Establishing a digital lighthouse

A Case Study

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8th GLOBAL PHARMACEUTICAL
QUALITY SUMMIT 2023

SANJAY SHARMA

DR. REDDY'S LABORATORIES LTD.

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

Dr.Reddy's

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

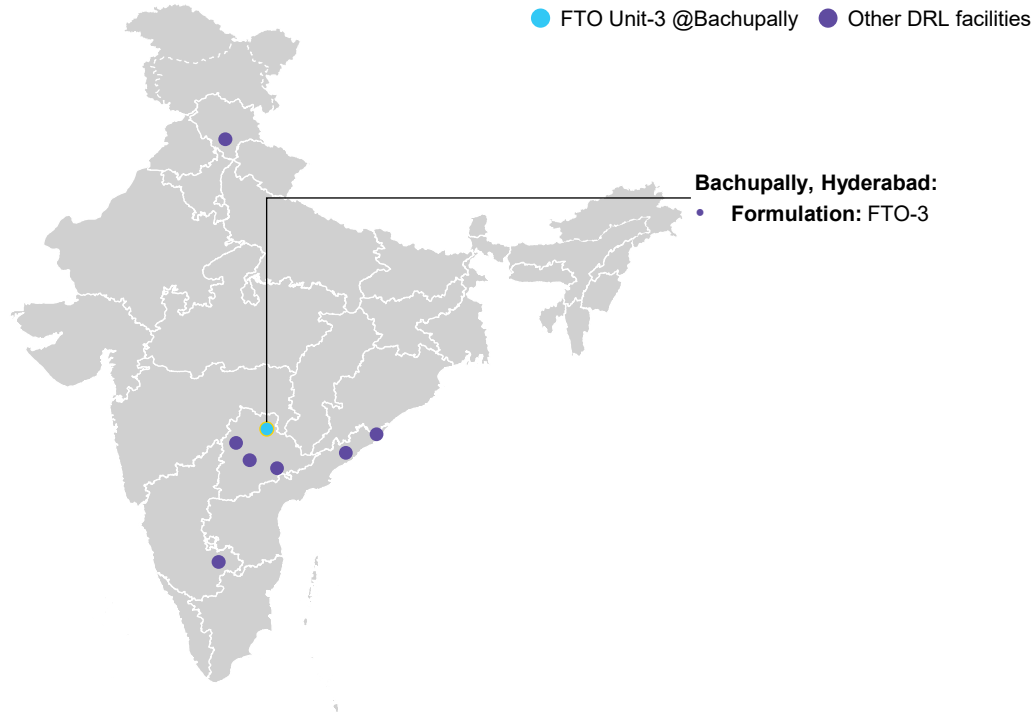**Processes highly dependent on manual tasks and inputs**
resulting in low productivity with potential for execution errors

Last-minute logistics cost
Incurred on critical supplies, due to sub-optimal planning and scheduling

OpsNEXT

We decided to digitally transform our largest and most important facility

Dr.Reddy's

● FTO Unit-3 @Bachupally ● Other DRL facilities

Bachupally, Hyderabad:
- **Formulation:** FTO-3

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

OpsNEXT 3

OpsNEXT

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
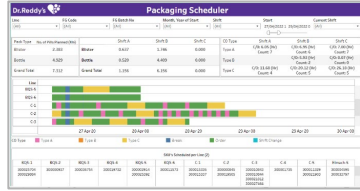
2 Digital Twins
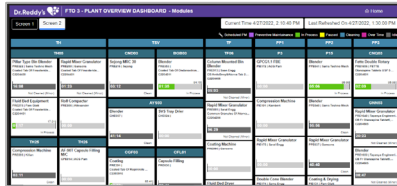
Digital twin for manufacturing & packing

2 use cases

New operator training and remote assistance for method transfer

14 use cases

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

15 use cases

Improve process robustness, quality, energy, throughput and yield

Digital Twin

AR/VR

Digital Performance Mgmt.

4IR

Advanced Analytics

Process Digitalization & Automation

IIoT
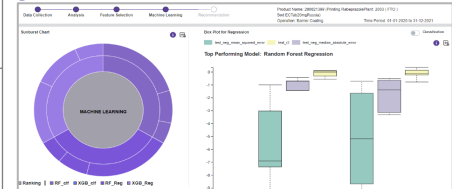
8 use cases

Warehouse automation through robotics and digital process automation (RPA)

2 use cases

Micro stoppage analysis & asset heath monitoring

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

Dr.Reddy's

Legend:
- ■ DnA Academy + use case touch point (purple)
- ■ Use case touch point (cyan)
- **XX** Currently part of Central Team, not the plant team

| From | » | To |

Senior management
- Plant head
- Quality head

Senior management - DnA 'champion'
Introduction to Digital and AA
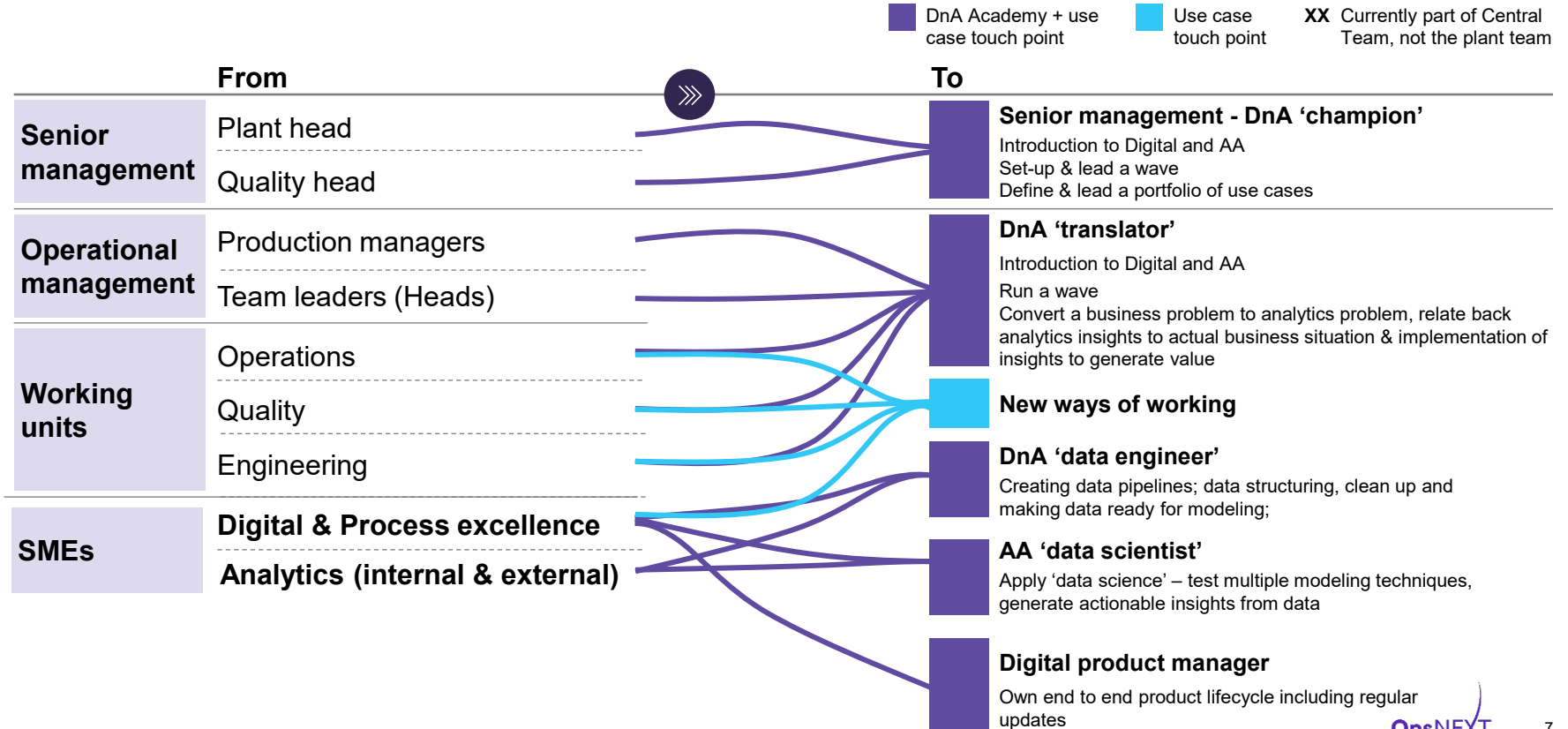Set-up & lead a wave
Define & lead a portfolio of use cases

Operational management
- Production managers
- Team leaders (Heads)

DnA 'translator'
Introduction to Digital and AA
Run a wave
Convert a business problem to analytics problem, relate back analytics insights to actual business situation & implementation of insights to generate value

Working units
- Operations
- Quality
- Engineering

New ways of working

DnA 'data engineer'
Creating data pipelines; data structuring, clean up and making data ready for modeling;

SMEs
- **Digital & Process excellence**
- **Analytics (internal & external)**

AA 'data scientist'
Apply 'data science' – test multiple modeling techniques, generate actionable insights from data

Digital product manager
Own end to end product lifecycle including regular updates

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

Dr.Reddy's

Impact (2017-2021)

Cost

↓ **43%**   **reduction in manufacturing cost per 1000 pills**

↑ **27%**   **of total export shifted from air to sea mode** of transport

Productivity

↑ **56%**   **increase in factory output,** helping sustain margin against prices erosion

↓ **30%**   **reduction in production lead time**
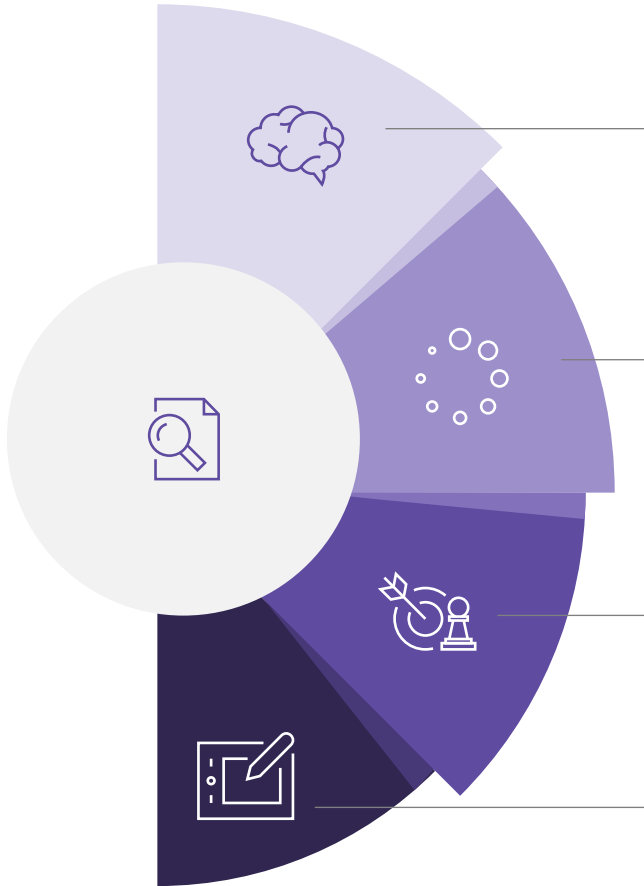
Quality

↓ **76%**   **reduction in incidents** per production batch

↓ **43%**   **reduction in customer complaints** due to improved process & execution robustness

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 100 manufacturers that are showing leadership in applying Fourth Industrial Revolution technologies such as artificial intelligence, 3D-printing and big data analytics.

The WEF further said four lighthouse members with outstanding environmental footprint reductions have been given an additional designation of Sustainability Lighthouses.

These four include Unilever's Dapada facility in India.

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. —Agencies

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Dr Reddy's Hyd plant gets WEF recognition

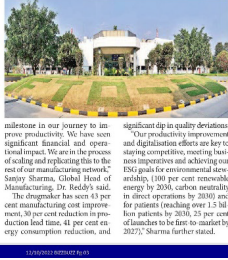**The drug major's Bachupally plant enters World Economic Forum's Global Lighthouse Network**

BB BUREAU
HYDERABAD

CITY-BASED pharmaceutical company, Dr Reddy's Laboratories on Tuesday said World Economic Forum has recognised its largest manufacturing facility in Bachupally, Hyderabad as part of its Global Lighthouse Network.

Here, Lighthouse are factories leading the way in Fourth Industrial Revolution (Industry 4.0 or 4IR) technologies that drive impact in productivity, workforce engagement, sustainability, and supply chain resilience.

Two years ago Dr Reddy's initiated a Project titled 'OpsNext' under which the pharma company deployed six of the eight Industry 4.0 technologies, over 40 business impact linked use cases and invested in people capabilities.

"The successful inclusion of our 25-year-old site in Hyderabad as a 'Digital Lighthouse' factory is a milestone in our journey to improve productivity. We have seen significant financial and operational impact. We are in the process of scaling and replicating this to the rest of our manufacturing network," Sanjay Sharma, Global Head of Manufacturing, Dr. Reddy's said.

The drugmaker has seen 43 per cent manufacturing cost improvement, 30 per cent reduction in production lead time, 41 per cent energy consumption reduction, and significant dip in quality deviations.

"Our productivity improvement and digitalisation efforts are key to staying competitive, meeting business imperatives and achieving our ESG goals for environmental stewardship, (100 per cent renewable energy by 2030, carbon neutrality in direct operations by 2030) and for patients (reaching over 1.5 billion patients by 2030, 25 per cent of launches to be first-to-market by 2027)," Sharma further stated.

12/10/2022 BIZZBUZZ Bg.03

Dr Reddy's factory now part of WEF's Global Lighthouse Network

Our Bureau
Hyderabad

The manufacturing facilities of Dr. Reddy's Laboratories in Bachupally, Hyderabad and the Oral Solid Dosage (OSD) plant, Indoor have bagged recognition as part of the Global Lighthouse Network (GLN) by the World Economic Forum (WEF).

With this recognition, these facilities join the GLN, a community of over 100 manufacturers that are showing leadership in applying Fourth Industrial Revolution (Industry 4.0 or 4IR) technologies to drive impact in productivity, workforce engagement, sustainability, and supply chain resilience.

"The successful inclusion

of our 25-year-old site in Hyderabad as a 'Digital Lighthouse' factory is a big milestone in our productivity improvement journey. We are in the process of scaling and replicating this to the rest of our manufacturing network," said Sanjay Sharma, Global Head of Manufacturing, Dr. Reddy's.

HONOUR FOR CIPLA

Umang Vohra, Managing Director and Global CEO, Cipla said, "We have embarked on a journey to enhance our connect with patients, doctors & other stakeholders in line with our aspiration to reimagine operations across the value chain."

Embodying a digital culture in the organisation would enable the company to stay ahead of the curve, and help achieve sustainability pledges whilst increasing operational efficiencies, he added."

GLN is a WEF initiative in collaboration with McKinsey & Company.

Cipla's Indore Oral Solid Dosage facility led this journey with over 30 4IR use cases, spanning Industrial Internet of Things, Digital, Advanced Analytics, Natural Language Processing (NLP), Robotic Process Automation, etc.

Dr Reddy's plant bags WEF honour

TIMES NEWS NETWORK

Hyderabad: Pharma major Dr Reddy's Laboratories on Tuesday said its largest manufacturing facility located at Bachupally in Hyderabad has been recognised global lighthouse by the World Economic Forum (WEF).

With this recognition, the facility, which manufactures finished oral solids for regulated markets, joins the WEF global lighthouse network community of over 100 manufacturers that have applied fourth industrial revolution (Industry 4.0 or 4IR) technologies to drive impact in productivity, workforce engagement, sustainability, and supply chain resilience.

Dr Reddy's said the journey began four years ago with the digitisation of infrastructure and processes and the with real-time data and insights laid the foundation for Project 'OpsNext' that was initiated two years ago to transform the 25-year-old plant into an Industry 4.0-driven 'Lighthouse' factory.

Six out of eight 4IR technologies – Advanced Analytics, Digital Twins, Robotic Process Automation, Augmented Reality, Virtual Reality & Mixed Reality, Digital Performance Management and Industrial Internet of Things (IIoT) were deployed.

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3 labs join WEF's Global Lighthouse

The World Economic Forum (WEF) on Tuesday announced the addition of 11 factories and industrial sites, including three from India, to its Global Lighthouse Network. From India, the additions are pharma major Cipla's Indore facility, Dr Reddy's Laboratories' Hyderabad facility and the Mondelez facility in Sri City.

The Global Lighthouse Network is a community of over 100 manufacturers that are showing leadership in applying Fourth Industrial Revolution technologies such as artificial intelligence, 3D-printing and big data analytics. The WEF further said four lighthouse members with outstanding environmental footprint reductions have been given an additional designation of Sustainability Lighthouses.

These four include Unilever's Dapada facility in India. PTI

Dr.Reddy's

And we are just getting started...

GOOD HEALTH CAN'T WAIT.