Establishing a Digital Lighthouse Facility

Learnings, case examples and implications for Pharma companies

June 2023
## What is a Digital Lighthouse?

<table>
<thead>
<tr>
<th><strong>Impact achieved</strong></th>
<th>Step-change in innovation (operating model, product, service, business model) considering level of advancement of industry and company</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Integrated use cases</strong></td>
<td>Multiple integrated Industry 4.0 use cases deployed at scale</td>
</tr>
<tr>
<td><strong>Enablers</strong></td>
<td>Best-practice on enablers such as a clear Industry 4.0 strategy, workforce engagement, capability-building and agile use case development</td>
</tr>
<tr>
<td><strong>Technology platforms</strong></td>
<td>Scalable Industry 4.0 technology platforms on which multiple technologies are deployed</td>
</tr>
</tbody>
</table>

Digital, Analytics & Automation has the potential to deliver breakthrough impact in life sciences operations

1. Productivity improvement
   - Increase in overall asset productivity: 25-40%
   - Increase in labor productivity: 30-50%

2. Quality excellence / improvement
   - Reduction in deviations: 30-50%
   - Increase in product robustness: 200%+

3. Cost optimization
   - Reduction in conversion costs: 10-15%

4. Speed / Agility
   - Reduction in lead times: 15-20%

Source: McKinsey White paper – “What’s now and next in analytics, AI, and automation”
It can be unlocked by adopting a ‘Digital Production System’ operating model

1. Shopfloor processes reimagined using automation, digital guides, artificial intelligence augmented reality etc.

2. No-touch planning of all production and quality activities using Digital twins

3. Zero deviations with product quality risks predicted and mitigated using advanced analytics

4. Paperless factory with electronic documentation and seamless information flows

5. Data-driven proactive risk management across maintenance, sustainability and other areas

6. Digital performance management for real-time and remote monitoring and decision making

Source: McKinsey on Digital Services - Introducing the next-generation operating model
Globally, the industry have been moving through 5 stages of evolution in Digital adoption:

1. **Manual**
   - Manual data recording
   - Limited integration across systems

2. **Foundational**
   - Manufacturing systems – SCADA, eBR, eLogs
   - Quality systems – LIMS, eQMS
   - ERP systems – SAP

3. **Digital & AA enabled**
   - AA driven improvements
   - Digital-enabled performance mgmt.

4. **High ‘touch-less’**
   - Complete OT-IT integration (i.e., real-time)
   - Continuous manufacturing (end-to-end or targeted areas)

5. **Next gen interactive AI**
   - Automated machine learning (AutoML)
   - Generative AI for prescribed documentation and insights
   - On-the-go digital decision-making

**Incremental Impact on productivity**

- Focus in 2000s: ~15%
- Focus in 2010s: ~20%
- Focus in 2020s and 2030s: ~30%, ~50%

**Industry evolution**

Increasing number of life sciences companies have been accredited as digital lighthouses by World Economic Forum

- Global advanced 4IR lighthouses identified
- Global lighthouses from pharmaceuticals and medical devices

132

- 20-30% improvement in speed and agility
- 30-35% improvement in asset productivity
- 10-15% reduction in material costs

Two Indian Pharmaceutical leaders have most recently entered this distinguished league of digital leaders.

Welcome

Sanjay Sharma, Global Head Operations

Geena Malhotra, Global Chief Technology Officer