AI: Driving Sustainability in Plastics Manufacturing

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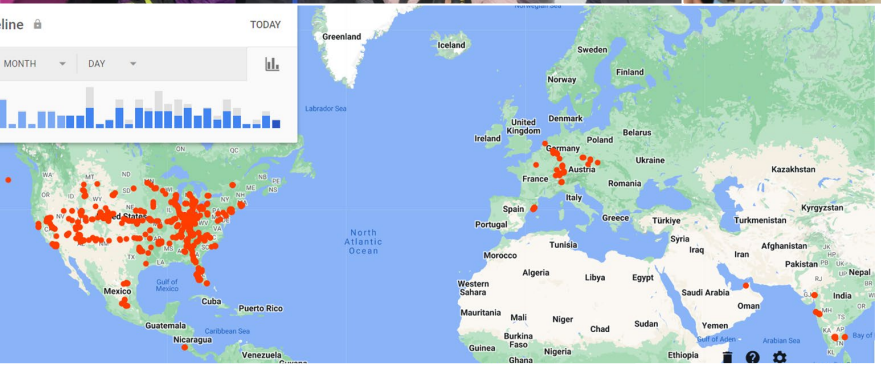


MIAMI UNIVERSITY

NKU NORTHERN KENTUCKY UNIVERSITY

macy's

MILACRON

- Visited 100+ plastics processing plants
- Successfully connected thousands of machines to the internet
- Consulted OEMs, shop floor workers, and executives on overcoming transition challenges
- Business expertise in change management and P/L leadership -> ROI-driven solutions

Sustainability in Plastics Manufacturing

NEGATIVE IMPACTS OF PLASTICS

Environmental Pollution
Plastic pollution harms oceans, waterways, and ecosystems, impacting wildlife

Greenhouse Gas Emissions
Plastic production, transportation, and disposal contribute to greenhouse gases, worsening climate change

Resource Depletion
Plastics deplete finite resources like fossil fuels

End-of-Life Challenges
Plastic waste management struggles with landfill overflow, emissions from incineration, and slow decomposition

Sustainability in Plastics Manufacturing

POSITIVE IMPACTS OF PLASTICS

Resource Efficiency
Plastics reduce material usage, offering an efficient alternative to metals and glass

Lightweight and Versatile
Plastics are essential in packaging, construction, healthcare, and transportation

Food Preservation
Plastics extend food shelf life, cutting food waste and environmental impact

Medical Advancements
Critical in healthcare, plastics improve medical devices, equipment, and patient care

ConnectedAI

Serves as a catalyst for achieving industry sustainability goals

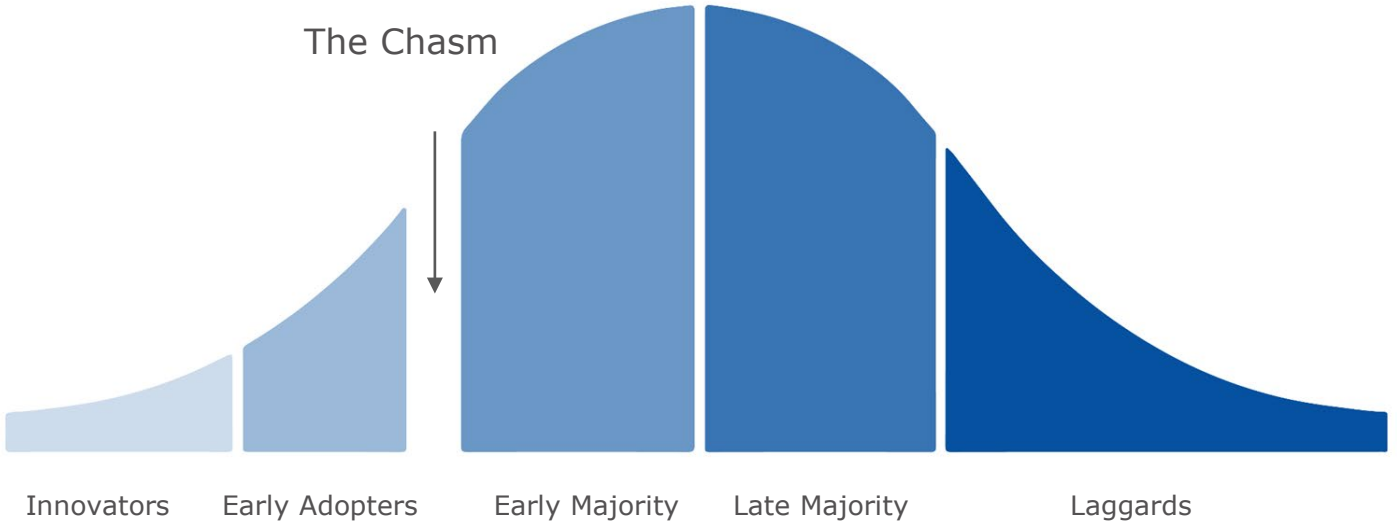
Optimizes processes with advanced analytics

Uses predictive analytics for informed decision-making

Automates processes for enhanced efficiency

Future Outlook: Industry Innovation and Ecological Consciousness

CROSSING THE CHASM

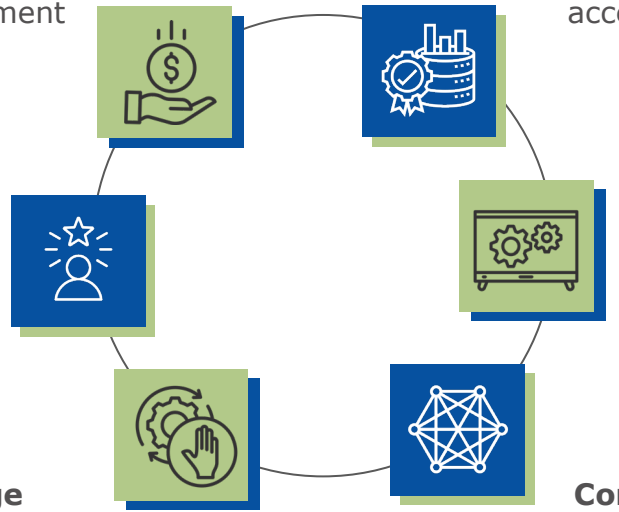


What is the potential for industry innovation and ecological consciousness to coexist and drive sustainable growth?

Challenges and Opportunities

Cost and ROI Uncertainty
Implementing AI systems requires significant financial investment with uncertain ROI

Data Quality and Accessibility
Challenges with data quality, accessibility, and privacy hinder AI efforts



Lack of Skilled Talent
Shortage of AI, ML, and data science experts hampers development and implementation

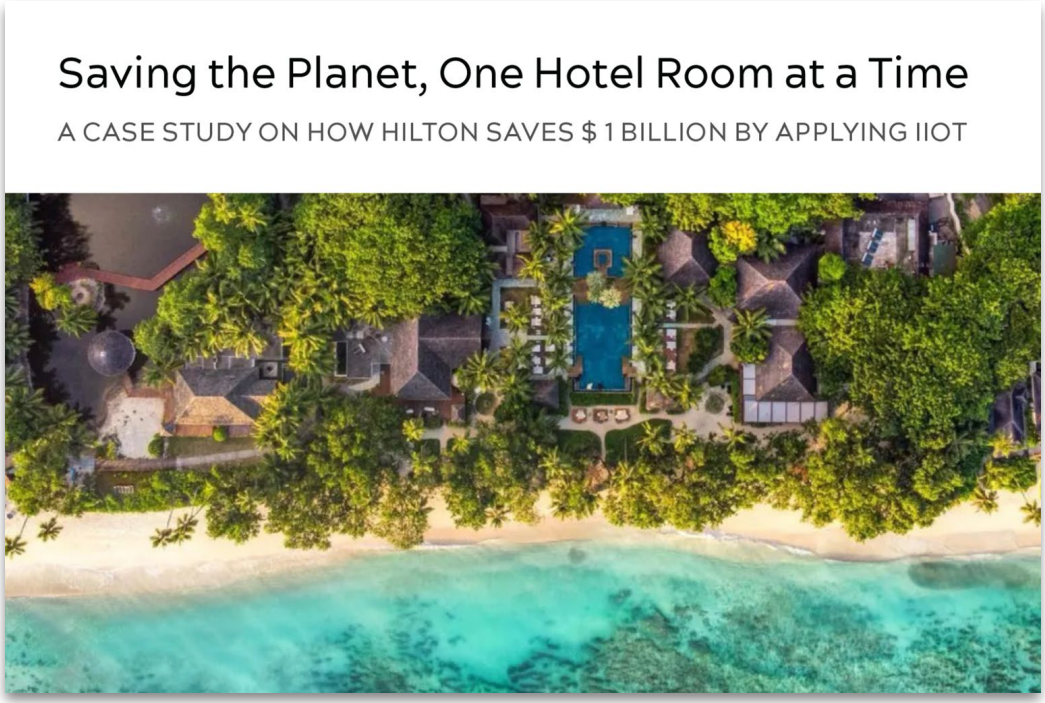
Integration with Legacy Systems
Difficulty integrating AI with existing systems due to compatibility and technical constraints

Resistance to Change
Employees, management, or stakeholders may resist AI adoption due to fear of job displacement, distrust of AI, or cultural inertia

Complexity and Uncertainty
Rapidly evolving AI technologies create complexity and uncertainty, making informed decisions challenging for organizations

Case Study #1

HILTON HOTELS



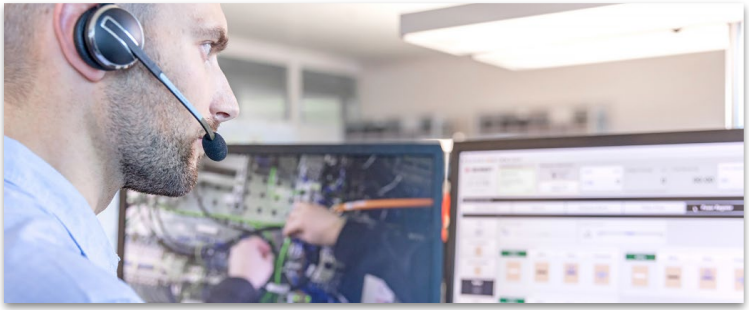
$1 Billion+
savings in energy costs

30%
reduction in co_2 emissions

20%
reduction in energy consumption and water use

Case Study #2

SERVICE

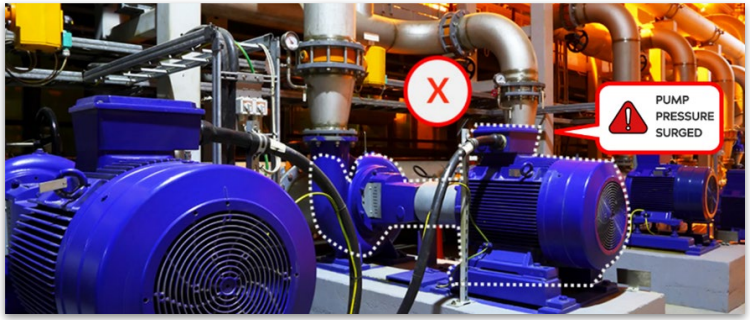


$2 Million+
saved in travel costs

80%
machine-related issues
resolved remotely

Case Study #3

DOWNTIME

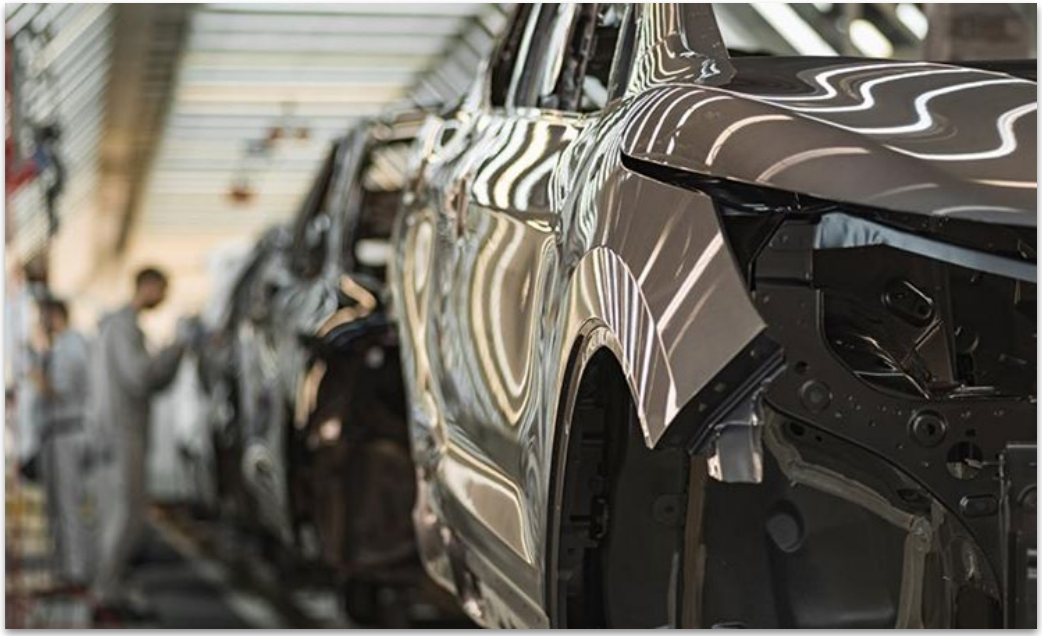


Decreased unplanned machine downtime

Improved plant OEE

Case Study #4

RECIPE

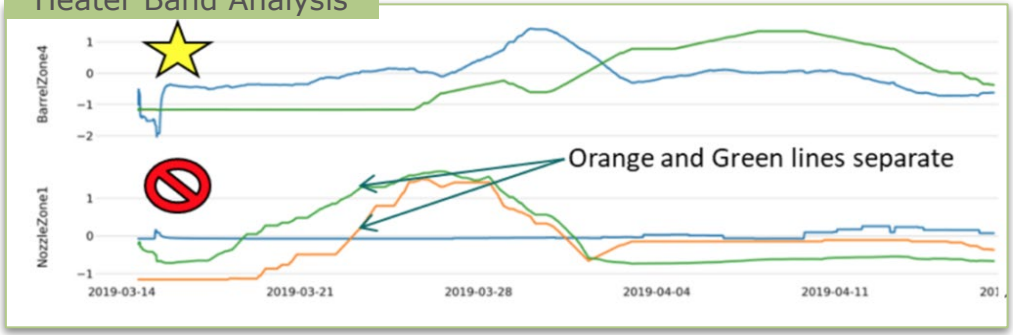


- Proactively alerted operators
- Reduction in Routine Maintenance Expenditures
- Minimized scrap rate

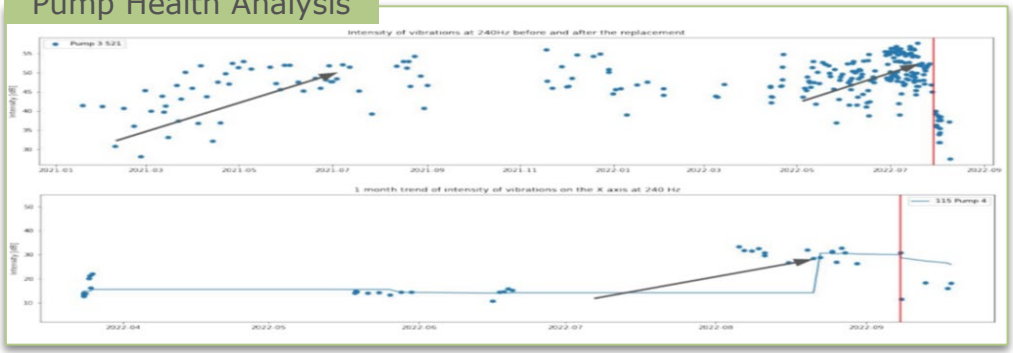
Case Study #5

PREDICTIVE ANALYTICS: ConnectedAI

Heater Band Analysis



Pump Health Analysis



Predictive analysis was conducted on three components of injection molding machines: heater bands, hydraulic pumps, and feed screws

1000 kWh
of Energy Savings per machine

7000+ hours
reduced in unplanned downtime

Decreased scrap rate

SUSTAIN

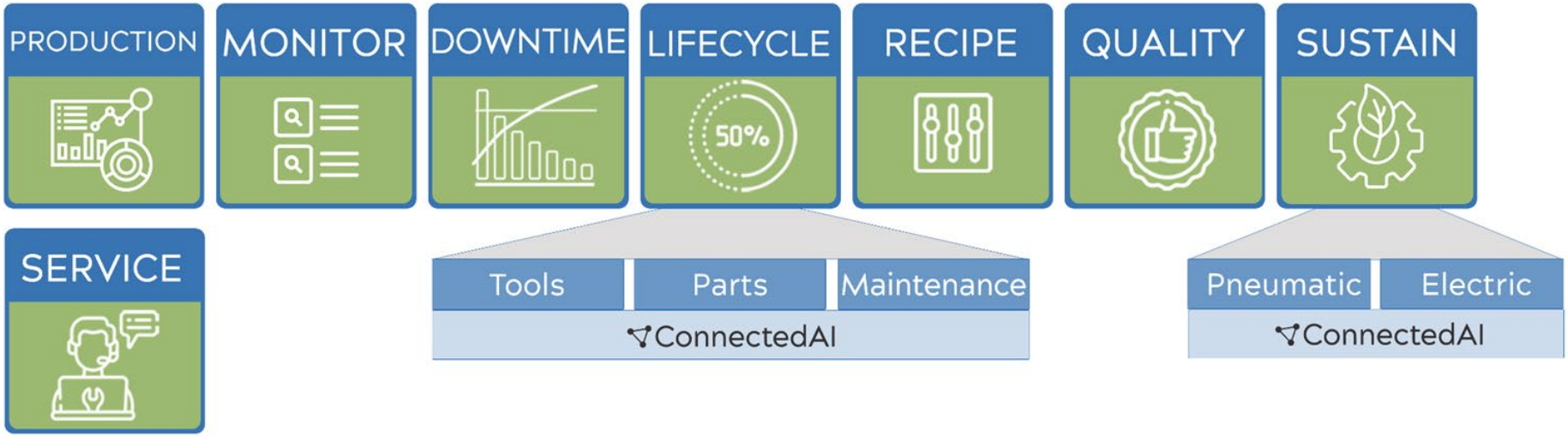
- Measure & report sustainability KPIs
- Normalize data for external influences
- Track consumption trends
- Establish facts for ESG reporting
- Advanced algorithms to cut energy use per part/ton of production
- Benchmark Scrap rates

See SUSTAIN in Action

at Shibaura Machine Company
Booth #W2743

Harnessing AI for Process Optimization

WITH ei3's SMART APPLICATION SUITE



Thank you!

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