

Water / Energy / Data

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*How AI is changing the way we **make decisions,**
manage resources, and act on those decisions*

The Larger Context: AI & Data driven decision systems

Current Model

Human reading & analysis of collected data (On screens, tables, reports etc)



Overly simplistic individual decisions (and complex and bureaucratic institutional decisions)



Substandard human operations and high cost fixed-performance equipment

The AI Era: 1,000,000X increase in efficiency

Efficient, ubiquitous, accurate digitization of the physical world



High dimensional and continually evolving decision making system



Intelligent machines and AI Augmented humans collaborate to deliver previously unachievable results

100X more ways to collect data from the world

100X more of the “best imaginable decision makers”

100X more ability to reliably and cost effectively execute according to plan

Impacts on Process Manufacturing



1,000 manual decisions a day become 1,000,000 automated decisions a day



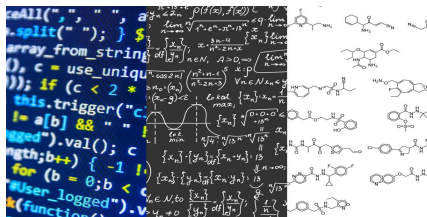
Right sizing of equipment



High-frequency testing and analysis



Multi-use components



Bioengineering - AI designed molecules



More efficient coordination among different processes



New Inputs to drive process decisions



Reduced inventory on-hand

Impacts on Agricultural Water Usage



Accurate measurement of plant condition, providing nutrient and water for plants only as-needed



Removing bottlenecks in production that have secondary effects on farm management (crop selection, labor utilization, irrigation etc.)



Accurate forecasting and control of production timing reduces waste

Energy and Water Example: Plutoshift

The Plutoshift logo is displayed on a blue rectangular background. The word "plutoshift" is written in white, lowercase letters. A small white icon, resembling a stylized 'S' or a circular arrow, is positioned between the 'o' and 's'. To the left of the text, there is a faint, glowing blue circular light effect.

plutoshift

Taking data from a preexisting network of 20,000 sensors in a water treatment plant previously used only for tripping alarms, to create a complex control schema for the facility, generating 20%-30% energy savings after just 1-2 weeks of training

SOLUTION

Plutoshift Advantage was deployed to:

- Identify root cause of high costs and bad effluent water
- Launch a proactive and predictive maintenance program
- Control premature fouling and permeate conductivity
- Create customized dashboard that delivers & gains intelligence

RESULTS

REDUCED WATER
& ENERGY
USAGE/COST

18-20%



REDUCED TRUE
DOWNTIME COST

11-15%



IMPROVED
RECOVERY
EFFICIENCY

9-10%



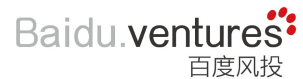
Startup & Funding Landscape



Not many breakout successes yet. Common issues include speed of customer adoption, provable ROI, integration, reliability of equipment, adaptability to complex conditions etc.

Where Venture Capital funding is likely to go:

- Full-stack new “system” providers (rather than single-use technology provider)
- Startups & technology leveraging capital to multiply their effects (insurance, private equity etc.)



Thank you

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