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Smart Factory Case Study:

Factory Design-Build for a Major Personal Care Manufacturer: From Brownfield Site to Fully Automated Smart Factory

BACKGROUND:

A major global personal care manufacturer needed to rapidly scale production to meet rising demand and stay ahead of the competition. They had a bold goal: to transform a brownfield site – a vacant 150,000 sqft dry warehouse – into a state-of-the-art factory. One that minimized environmental impact and maximized efficiency.

Fortunately, this kind of challenge is our bread and butter. Using our expertise in factory automation systems and Industry 4.0 technology, we joined forces to build a facility that could fuel both immediate production and long-term growth.

OBJECTIVES:

To ensure the factory design met both performance and sustainability goals, we started by listening.

We engaged with key stakeholders to understand operational needs and success criteria from every angle. Shoulder-to-shoulder, we defined performance targets, developed tailored smart manufacturing solutions, and supported rollout and training to help teams sustain the new systems.

The company was transitioning from a cramped 24,000 sqft multi-use space to a blank 150,000 sqft canvas. Our primary objective was clear:
build a cutting-edge, automated personal care manufacturing facility that could support rapid growth.

Our secondary objectives tasked us to:

- Increase production capacity by 50%
- Reduce energy consumption per unit by 30%
- Achieve zero-waste-to-landfill status
- Improve wasted motion and improve facility process flow

Along the way, we tracked key manufacturing KPIs:

- Production output
- Energy usage per unit produced
- Waste diversion rate
- Overall equipment effectiveness (OEE)

Building on a brownfield site came with its share of challenges.

It had limited utility capacity, high demolition and fringe costs, and no existing infrastructure. Scope creep also became a risk, with late-stage suggestions from the team and senior leadership that threatened both budget and timeline.

We had to keep the team aligned and the vision intact.

RESULTS:

Improved Production Capacity and Cost Efficiency
Despite the challenges, the new facility met performance goals – on time and on budget.

We helped scale production from 17M to over **55M units per year** by expanding continuous operations by 400% and installing new fillers capable of delivering 150% more units per minute than the existing equipment.

We expanded the warehouse space by over 1000% and equipped it with RFID tracking. **Inventory accuracy shot up by 44%**, driving supply chain efficiency and cutting on-hand inventory costs by over $400k (24%) in just one year.

In the batch manufacturing area, we installed new equipment and control systems—**liberating operators from manual valve, tank, and raw material handling**, freeing them up for higher-value tasks.

These upgrades **reduced operating costs, improved margins, and established a model for future factory builds** and retrofits—ensuring both scalability and sustainability and unlocking the potential for manufacturing design templates across the network.

With enhanced automation and sustainability credentials, the factory also attracted top-tier talent and positioned the company as an employer of choice in an ultra- competitive labor market.

Strengthened Sustainability and Market Position
This was about more than speed and scale. Smart factory automation also delivered measurable environmental gains.

Implementing smart sensor technology on compactors enabled full-load-only pickups, cutting unnecessary hauls and reducing waste pickups by 32% in the first year. Local partnerships enabled streamlined waste routing, reducing labor and maximizing recycling efficiency.

These initiatives improved waste-to-landfill diversion, the ability to monitor and optimize energy consumption, and achieved enhanced sustainability credentials—including zero-waste-to-landfill status—improving brand image in an increasingly eco-conscious market.

IMPACT:

↑60%
Increase in single-shift production capacity (exceeding target of 50%)

↓43%
Reduction in energy consumption per unit produced (exceeding target of 30%)

92%
Waste diversion in Year 1

36%
Improvement in OEE

$0.60/unit
Cost improvement despite the capital investment

CONCLUSION:

This project proved that a lean, people-focused factory design rooted in smart manufacturing solutions, can not only deliver performance, but also unlock opportunity. We helped transform a challenging brownfield site into a high- performing, scalable and green manufacturing plant.

The success of this factory sets a new benchmark for future smart factory implementations, with plenty of room to grow.

The blueprint for what's possible in automated manufacturing.

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