

World Economic Forum's Global Lighthouse Award For Manufacturing

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Lighthouses are manufacturers showing leadership in applying **4IR** technologies *at scale* to drive *step-change financial, operational and sustainability improvements* by transforming factories, value chains and business models

– World Economic Forum

2 Pharma Lighthouses
in India



1 Pharma Supplier
Lighthouse Globally





ACG Capsules

Pithampur, 2023



Real time Batch Insights
enabled by **Computer Vision**



Golden Batch Machine Settings
recommended by **Machine Learning**



Workforce Augmentation & Skill Mgmt
driven by **XR & Conversational AI**



ACG Packaging Materials

Shirwal, 2026



Chronos – Production Simulation & Optimization
using **Digital Twin**



SmartBuy – Raw Material buy recommendations
enabled by **Machine Learning**



Chanakya – Plant Super Assistant
powered by **GenAI**

Use Cases in ACG Lighthouses



Use case	Planning	Production	Quality	Engineering	Safety	SCM	HR
Realtime Batch Insights		X	X				
Golden Batch Recommendations		X	X				
Workforce Augmentation	X	X	X	X			X
Mission Zero – EHS enablement					X		X
Chronos – Digital twin in Production planning	X	X					
Mission 100 – First Time Right		X	X				
Chanakya – AI Super Assistant	X	X	X	X	X	X	X
SmartBuy – AI buy recommendations	X					X	
Go Green – ML Energy recommendations				X			

Use Case-1: Real-time Batch Insights enabled by Computer Vision

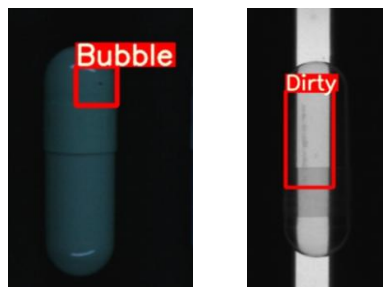


Challenges

- 180 bn annual capacity
- 37 different defects



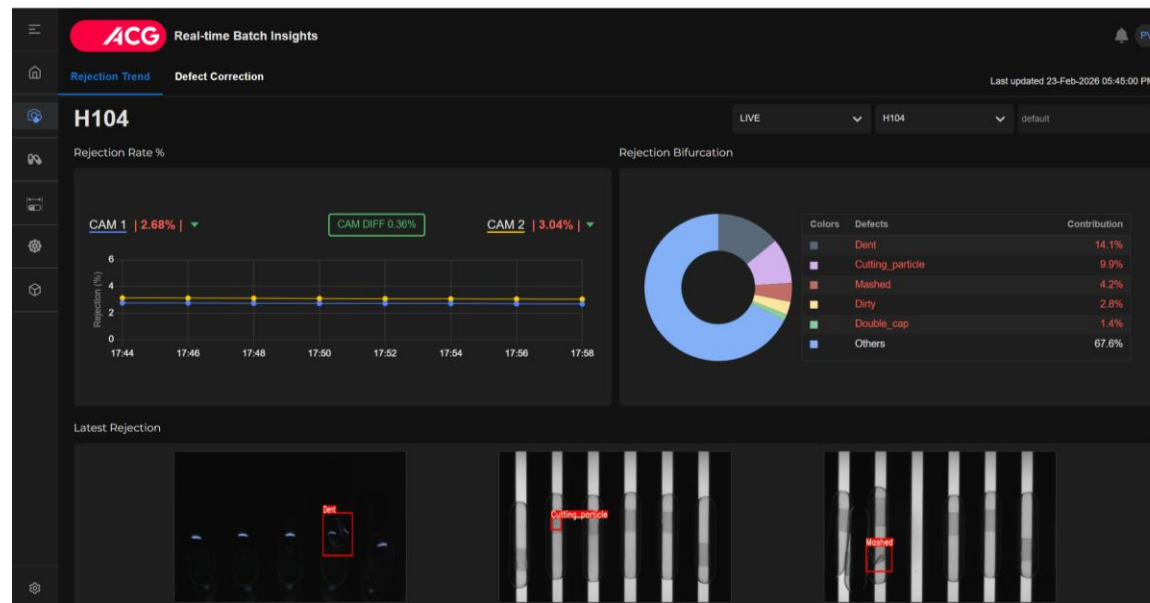
- Defects not easily distinguishable with naked eye



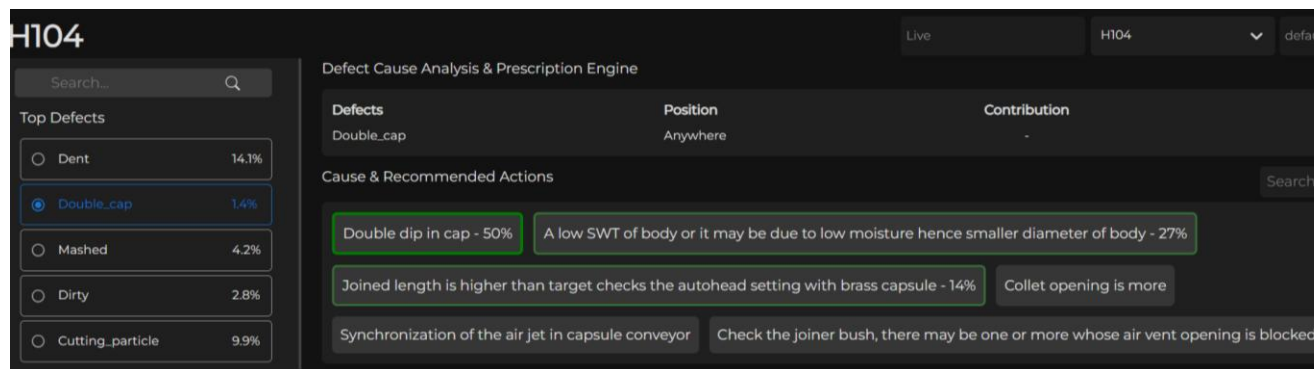
- Lack of real-time analysis resulting in huge losses

Solution

1. Real-time analytical insights on top defects, rejection rate and trends



2. Recommendations to fix every defect based on machine parameters



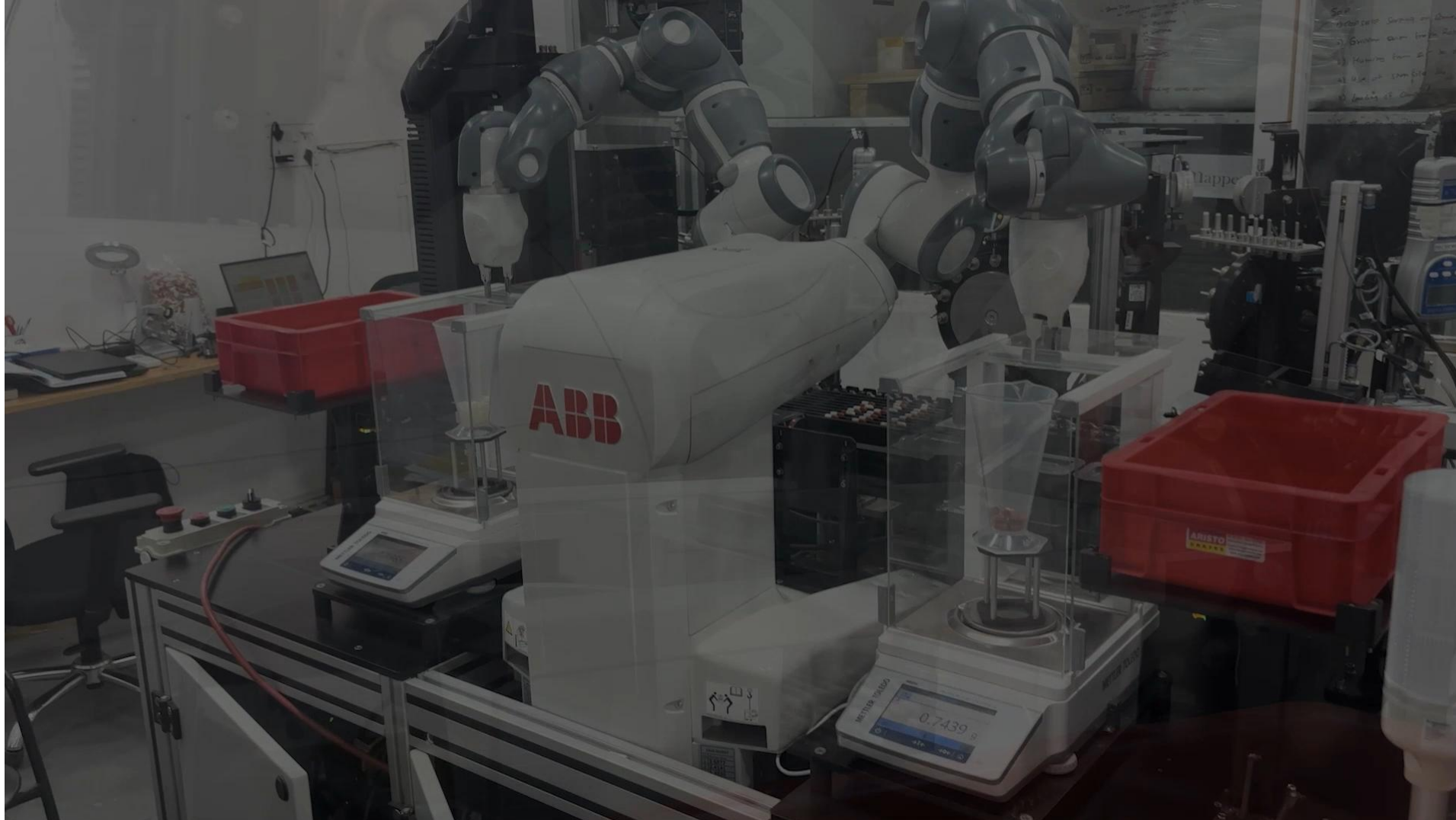
Benefits

- Step-drop in defect rate
- Significant reduction in Process Loss



Use Case-1: Real-time Batch Insights enabled by Robotic Inspection

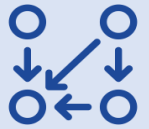
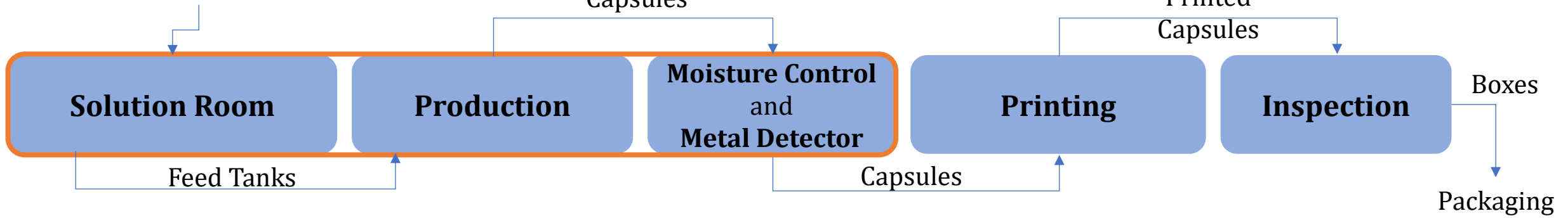
3. Dimensional defects automatically inspected by robots simultaneously



Use case-2: Golden Batch Machine Settings recommended by Machine Learning



Gelatin, HPMC, Additives, Colors



Conditions

- Wide natural variation in Gelatin and HPMC
- More than 17000 shades
- 24 capsule sizes
- Very high speed – 3300 capsules per minute
- Accuracy in range of 10 microns



AI Machine Settings

- 37 critical machine settings recommended by Golden Batch AI**
- Dipping profile settings impacting capsule attributes
 - Viscosity settings impacting capsule weight
 - Temperature setting impacting moisture
 - Lubrication pump settings impacting cutting & stripping



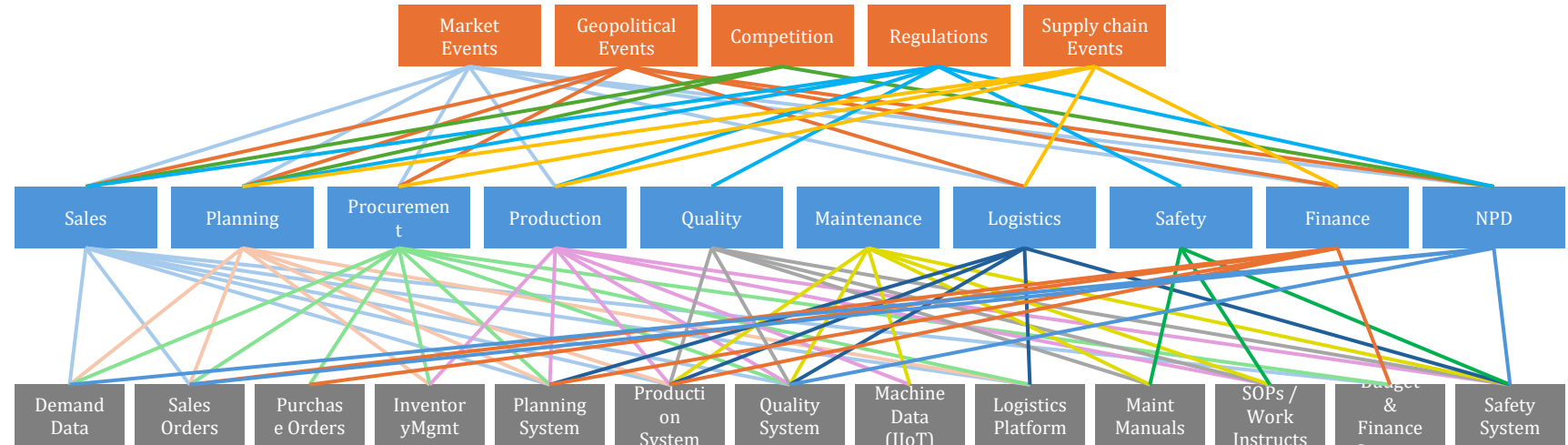
Desired Effect

- High first pass yield
- Low hold time
- Low rejections
- Low CoPQ

Use case-3: Factory AI Super Assistant powered by GenAI

Challenges

- Multiple stakeholders
- Data scattered across multiple systems
- Need for practical actionable insights that enable
 - Strategic decision making
 - Agility and responsiveness
 - Cross functional problem solving



Chanakya Assistant • 07:04 PM

show me the quality metrics for the past...

You • 07:04 PM
Show me the quality complaints received in the past 1 year

Quality Complaints Analysis - Past Year (February 2025 - February 2026)

CIRF Complaint Search Results

Search Parameters:

- Date Range: February 23, 2025 - February 23, 2026 (365 days)
- Method: MeiliSearch indexing
- Scope: All customers, defect types, regions, and issue categories

Showing first 50 of 114 records

Executive Summary

Key Performance Metrics

Metric	Value	Trend
Total Complaints	114	Analysis Period

Voice Input Speaker: OFF मराठी

Type or speak your question...

Tools Search

Search tools...

Show All

Servers & Tools 8 servers, 102 tools

- CIRF Complaint Analysis Server 23 tools (23 enabled) Connected
- SO Tracking Server 11 tools (11 enabled) Connected
- Production Planning Server 9 tools (9 enabled) Connected
- Manufacturing BI Server 17 tools (17 enabled) Connected
- Production Tracing Server 10 tools (10 enabled) Connected
- EHS Safety Server 7 tools (7 enabled) Connected
- Machine SOP Docs 17 tools (17 enabled) Connected

Chanakya Assistant • 07:04 PM

Conversations

+ New Chat

Search Chats

Search chats...

All Chats 30 chats

Show me the quality metrics for th... 6 messages • 1h ago

Energy Consumption Analysis 6 messages • 9/29/2025

Process Improvement Suggestions 8 messages • 9/27/2025

New Chat 0 messages • 9/22/2025

Waste Reduction Strategy 8 messages • 9/22/2025

Quality Audit Results 6 messages • 9/22/2025

Coater SOP-based Problem Assista... 6 messages • 9/20/2025

Show me the quality metrics for the past...

Primary Issue: Logistics-Related Problems

Despite missing transporter information, the data reveals significant logistics challenges:

Transport-Related Complaint Categories

Issue Type	Count	Primary Causes
Wet Damage/Wet Box	12 cases	Poor transit protection
Box Damage	8 cases	Handling issues
Reel Damage	8 cases	Transit damage
Edge Damage	6 cases	Loading/unloading problems
Transit Damage	Multiple	General transport issues

Logistics Department Impact

- Logistics Department: 15+ complaints directly attributed
- Defect Type "Logistic": 18+ cases
- Defect Type "Damages": 20+ cases

Voice Input Speaker: OFF मराठी

Type or speak your question...

- 40%** reduction in **lead time**
- 71%** reduction in **defects**
- 34%** improvement in **on-time delivery**
- 31%** reduction in **energy consumption**
- 44%** rise in **workforce productivity**
- 51%** drop in **total losses**

The journey continues...

