Sigma Culture
  - Six Sigma embedded in our Culture
  - Introduced Six Sigma

- **2009 – 2012**: Lean Launch
  - Launched Lean Six Sigma
  - Six Sigma embedded in our Culture

- **2013 - Present**: Embedding Lean in our Culture
  - Launched Lean Six Sigma
  - Six Sigma embedded in our Culture

Strong foundation in LSS with much more to come.
Lean Six Sigma – Developing leaders, fueling business success

Lean Six Sigma strategy

- The foundation of 3M’s culture of customer centricity and operational excellence
- Lean Six Sigma is a primary vehicle for developing leaders by identifying, energizing and progressing top talent
- Lean Six Sigma fuels business success for customers and shareholders through continuous improvement in systems, people, processes and products
- We have one harmonized Lean Six Sigma system around the world, tightly integrated into portfolio management, business transformation, and investing in innovation

Strong foundation with more to come

Lean Six Sigma Benefit, 2012-2020

<table>
<thead>
<tr>
<th>Year</th>
<th>Benefit (Billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>$1.0</td>
</tr>
<tr>
<td>2014</td>
<td>$1.3</td>
</tr>
<tr>
<td>2016 Plan</td>
<td>$1.4</td>
</tr>
<tr>
<td>2020 Plan</td>
<td>$1.8-2.0</td>
</tr>
</tbody>
</table>

Since 2001 inception
- $16B+ in savings
- 100,000+ projects completed
- 76,000+ trained employees
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  - Footprint Optimization
3M Cost of Goods Sold

Value Drivers Supporting Supply Chain Strategy

- **COEs**
  - 210 bps improvement
  - 53.0% to 50.9%

- **Business Transformation**
  - 150-200 bps improvement
  - ~$700M Benefit

- **Footprint Optimization**
  - ~$550M-750M Benefit

Years: 2011 to 2020
Our Supply Chain Centers of Expertise (COEs) create significant value

- **Americas**
  - **Panama Pacifico**
  - $0.5B in Sales Value of Production
  - Located in Panama

- **EMEA**
  - **EMEA COE**
  - $6B Sales Value of Production
  - Located in Switzerland

- **Asia Pacific**
  - **APAC COE**
  - $1B in Sales Value of Production
  - Located in Singapore
# EMEA COE experience to date

<table>
<thead>
<tr>
<th>Operational Metrics</th>
<th>Performance Pre- and Post-COE (2012 vs. 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Service</strong></td>
<td>• Customer service up 90 bps</td>
</tr>
<tr>
<td></td>
<td>• Backorders down 16%</td>
</tr>
<tr>
<td><strong>Cost</strong></td>
<td>• COGS down 170 bps</td>
</tr>
<tr>
<td></td>
<td>• Sourcing savings up 152%</td>
</tr>
<tr>
<td><strong>Quality</strong></td>
<td>• 48% reduction in defective parts per million</td>
</tr>
<tr>
<td></td>
<td>• Lean Six Sigma savings up 85%</td>
</tr>
<tr>
<td><strong>People</strong></td>
<td>• Recordable incidents down 29%</td>
</tr>
<tr>
<td></td>
<td>• Low attrition</td>
</tr>
</tbody>
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Supply Chain Centers of Expertise (COEs) create significant value for customers, employees and shareholders.
COEs generate higher capital returns

3M growth capex, 2013-2016

Percent

<table>
<thead>
<tr>
<th>Year</th>
<th>Capital to COEs</th>
<th>Capital to all other sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>3%</td>
<td>97%</td>
</tr>
<tr>
<td>2014</td>
<td>19%</td>
<td>81%</td>
</tr>
<tr>
<td>2015</td>
<td>35%</td>
<td>65%</td>
</tr>
<tr>
<td>2016 Plan</td>
<td>48%</td>
<td>52%</td>
</tr>
</tbody>
</table>

We are directing an increasing proportion of capex to our productive COEs
Harmonizing global processes is an important part of Business Transformation

Source to Pay
- Contract Management
- Supplier Management
- Sourcing Strategy

Forecast to Schedule
- Demand Planning
- Supply Planning
- Production Planning

Make to Deliver
- Production
- Environment, Health & Safety
- Quality Management

Logistics Execution
- Logistics Scheduling
- Transportation
- Distribution Centers
- Trade Compliance

Supply Chain is a key focus of Business Transformation
Portfolio management enables footprint optimization

Sales Value of Production By Site, 2015
$ Millions

Objectives of Footprint Optimization

- Improve customer service
- Drive operational efficiencies
- Increase cash flow
Optimizing footprint drives productivity and inventory turns

Plant Productivity, 2015

- Large plants are 40-45% more productive than small plants

Plant Inventory Turns, 2015

- Large plants have ~15% higher Turns than small plants
## Footprint optimization objectives, benefits and results

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Benefits</th>
<th>Expected Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve Customer Service</td>
<td>▪ Accelerate cycle times</td>
<td>▪ Service (on-time in-full) improvement of 3-4 points</td>
</tr>
<tr>
<td></td>
<td>▪ Reduce hand-offs</td>
<td>▪ $125-175M recurring COGS benefit once optimization complete</td>
</tr>
<tr>
<td>Drive Operational Efficiencies</td>
<td>▪ Gain economies of scale</td>
<td>▪ ~$100M inventory benefit</td>
</tr>
<tr>
<td></td>
<td>▪ Improve asset utilization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Leverage disruptive technologies</td>
<td></td>
</tr>
<tr>
<td>Increase Cash Flow</td>
<td>▪ Eliminate stocking locations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Shorten supply chains</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Reduce ERP deployment costs</td>
<td></td>
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</tbody>
</table>

### Investment

- $500 - $600M
- Over 2016 - 2020

### Returns

- > 20%
Supply Chain benefits from and reinforces Our Vision

Our Vision

3M Technology Advancing Every Company

3M Products Enhancing Every Home

3M Innovation Improving Every Life