

REDUCING DEPENDANCE ON HUMAN FACTORS

Craig Nelson, Food Automation, Inc

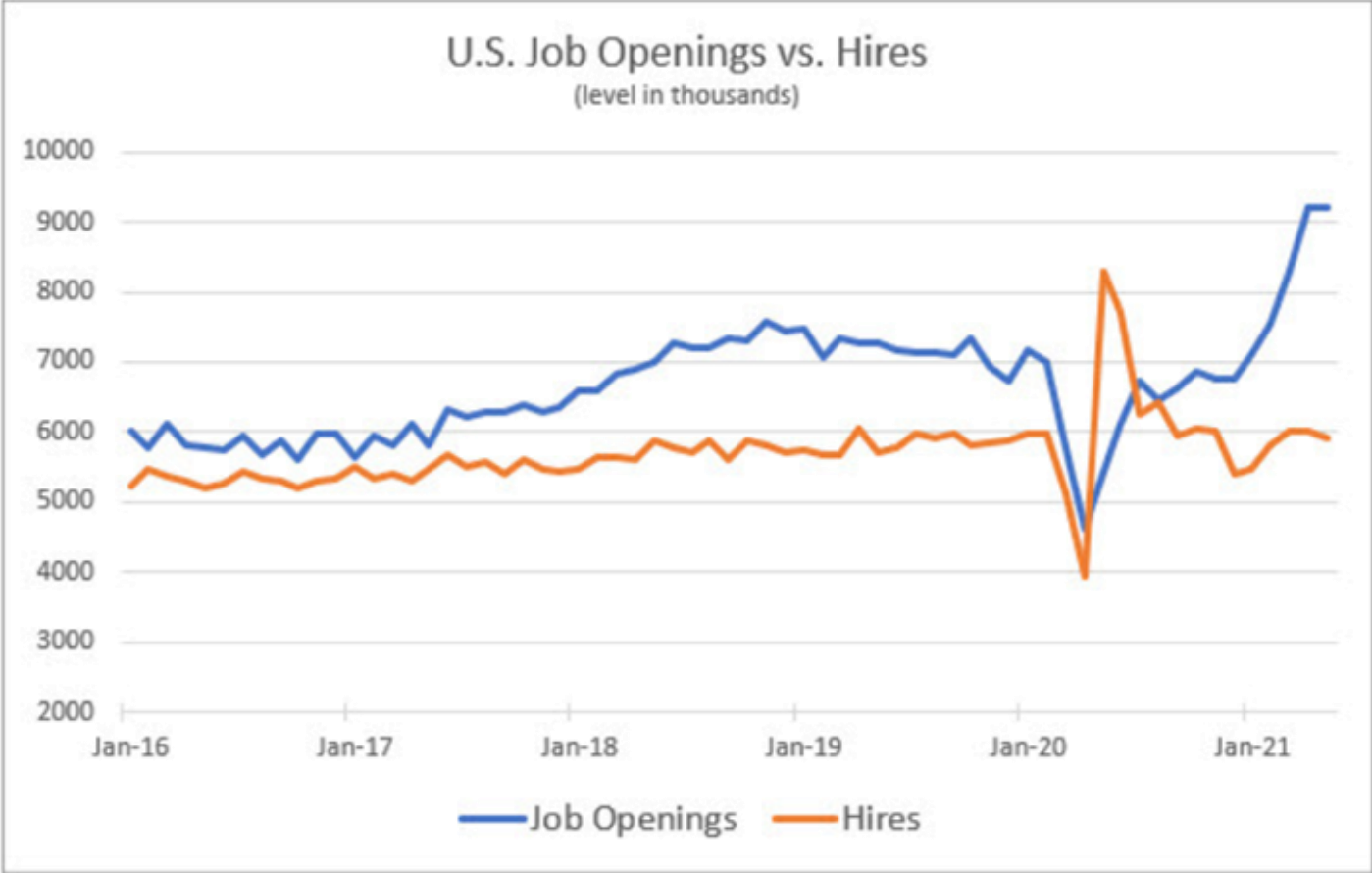
REDUCING DEPENDANCE ON HUMAN FACTORS

3 Average Turnover Rate by Industry, US

Source: Aon



REDUCING DEPENDANCE ON HUMAN FACTORS



SOURCE: DOL BUREAU OF LABOR STATISTICS, graphic by Ellen Gregory

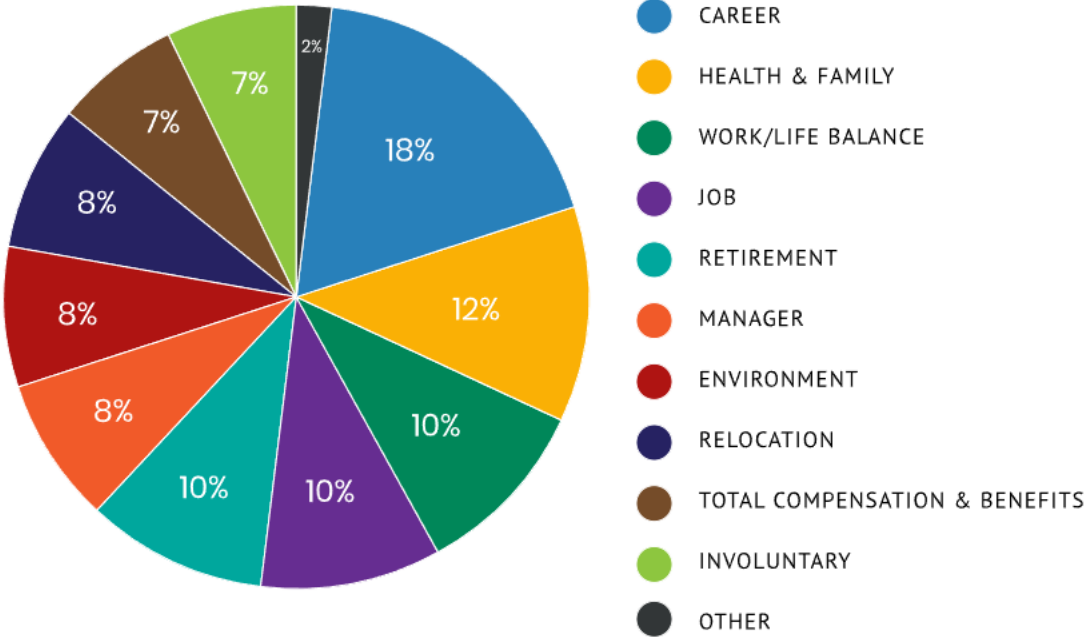
REDUCING DEPENDANCE ON HUMAN FACTORS

► Factors in Study (About 1993)

1. Sense of Pride in Organization
2. Feeling of Recognition of Individual's Role
3. Understanding How They Make a Difference
4. Status in Community
5. Compensation

REDUCING DEPENDANCE ON HUMAN FACTORS

REASONS WORKERS LEAVE THEIR JOBS

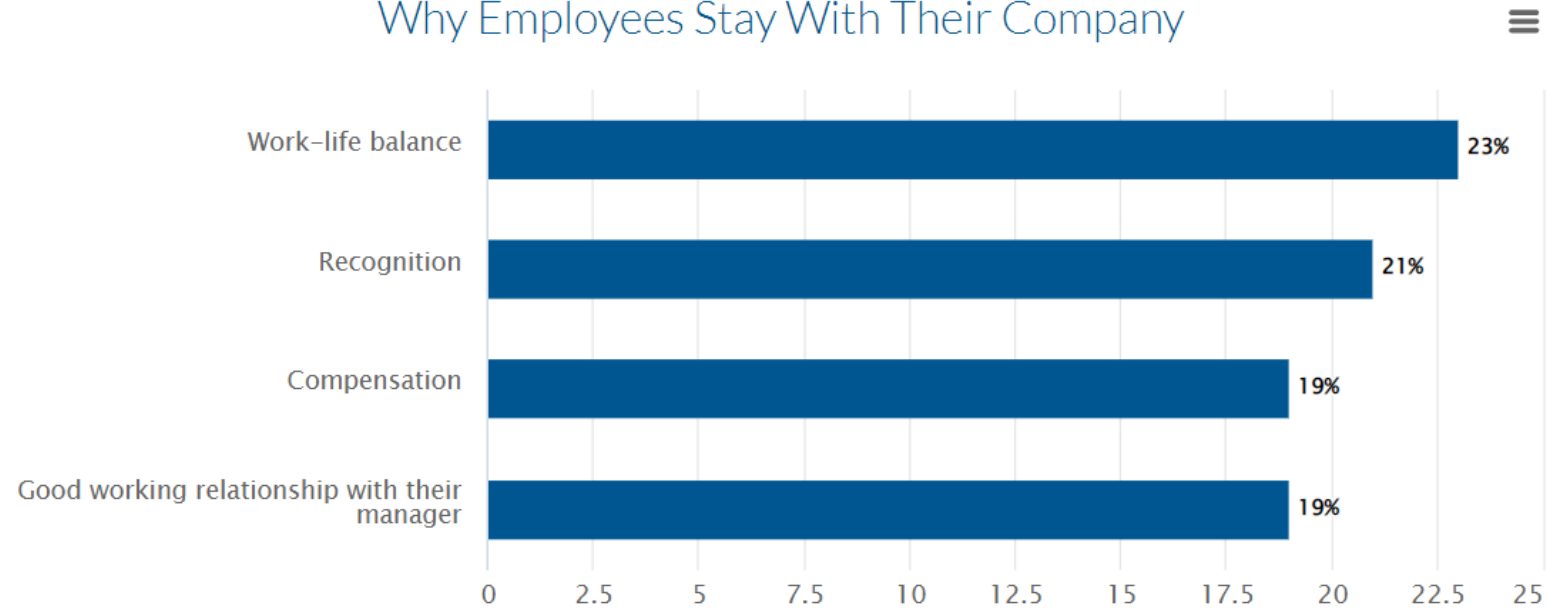


SOURCE: Work Institute



REDUCING DEPENDANCE ON HUMAN FACTORS

Why Employees Stay With Their Company



Source: Achievers Workforce Institute, 2021

Designed by  FinancesOnline

REDUCING DEPENDANCE ON HUMAN FACTORS

- ▶ Areas of Concern with Employee Turnover
 - ▶ Regulatory Compliance
 - ▶ Quality Issues
 - ▶ Unplanned Downtime
 - ▶ Schedule Attainment
 - ▶ Projects Working

REDUCING DEPENDANCE ON HUMAN FACTORS

- ▶ Making our Manufacturing Operations More “Self Aware”

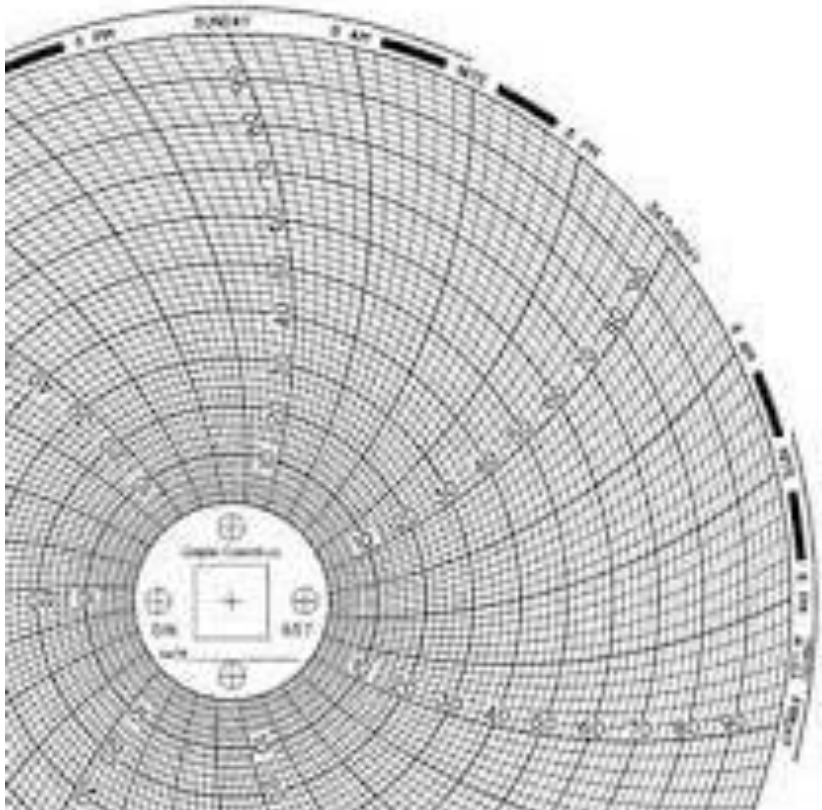


REDUCING DEPENDANCE ON HUMAN FACTORS

- ▶ Areas of Concern with Employee Turnover
 - ▶ **Regulatory Compliance**
 - ▶ Quality Issues
 - ▶ Unplanned Downtime
 - ▶ Schedule Attainment
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REDUCING DEPENDANCE ON HUMAN FACTORS

► Regulatory Compliance - Records



Paper Chart vs Electronic Charts

Paper charts are visual,
untrained people see them.

Electronic charts are “assumed
to take care of themselves.”

REDUCING DEPENDANCE ON HUMAN FACTORS

- ▶ Regulatory Compliance - Records
 - ▶ Reliable storage of records in Cloud or full Database
 - ▶ Self Announcement systems
 - ▶ Approaching 72 hours on raw silos
 - ▶ CIP Completed / Incomplete Alerts and Reports
 - ▶ Pasteurizer Diverts
 - ▶ UF/RO Reporting (For Raw Milk Processing)
 - ▶ Reports and Alerts of Employee / Manager Reviews

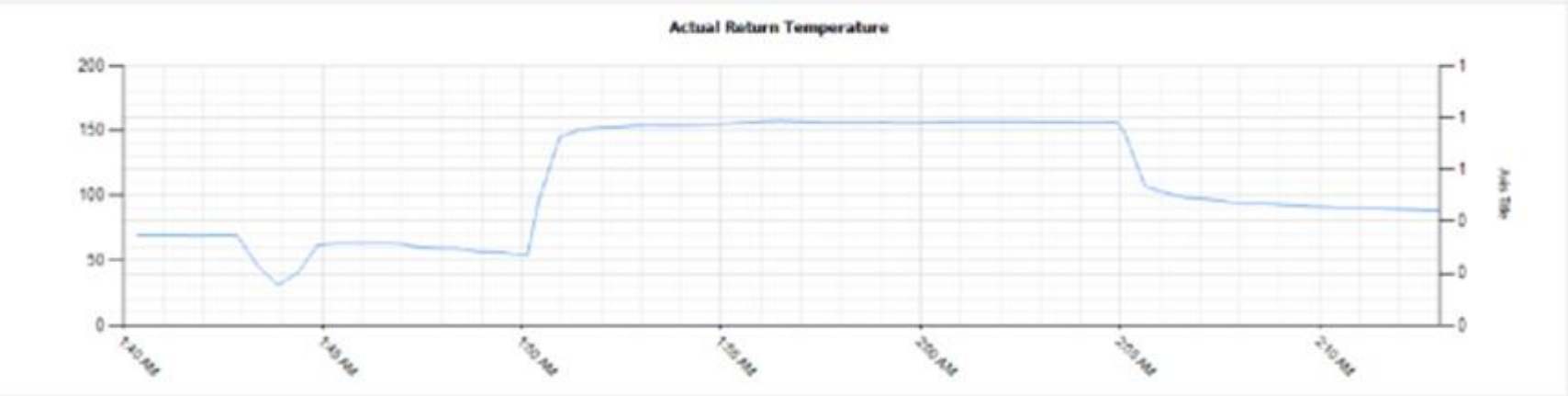
REDUCING DEPENDANCE ON HUMAN FACTORS

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Ended: 11/18/2021 2:13:00 AM
Total Time: 00:33:00

Truck Front: Unknown
Truck Rear: Unknown

[Go To Overview](#)
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User ID	Review Result	Comment	Time Stamp
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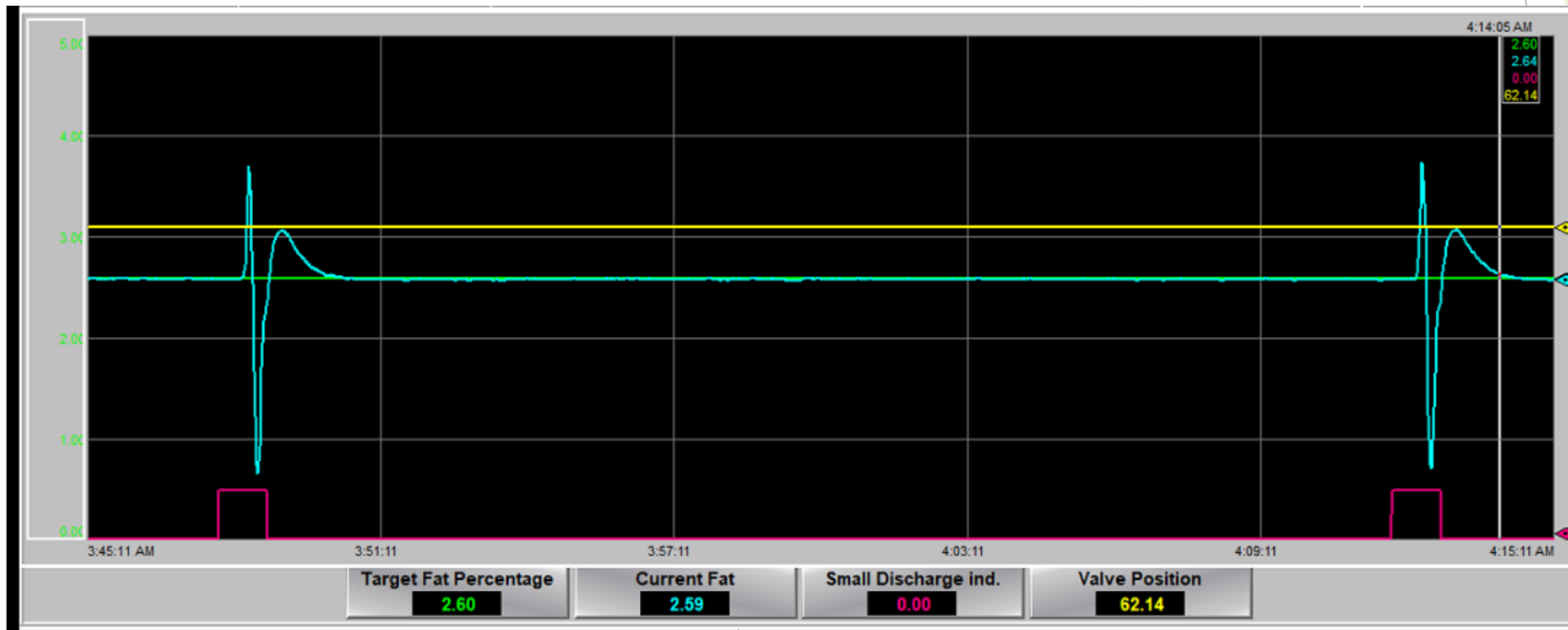


REDUCING DEPENDANCE ON HUMAN FACTORS

- ▶ Areas of Concern with Employee Turnover
 - ▶ Regulatory Compliance
 - ▶ **Quality Issues**
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 - ▶ Schedule Attainment
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REDUCING DEPENDANCE ON HUMAN FACTORS

- ▶ Quality Issues
 - ▶ Using Automation to Drive Consistency
 - ▶ Ingredient Control



REDUCING DEPENDANCE ON HUMAN FACTORS

- ▶ Quality Issues
 - ▶ Using Automation to Drive Consistency
 - ▶ Separator Speed vs Fat Control



REDUCING DEPENDANCE ON HUMAN FACTORS

- ▶ Areas of Concern with Employee Turnover
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REDUCING DEPENDANCE ON HUMAN FACTORS

- ▶ Unplanned Downtime
 - ▶ Plant Plugging Issues
 - ▶ Maintenance Skills and Experience
 - ▶ Pasteurizer Diverts
 - ▶ Evaporation Fouling / Plugging

REDUCING DEPENDANCE ON HUMAN FACTORS

- ▶ Unplanned Downtime
 - ▶ Accelerated / Advanced Training
 - ▶ Data Collection
 - ▶ Root Cause Analysis
 - ▶ Upgrades - Automating out Root Causes

REDUCING DEPENDANCE ON HUMAN FACTORS

- ▶ Unplanned Downtime
 - ▶ Network Reliability

Office Network
110 Computers /
Servers / Devices

Plant Floor Network
700 Computers /
Servers / Devices

REDUCING DEPENDANCE ON HUMAN FACTORS

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 - ▶ **Schedule Attainment**
 - ▶ Projects Working

REDUCING DEPENDANCE ON HUMAN FACTORS

- ▶ Schedule Attainment
 - ▶ Downtime (Of Course)

REDUCING DEPENDANCE ON HUMAN FACTORS

- ▶ Schedule Attainment
 - ▶ Scheduling Apps Integrated Into the Automation Systems

ORACLE



REDUCING DEPENDANCE ON HUMAN FACTORS

- ▶ Schedule Attainment
 - ▶ Formula Integration

The screenshot shows a control panel interface with a dark background. On the left, a blue vertical menu lists options: NONE, SKIM MILK, 1% MILK, 2% MILK, WHOLE MILK, HALF & HALF, WHIP, CHOCOLATE, and STRAWBERRY. To the right of this menu are three blue buttons with upward, downward, and leftward arrow icons. Further right is a blue button labeled "DISCHARGE AIR BLOW". At the bottom, there are five grey buttons: "CIP CONTROL", "HTST CIP AND LINE SANITIZE", "HTST CONTROL", "SEPARATOR CONTROL", and "MAIN MENU". On the right side of the panel, a grey box displays the status "STANDARDIZER IN AUTO" and a table of data.

STANDARDIZER IN AUTO	
STANDARDIZER VALVE FAULTED	CREAM VALVE FAULTED
STANDARDIZER FAT TARGET	2.60%
STANDARDIZER FAT ACTUAL	2.59%
CREAM FAT TARGET	42.00%
CREAM FAT ACTUAL	42.02%
STANDARDIZER LAB ENTRY	2.59%
CREAM LAB ENTRY	42.02%

REDUCING DEPENDANCE ON HUMAN FACTORS

- ▶ Schedule Attainment
 - ▶ Formula Integration



Database of Application



Production Floor

REDUCING DEPENDANCE ON HUMAN FACTORS

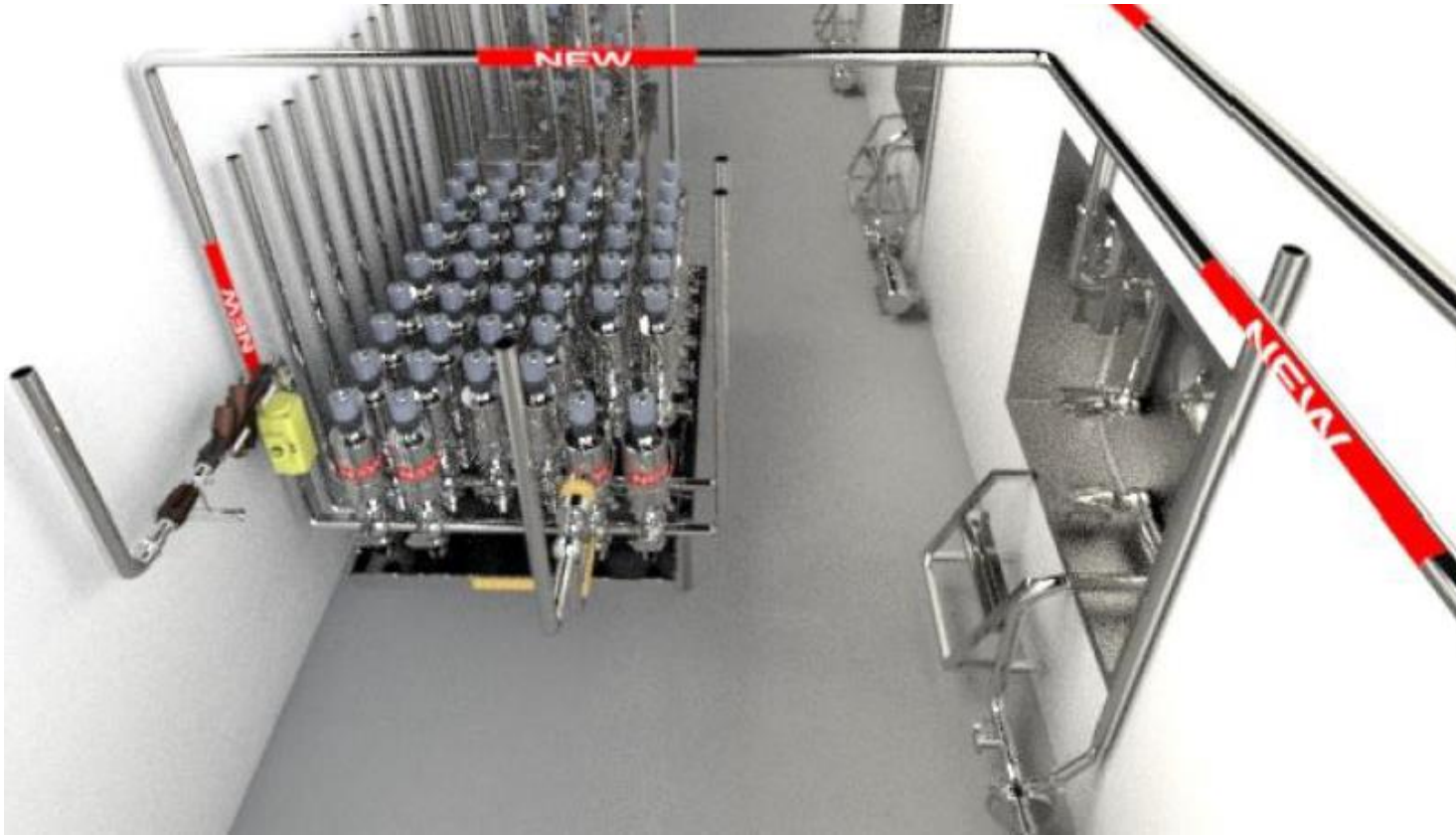
- ▶ Areas of Concern with Employee Turnover
 - ▶ Regulatory Compliance
 - ▶ Quality Issues
 - ▶ Unplanned Downtime
 - ▶ Schedule Attainment
 - ▶ **Projects Working**

REDUCING DEPENDANCE ON HUMAN FACTORS

- ▶ Projects Working
 - ▶ Reduced Experience in Project Companies
 - ▶ Mergers and Acquisitions
 - ▶ Tribal Knowledge

REDUCING DEPENDANCE ON HUMAN FACTORS

- ▶ Projects Working
 - ▶ More Complete Preliminary Designs



REDUCING DEPENDANCE ON HUMAN FACTORS

▶ Summary

- ▶ More Detailed Up-Front Designs
 - ▶ Be prepared to upgrade with end goals in sight
- ▶ Integrate Scheduling and Formulas
 - ▶ Take some of that responsibility off the operators
- ▶ Train new staff to see the big picture of the process
 - ▶ How does an HTST work, what should the CIP do
- ▶ Improve automatic regulatory compliance
 - ▶ Make the systems let upper management know your ready for an audit

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