Automation and digitization in Operations
Digital, Analytics and Automation provides opportunity to drive the improvements beyond what we have achieved so far

Digitization & automation can bring a step-change in performance trajectory …

- **90%+** Availability of equipment
- **40+%** Throughput / capacity unlock
- **50%+** Improvement in quality outcomes (i.e. OOS, deviations)

- **98-99%+** On-time (in-full) delivery rates
- **40%+** Reduction in conversion costs
- **30%+** Enhancement in people productivity

**Environmental sustainability**
(minimum carbon footprint, optimized water / energy consumption and minimum waste)

... and transform the operating model on the shop-floor

- **Inter-connected** and intelligent equipment
- **Automated & integrated** business planning
- **E2E seamless material flow** ‘touchless’ experience from dispensing to dispatch
- **Realtime performance visibility** across the organization; i.e. minute-level at each machine

**Data-driven decision-making**
- at all levels in the organization

This will also allow us to shift to a lean and transformed manufacturing network overall;
Over last few years, we have set up several foundational elements to drive digitization and automation …

<table>
<thead>
<tr>
<th>Foundational layers for digital &amp; analytics</th>
<th>Description</th>
<th>Illustrative applications</th>
<th>Cipla’s current position</th>
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</thead>
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<tr>
<td>IIOT and sensors</td>
<td>Sensors on equipment to capture process, and environment data</td>
<td><strong>Sensor</strong></td>
<td>✓</td>
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<tr>
<td>Operating technology layer</td>
<td>Recording &amp; storage of operations data (e.g. from sensors)</td>
<td><strong>SCADA/DCS</strong></td>
<td>✓</td>
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<tr>
<td>IT layer</td>
<td>IT applications to capture data across functions / areas</td>
<td><strong>PLC, HMI</strong></td>
<td>✓</td>
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<tr>
<td>Data layer</td>
<td>Enterprise-wide integration of data</td>
<td><strong>Data lake</strong></td>
<td>✓</td>
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<td></td>
<td></td>
<td><strong>Data Warehouse</strong></td>
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</table>

Illustrative applications:
- SCADA Remote Viewer, Historians, SQL DB
- MES (eBMR)
- Local apps (BMS, EHS, EMS, etc.)
- ERP (e.g. SAP)
- eTRACK
- LIMS
- TRACKWISE
... and this has led to a few early wins for us

- Advanced analytics driven supply robustness
- Automated data logging and reporting
- Digital ‘boardroom’ for organization-wide transparency
- Advanced analytics led reduction of invalid OOS

50%+ improvement in supply and reliability outcomes across the network
30%+ reduction of manual entries by elimination of paper-based processes
Granular Visibility of holistic KPIs across levels in the organization
35%+ reduction in invalid OOS
However our aspiration going forward is even more bold!

Create “touchless factories” by rewiring plant operations, upgrading technology and reducing operator/analyst dependence.

Enable data-driven decision-making and performance enhancement, through rapid deployment of Industry 4.0 use cases.

Build a ‘digitally native’ organization with at-scale DnA talent & capabilities i.e. upgrade existing roles and add new capabilities.

Achieve top decile performance in operations, on performance outcomes (quality, cost, productivity, & service levels) while also ensuring environmental sustainability.
Our aim is transform the work-life of our people and institute a digitally native organization

### Changes in 'Day In Life Of' operators

- **Shift dialogues at Digital board**: i.e. real-time update vs. dated manual data
- **Looks at dynamic real-time scheduler** to get work-allocation for shift
- **Checks equipment condition**: i.e. no need for physical inspection
- **Uses advanced analytics** to set optimal machine parameters
- **Gamified capability building on key modules for utilizing downtime**
- **Leverage real-time machine condition monitoring** (IIoT-led) to report breakdowns
- **Follows visual instructions** for change-overs
- **Has minimum interaction with equipment** (continuous/integrated mfg.)

### Transformation in activities of cross functional teams

- **Uses automated alerts to IPQA** for seamless line-clearance
- **Leads engineering interventions** e.g. predictive maintenance to reduce breakdowns utilizing IIoT
- **Assists investigator and IPQA driving aided RCA** for early investigation

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Learnings from our journey so far

1. **Aspirations should be big-and-bold**, i.e. digitization and automation is beyond the ‘incremental’

2. **Don’t wait for ‘greenfield’ facilities to start; Real value unlock happens in existing facilities**

3. **Maintain a strong value-backed view to any investment/initiative** - Easy to fall into the trap of investing for the sake of “technology”

4. **Dedicated carved-out team needed** to drive and sustain such a large scale effort

5. **Focus on both onboarding new skills, but also on re-skilling existing workforce** – true transformation can only happen through a combination of both

6. **There will always be people ‘on the fence’ for such efforts**; critical to take them along