Establishing a digital lighthouse

A Case Study

23-Jun-2023
We delivered a step change in our productivity agenda over the last 5 years, however...

Incremental improvements became difficult to achieve ...

**Improvement funnel drying up**
as a lot of lean initiatives were already implemented and further efforts were difficult to implement

**Processes highly dependent on manual tasks and inputs**
resulting in low productivity with potential for execution errors

**Last-minute logistics cost**
Incurred on critical supplies, due to sub-optimal planning and scheduling
We decided to digitally transform our largest and most important facility

FTO Unit-3 is one of the largest & important formulation facilities in India
- Installed capacity of 10+ billion units per annum
- Largest contributor of revenue from Dr. Reddy’s formulations manufacturing sites
- Licensed for production of 250+ products including life saving drugs in key therapeutic areas
  - Cardiovascular
  - Gastro-intestinal
  - Anti-depressant
- 100% export volumes with 65+% of turnover contributed by sales in North America
- Successfully audited by 15+ regulatory bodies and supplying products to 25+ countries
- 5+ prestigious certifications & awards
**Ops Next** was conceptualized at FTO-3 on a 5-pronged approach to leapfrog into next phase of excellence.

1. **E2E process digitalization** to build a strong technology backbone

2. **40+ Digital and AA 'use cases'** spanning 6 major 4IR technologies

3. **People / talent development** to support change; i.e. recruitment, capability building, org restructuring

4. **Strategic value delivery** across productivity, cost and quality

5. **Comprehensive set of enablers** for scalability across Dr. Reddy’s network
1. We invested heavily in digitizing our operating system at scale

Highlights of our data & tech ‘Full-Stack’

- **End to end capabilities set up**, spanning live dashboards, AA tools, custom reports and web-based applications
- **Enterprise-wide data lake** to develop 20+ AA use cases deployed on a cloud platform
- **Integrating peripheral data across 50+ sources** to create a single source covering 80% of all data (since ~3 years)
- **Connecting all the plant data sources** to data lake ensuring easy access to data
- **Digitalization of 250+ core processes**
- **Upgradation of all existing equipment** at plant to make them digital ready
2. We implemented 40+ high impact, horizontally deployable use cases across 6 4IR technologies

2 Digital Twins
Digital twin for manufacturing & packing

14 use cases
Decision-making based on real-time visibility across manufacturing, quality & sustainability.

2 use cases
New operator training and remote assistance for method transfer

15 use cases
Improve process robustness, quality, energy, throughput and yield

14 use cases
Decision-making based on real-time visibility across manufacturing, quality & sustainability.

Digital Twin

AR/VR

4IR

Advanced Analytics

IloT

8 use cases
Warehouse automation through robotics and digital process automation (RPA)

2 use cases
Micro stoppage analysis & asset health monitoring
3. We restructured our org structure to accommodate new way of working & making manufacturing ‘aspirational’ again

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
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</thead>
<tbody>
<tr>
<td><strong>Senior management</strong></td>
<td><strong>Senior management - DnA ‘champion’</strong></td>
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<tr>
<td>Plant head</td>
<td>Introduction to Digital and AA</td>
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<tr>
<td></td>
<td>Set-up &amp; lead a wave</td>
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<tr>
<td></td>
<td>Define &amp; lead a portfolio of use cases</td>
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<tr>
<td>Quality head</td>
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<td><strong>DnA ‘translator’</strong></td>
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<tr>
<td></td>
<td>Run a wave</td>
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<tr>
<td></td>
<td>Convert a business problem to analytics problem, relate back analytics insights to actual business situation &amp; implementation of insights to generate value</td>
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<tr>
<td><strong>Operational management</strong></td>
<td><strong>New ways of working</strong></td>
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<td>Production managers</td>
<td><strong>DnA ‘data engineer’</strong></td>
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<td></td>
<td>Creating data pipelines; data structuring, clean up and making data ready for modeling;</td>
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<tr>
<td>Team leaders (Heads)</td>
<td><strong>AA ‘data scientist’</strong></td>
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<td></td>
<td>Apply ‘data science’ – test multiple modeling techniques, generate actionable insights from data</td>
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<td><strong>Working units</strong></td>
<td><strong>Digital product manager</strong></td>
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<td>Operations</td>
<td>Own end to end product lifecycle including regular updates</td>
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<td>Engineering</td>
<td></td>
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<td></td>
<td><strong>SMEs</strong></td>
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<tr>
<td><strong>Digital &amp; Process excellence</strong></td>
<td></td>
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<tr>
<td>Analytics (internal &amp; external)</td>
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Operations | Apply ‘data science’ – test multiple modeling techniques, generate actionable insights from data
Quality | Digital product manager
Engineering | Own end to end product lifecycle including regular updates

Currently part of Central Team, not the plant team

3. We restructured our org structure to accommodate new way of working & making manufacturing ‘aspirational’ again

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SMEs
4. The transformation allowed us to bring a step change in our performance across Cost, Quality, and Delivery

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<th>Impact (2017-2021)</th>
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<tr>
<td><strong>Cost</strong></td>
<td></td>
<td>reduction in manufacturing cost per 1000 pills</td>
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<tr>
<td></td>
<td>↓ 43%</td>
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<tr>
<td></td>
<td>↑ 27%</td>
<td>of total export shifted from air to sea mode of transport</td>
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<tr>
<td><strong>Productivity</strong></td>
<td></td>
<td>increase in factory output, helping sustain margin against prices erosion</td>
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<tr>
<td></td>
<td>↑ 56%</td>
<td></td>
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<td></td>
<td>↓ 30%</td>
<td>reduction in production lead time</td>
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<tr>
<td><strong>Quality</strong></td>
<td></td>
<td>reduction in incidents per production batch</td>
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<tr>
<td></td>
<td>↓ 76%</td>
<td></td>
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<tr>
<td></td>
<td>↓ 43%</td>
<td>reduction in customer complaints due to improved process &amp; execution robustness</td>
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5. Enablers to ensure horizontal deployability

1. Digital academy
   200+ team members upskilled and ~1200 members reskilled
   Digital academy platform created with progressive multi-level learning courses

2. Transformation office
   Structured garage teams set-up to drive transformation
   Defined 10 action points for change management and sustainability of transformation
   DMI framework set up to measure maturity of transformation

3. Agile approach
   200+ no. of people involved in garage teams
   Instituted 5-step iterative DMAIC process for use case delivery

4. Digital war room
   Ops NEXT studio set up to serve as a dynamic cross-functional space for teams
   Enhanced visibility and problem solving through 53 live trackers and dashboards
World Economic Forum (WEF) recognized FTO3 as part of Global Lighthouse Network (GLN) in 2022

India facilities of Dr Reddy's Labs, Mondelez among new entrants of WEF's Global Lighthouse Network

New Delhi: The World Economic Forum on Tuesday announced the addition of 11 factories and industrial sites, including that of Dr Reddy's and Mondelez in India, to its Global Lighthouse Network.

The Global Lighthouse Network is a community of over 200 manufacturers that are showing leadership in adopting Fourth Industrial Revolution technologies such as artificial intelligence, 3D-printing and big data analytics.

The WEF said that amid warnings of a global recession, energy price hikes and disrupted supply chains, the lighthouse factories offer business leaders and policymakers examples of how the manufacturing sector can stay competitive and continue to create jobs.

"Manufacturing is the backbone of both social and economic development. With the right corporate strategies and industrial policies, it provides high-wage jobs, commercial innovation, and drives environmental sustainability - even in times of crisis," Francisco Betti, Head of Advanced Manufacturing and Value Chains at the WEF, said.

"We are proud to announce Dr Reddy's and Mondelez as part of WEF's Global Lighthouse Network. They serve as a beacon for others in the sector, showing how manufacturing can thrive in the face of global challenges," Betti said.

The WEF said that the addition of the 11 sites brings the total number of factories in the Global Lighthouse Network to 68.

India's Dr Reddy's Laboratories is a leading manufacturer of generic drugs and pharmaceuticals, while Mondelez is a global player in the confectionery, chocolate, biscuits, and snacks sector.

The WEF said that the addition of these sites to the Global Lighthouse Network aims to "help other manufacturers around the world learn from the best practices and innovations that are taking place at these sites."
And we are just getting started...
GOOD HEALTH CAN'T WAIT.