



Automation Updates from a Finance Perspective: A Processor's Journey

November 29, 2023

Agenda

1. Background – Vital Plastics
2. Automation Projects at Vital Plastics (Past and Present)
3. Snap Assembly Evolution: The Journey
 - a. The Team (who is your automation team)
 - b. The Payback (what sort of payback should be expected)
 - c. The Timeline (always add six months)
 - d. The Metrics (accounting/finance must close the feedback loop)
 - e. The Challenges and what now (additional considerations)
4. Questions

Corporate Overview



- Founded in 1994 and Privately Owned
- 114+ Full-time Employees Onsite
 - ~20% mold technicians allows for optimal reaction times
 - ~10% of employees in quality department
 - ~120 Part-time Home/Warehouse Assemblers
 - 7 Full-time Engineers onsite
- ~70,000 sq. ft between two buildings - 30 miles east of Minneapolis-St. Paul with 6 acres for future development
- 24/7, 356 days/yr. with **1500** days without “Lost time” – 11/1/19
- ISO 9001:2015 and F.F.L. certified
- 20+ unique active partners (2022-99.75% OTD with Top 5 cust)
 - Three Fortune 200 companies
 - ~80% have over 10 years of partnership



Thermoplastic Injection Molding

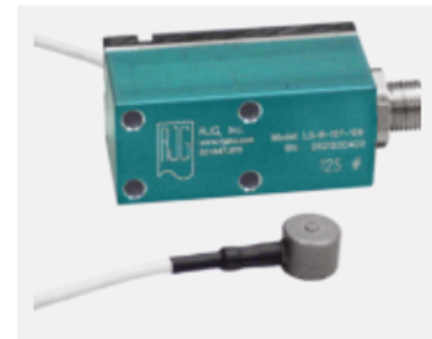
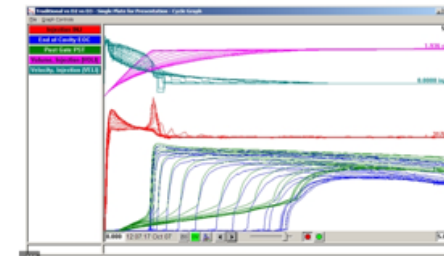
- 60+ Molding Machines
 - Tonnage Range: 30T – 400T
- Standardizing to All-Electric Toshiba & Toyo
- SePRO Robots or Sprue Pickers on every press
- Standardizing production processes with IQMS Shop Data/Light Sticks/etc.
- Moretto Gravimetric blenders (+/- 0.01% precision)
- Commodity & engineering grade resins
 - Manage over 1,000 resins
- Over-molding & Insert-molding
 - Currently house 1,600 ACTIVE molds



Internal Data Solutions

RJG Scientific Molding Disciplines

- Part Design • Material Selection/Handling
- Tool Design • Processing
 - eDart monitoring system
 - Cavity Pressure monitoring
 - Identifies sink, shorts, flash, voids, etc.
 - Temperature Sensors
 - Identifies cooling circuit variation, imbalance or blockage, and improper melt temps
- Data Management and traceability
 - Strict lot control conformity from IQMS
- ERP Data Tower at every press – removed paper from production

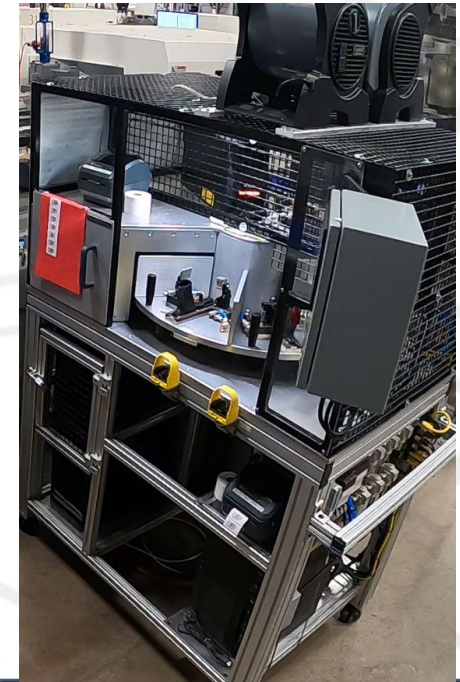
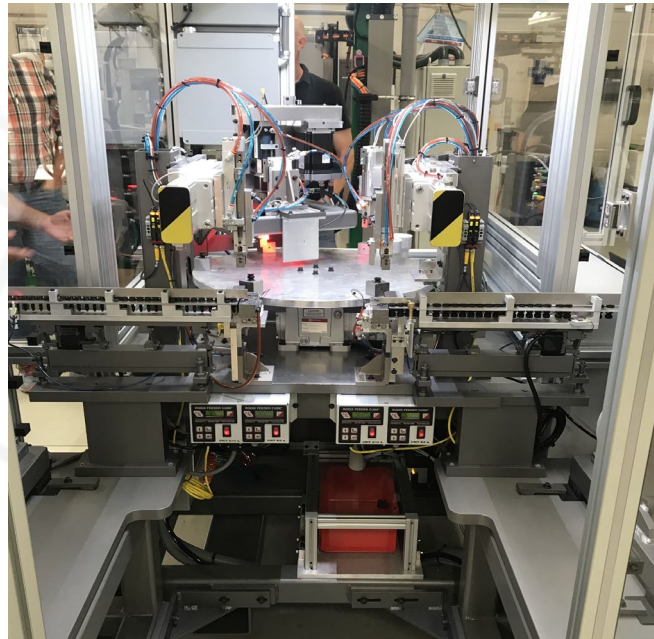






3S SOLIDWORKS

Automation Projects Past and Present



Snap Assembly Project

[Rotary Tables](#)

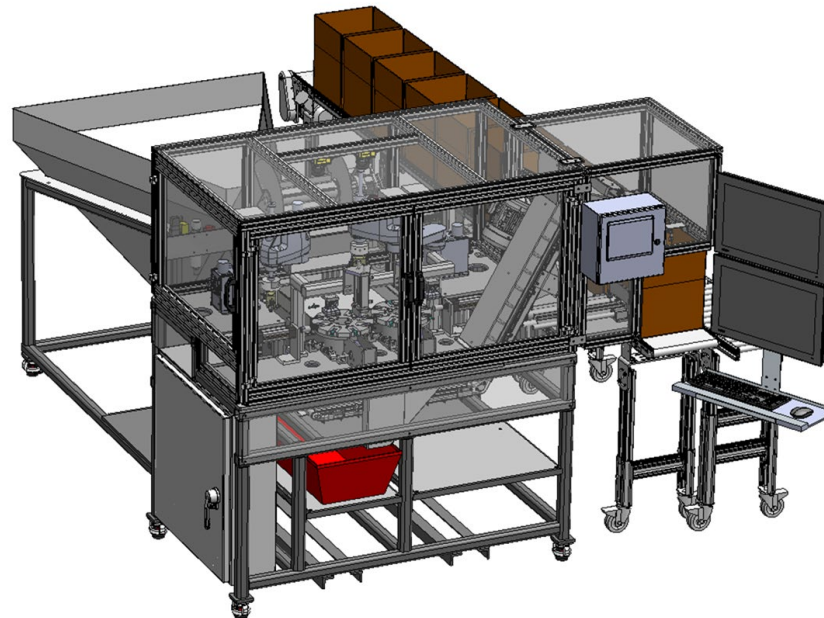
Snap Assembly Project



- 6 Full time equivalent employees
- hard to find employees
- repetitive tasks are boring and prone to injury
- customer is extremely cost sensitive
- looks foolish to pay someone to do this

What does your automation team look like?

- automation engineer
- manufacturing engineer
- skilled maintenance member
- integrator
- other (finance needs a seat at the table)



The Payback:



- General payback expectations are 12-24 months
- Focus on being able to redeploy labor
- Focus on risk mitigation (injury, staffing shortages, etc)
- Theory of Constraints (does the automation clear up a bottleneck)
- Cost of capital has become more expensive
- Label the positions that will be redeployed

Snap Assembly Payback

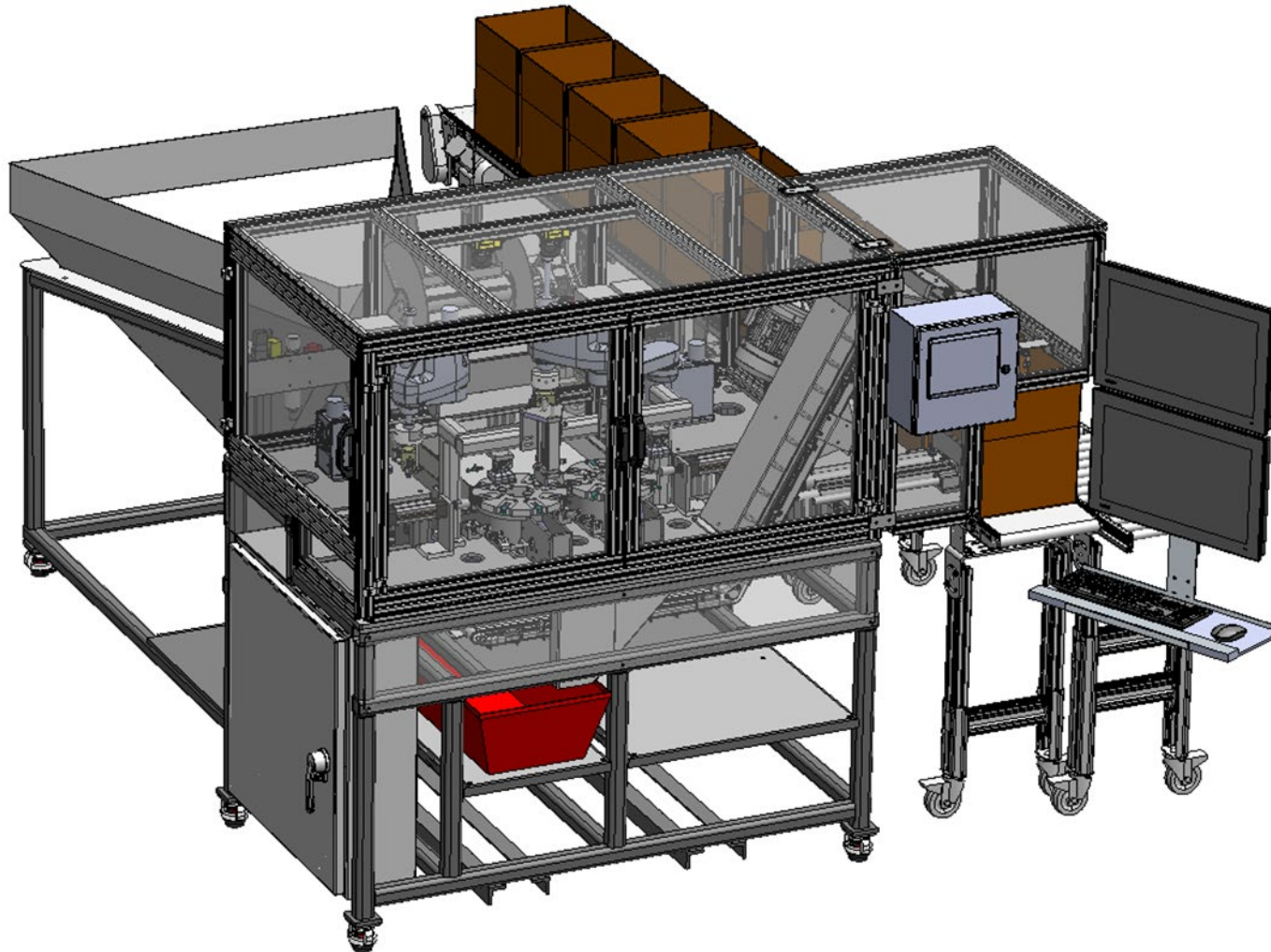
- estimated cost to complete project was \$270,000
- potential to replace three full-time employees
- anticipated cost savings of \$135,000
- financial payback of two years

Qualitative benefits:

- removes repetitive tasks (reduced injury risk)
- better quality
- less pressure on HR staff to fill boring jobs
- looks “cool” showpiece for existing and potential customers

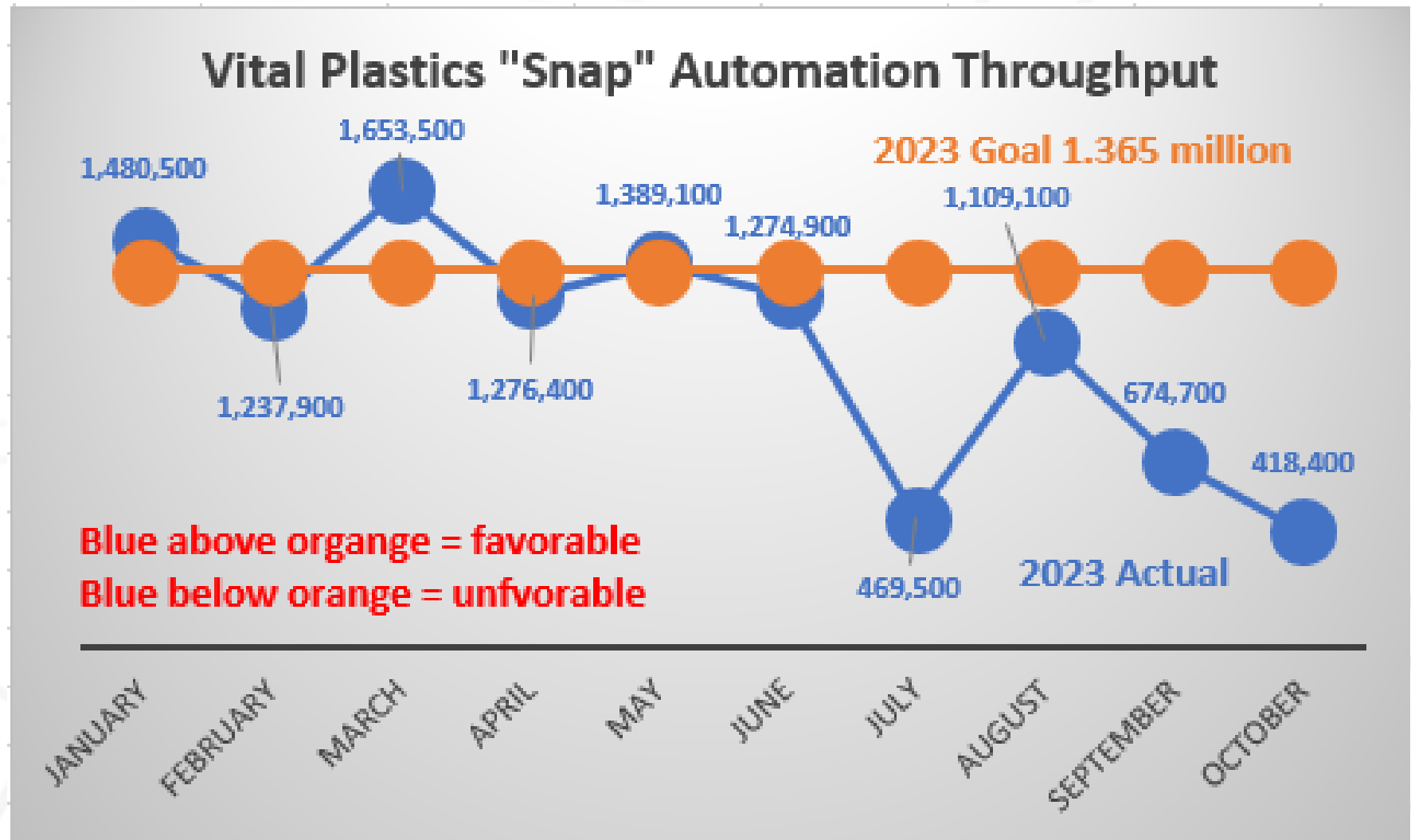


Finished Automation



Running

Closing the Feedback Loop





Closing the Feedback Loop

Snap Automation - Investment Recovery Analysis

Machine Cost \$ 270,000.00

Revenue Generated from Snap

| | | |
|--------|----|-----------|
| Apr-22 | \$ | 6,447.92 |
| May-22 | \$ | 8,741.25 |
| Jun-22 | \$ | 10,606.62 |
| Jul-22 | \$ | 8,066.25 |
| Aug-22 | \$ | 11,520.00 |
| Sep-22 | \$ | 11,493.75 |
| Oct-22 | \$ | 7,616.63 |
| Nov-22 | \$ | 8,175.00 |
| Dec-22 | \$ | 12,232.50 |
| Jan-23 | \$ | 11,103.75 |
| Feb-23 | \$ | 9,284.25 |
| Mar-23 | \$ | 12,401.25 |
| Apr-23 | \$ | 9,573.00 |
| May-23 | \$ | 10,418.25 |
| Jun-23 | \$ | 9,561.75 |
| Jul-23 | \$ | 3,521.25 |
| Aug-23 | \$ | 8,318.25 |
| Sep-23 | \$ | 5,060.25 |
| Oct-23 | \$ | 3,138.00 |

Total Revenue generated from Snap machine \$ 167,279.92

Number of months to recoup investment @ goal 26

Current Month 19

Expected additional months to cost recovery 19

Deviation (12)

Other Considerations

- should I tell my customer I've automated?
- who owns the automation?
- who pays for the automation?
- amortization in part price or bill the customer?
- good documentation is paramount (turnover)
- is the automation flexible? (repurpose)
- what's your automation roadmap?
- MES as necessary and critical
- R&D tax credits
- escape hatches?
- automate up front!!!!

Recap

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Automation is a journey not a destination



Questions