

# BluPrint™

ENGINEERING GAP EVALUATION & ROADMAP TO SUCCESS

---

*Prepared for Example Client*

January 2024



# How we got here:

## The Engineering Gap™



# What we've done:

- Initial consultation & review of existing data
- Facility walk-through & review of production operations
- BluTwin (Reality Capture)
- Creation of your facility's digital twin
- Identification of engineering gaps
- Scheduled VC visit

# What we heard:

## THE PROBLEM

The company's sales team is hitting a wall with the slow production and delivery of the machines they sell. Despite steady growth, the company has resisted investing in tooling that would streamline the manufacturing process. Now, sales is sounding the alarm, warning management to cut delivery times in half or risk customers walking away.

## YOUR REQUIREMENTS

Eliminate the bottleneck caused by the complex part handling required in several manufacturing cells. The complexity not only makes the process time-consuming, but also places a considerable physical strain on welders. They're frequently dealing with hard-to-reach welds, which not only complicates their task but also raises safety concerns.

## DESIRED OUTCOMES

Reduce machine delivery time by 50%.

## Identified Areas of Opportunity

- 1) Medium Machine
- 2) Small  
Sub-assemblies
- 3) Small Module  
Assembly
- 4) Large Machine  
Chassis

ITEM #1

# MEDIUM MACHINE

# Current Solution



*Welding on flat table*



*Awkward welding positions*

## Current Process

- Handmade table with clamps
- Difficult to square up
- Ladders and stools to reach welds
- Manual lifting

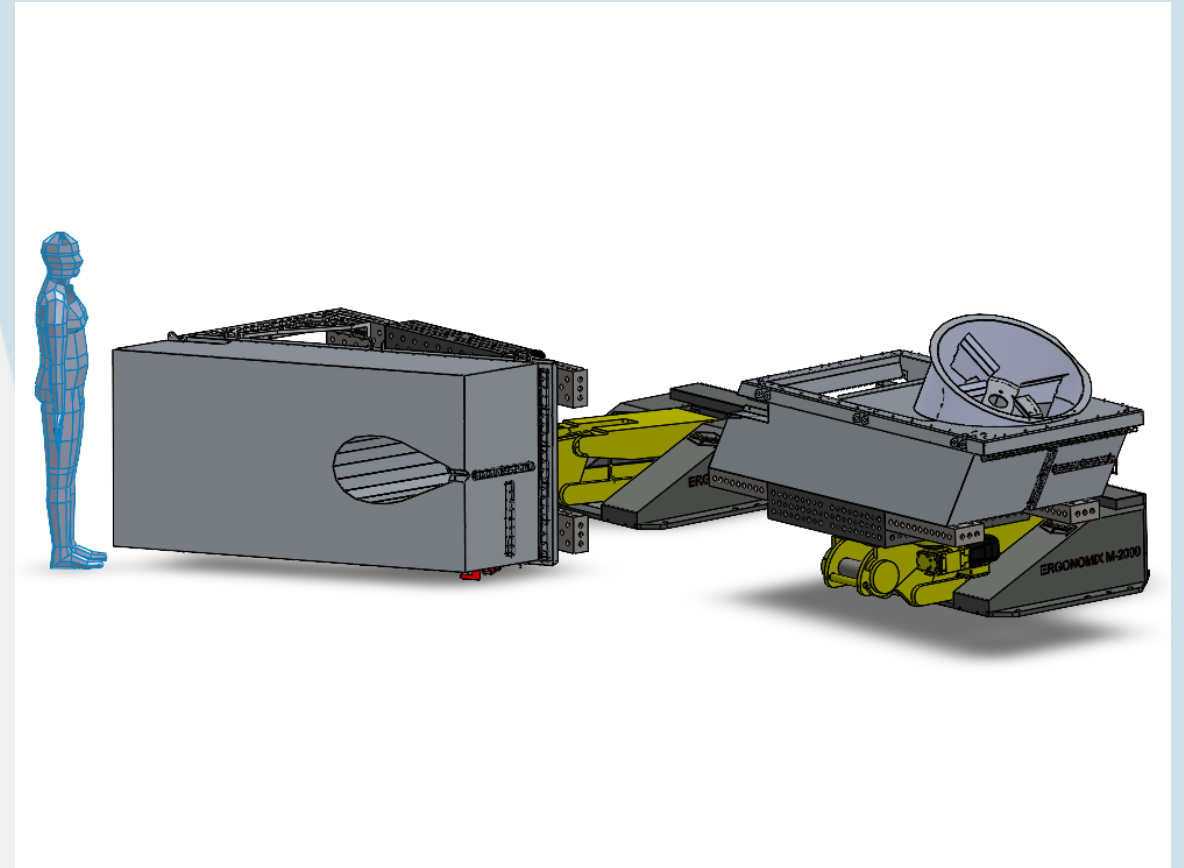
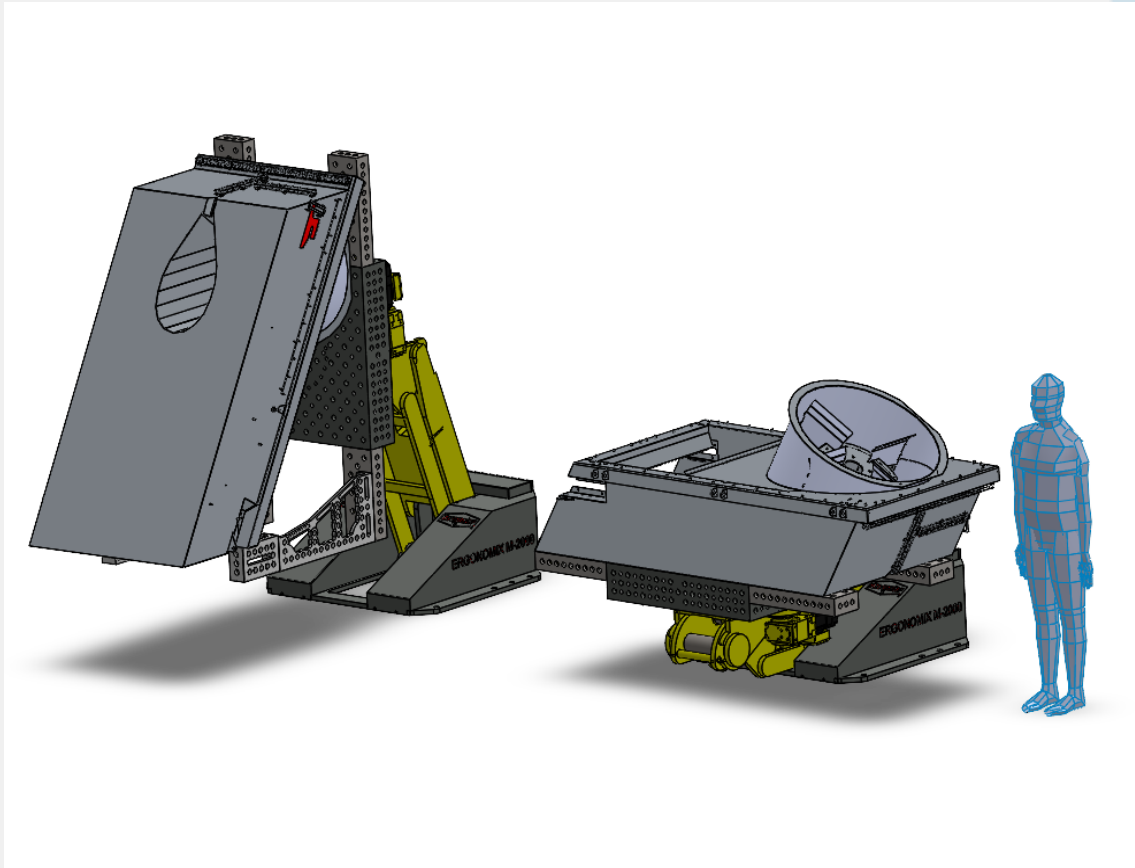
**TOTAL TIME**

**36**

**hrs per piece**



# Proposed Solution



## Proposed Process

- Part lifted and turned by manipulator
- Squares up automatically
- Boots stay on the ground
- Positioner does the lifting

**TOTAL TIME**

**18**hrs

---

**2X**

**TIMES FASTER**

ITEM #2

# SMALL MODULE SUB-ASSEMBLIES

# Current Solution



*Welding on the floor*



*IPG Laser Light Weld in storage*

## Current Process

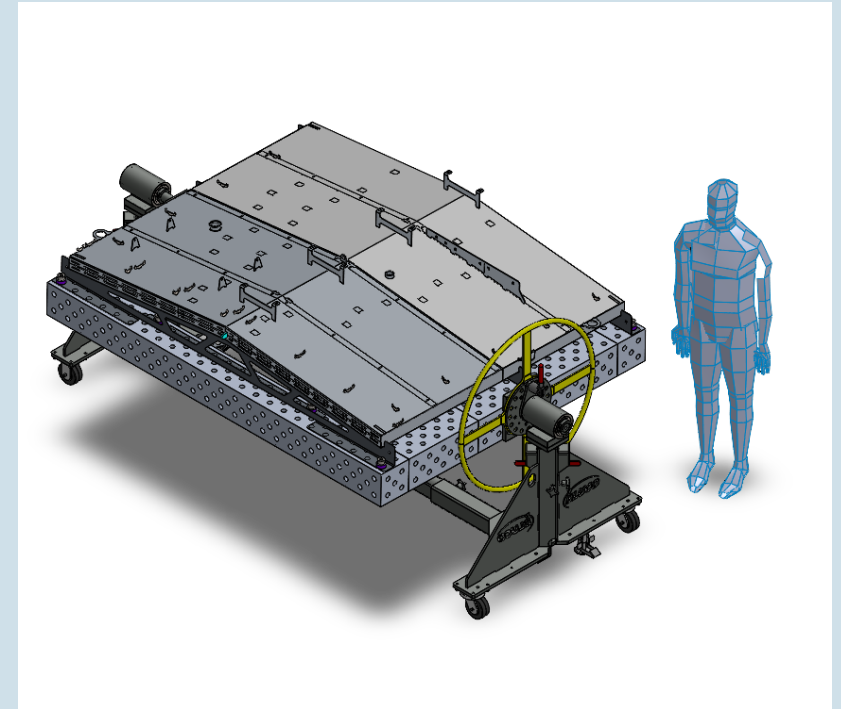
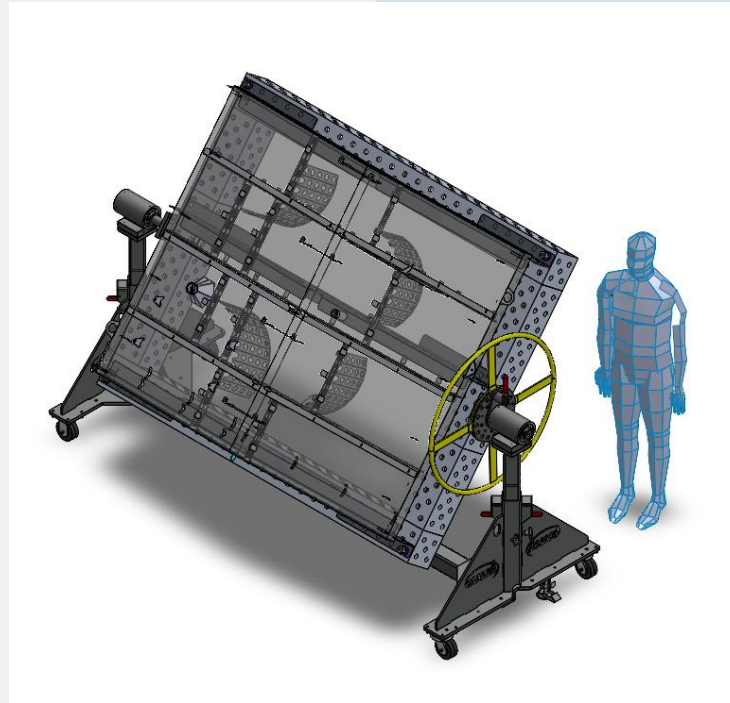
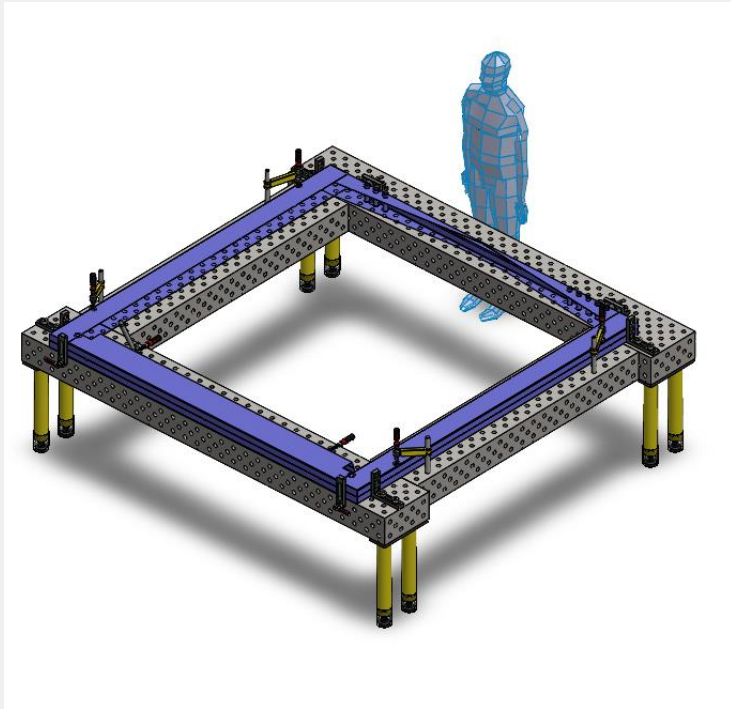
- Table, clamps, scissor lift
- Lay on floor to weld
- Part is stationary, welder moves to reach
- IPG Laser Light Weld not usable

**TOTAL TIME**

**6.5**

**HOURS PER PIECE (AVG.)**

# Proposed Solution



## Proposed Process

- Build smaller subs on custom adjustable U-form table
- Build floor & roof simultaneously on Manual Positioner(s) with modular components
- Welder stays standing
- Welder is stationary, part moves for easy reach
- IPG Laser Light Weld now usable

**TOTAL TIME**

**3.5 hrs**

---

**2X**

**TIMES FASTER**

ITEM #3

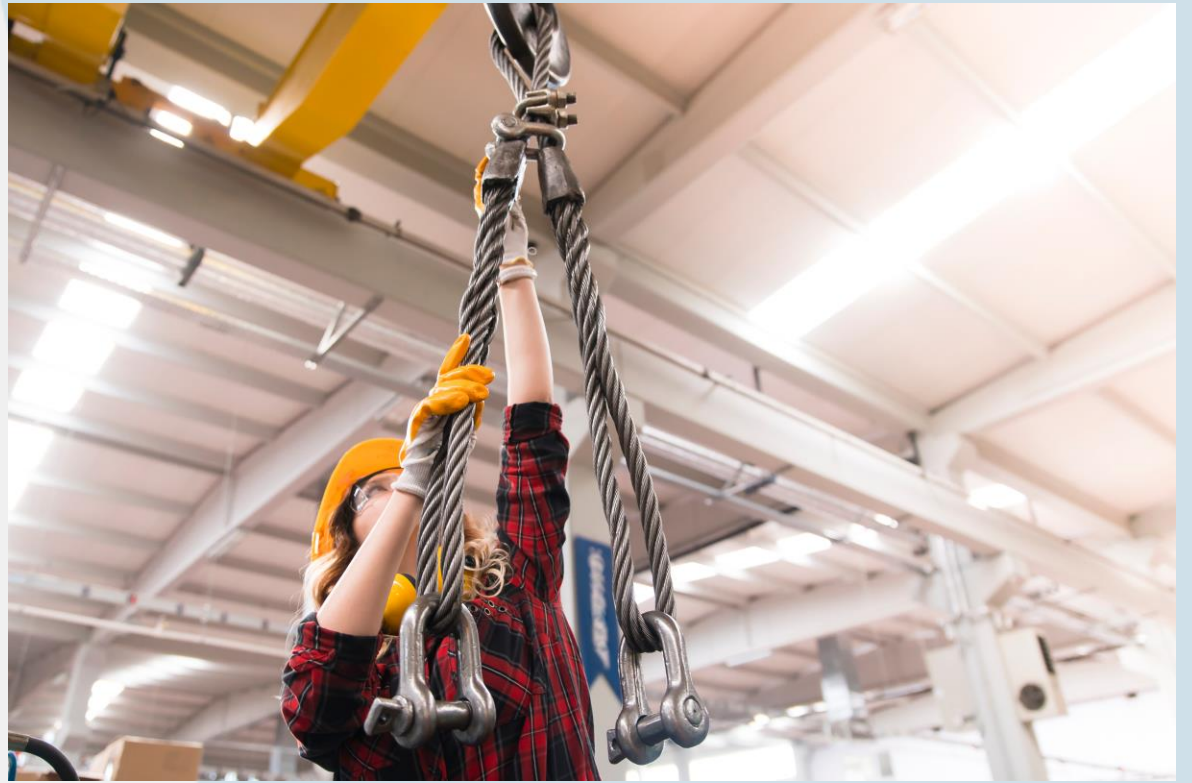
# SMALL MODULE ASSEMBLY



# Current Solution



*No fixturing*



*Unhooking crane*

## Current Process

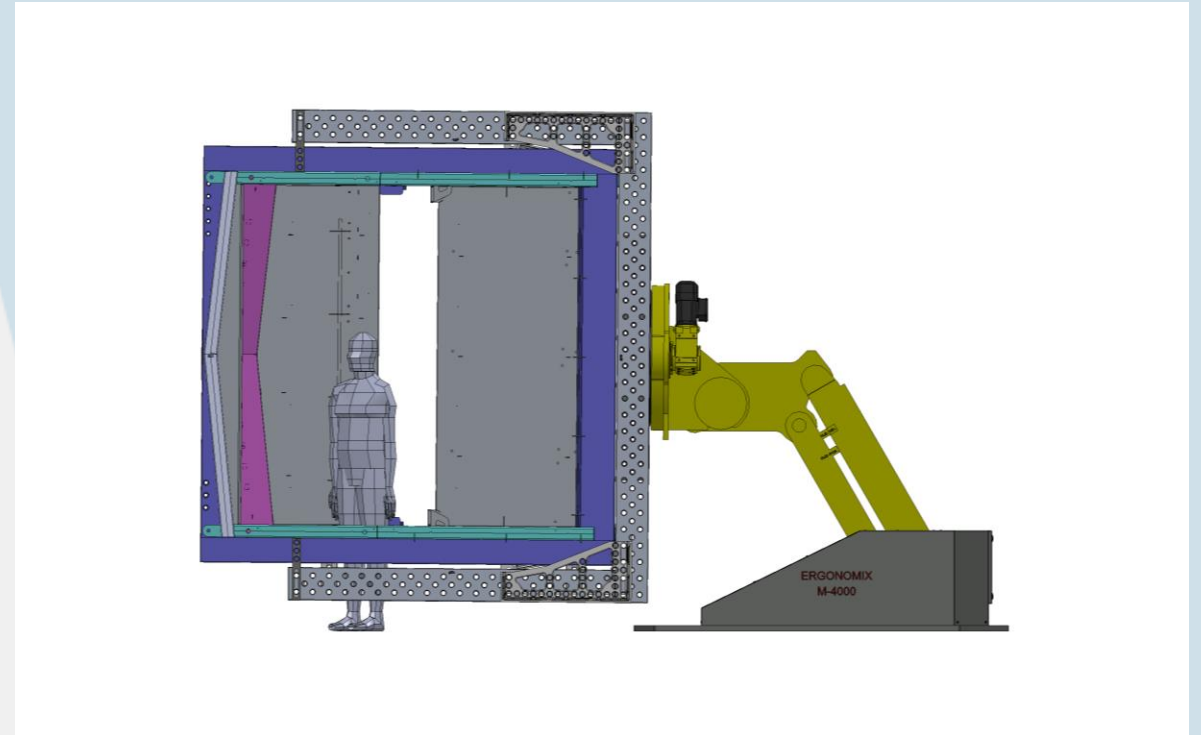
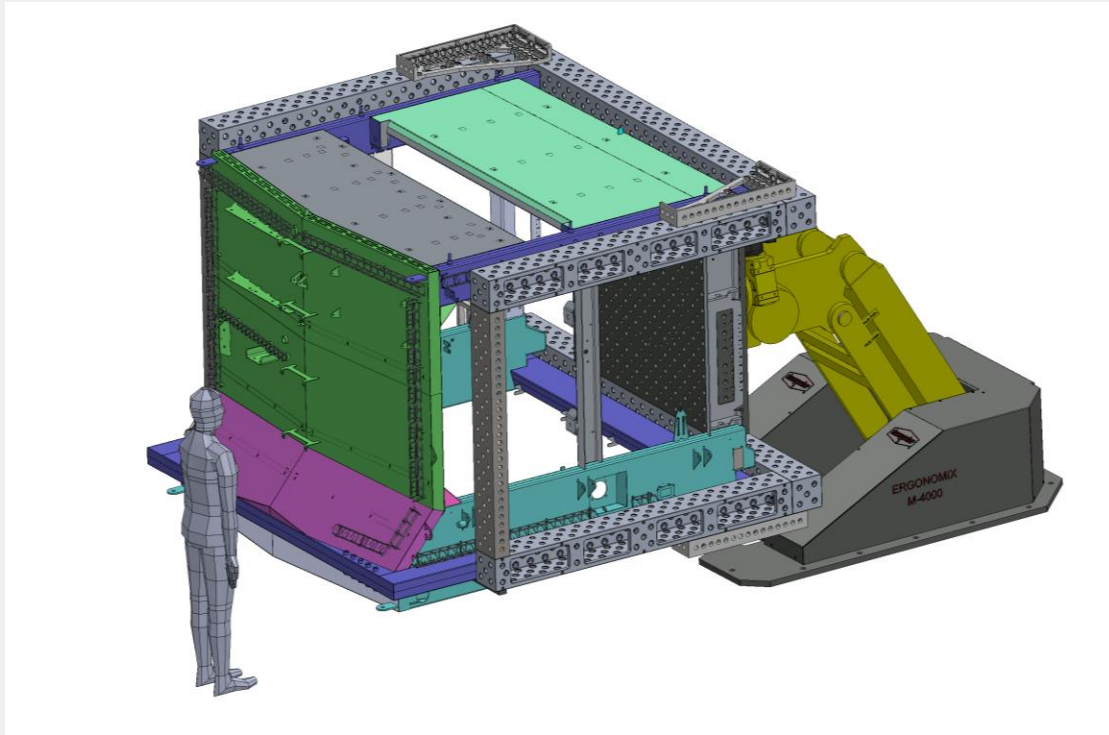
- Built on the floor
- Bolted together on template
- Welders lay on floor
- Weld out of position
- Climb ladder to unhook from crane

**TOTAL TIME**

**80**

**HOURS PER PIECE**

# Proposed Solution



## Proposed Process

- Build on M4 manipulator
- No bolting needed
- Welders remain standing
- Weld in position
- No crane needed

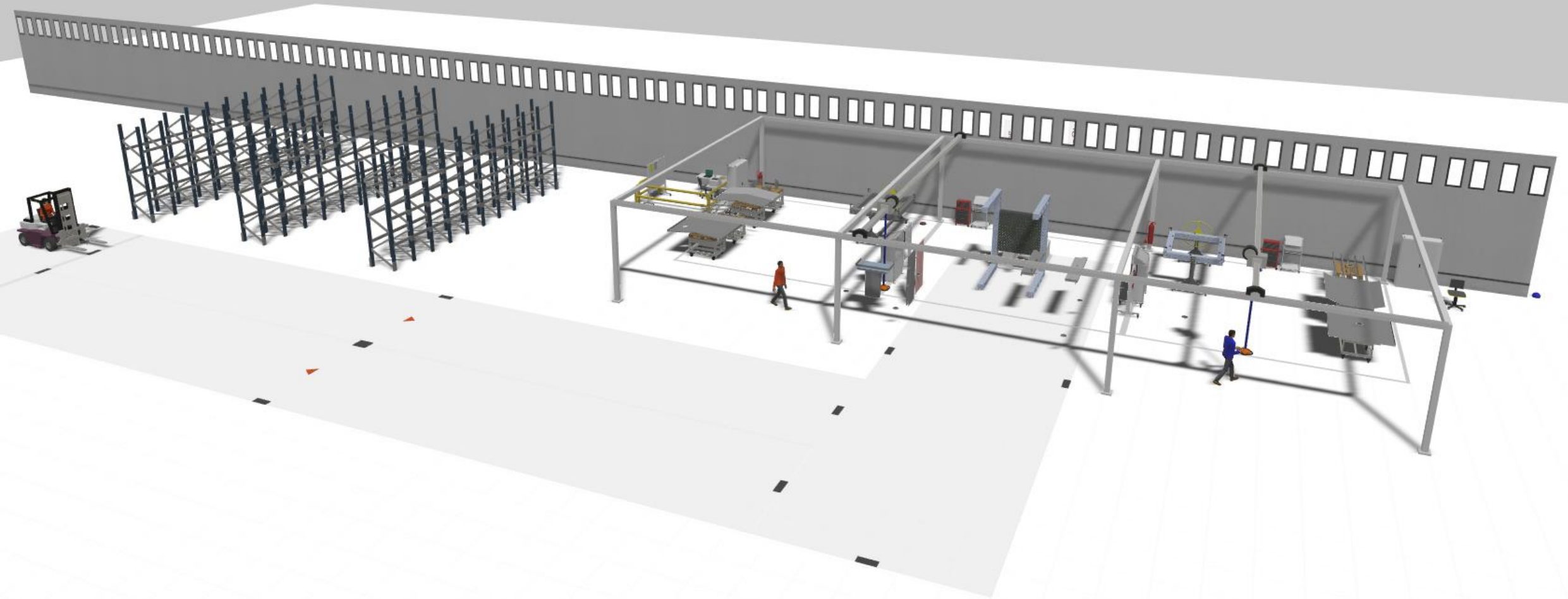
**TOTAL TIME**

**40**hrs

---

**2X**

**TIMES FASTER**



ITEM #4

# LARGE MACHINE CHASSIS

# Current Solution



*Leveling "fixture"*

## Current Process

- Changeover requires:
  - Moving out old fixtures
  - Moving in new fixtures
  - Leveling
  - Adjusting
  - Downtime

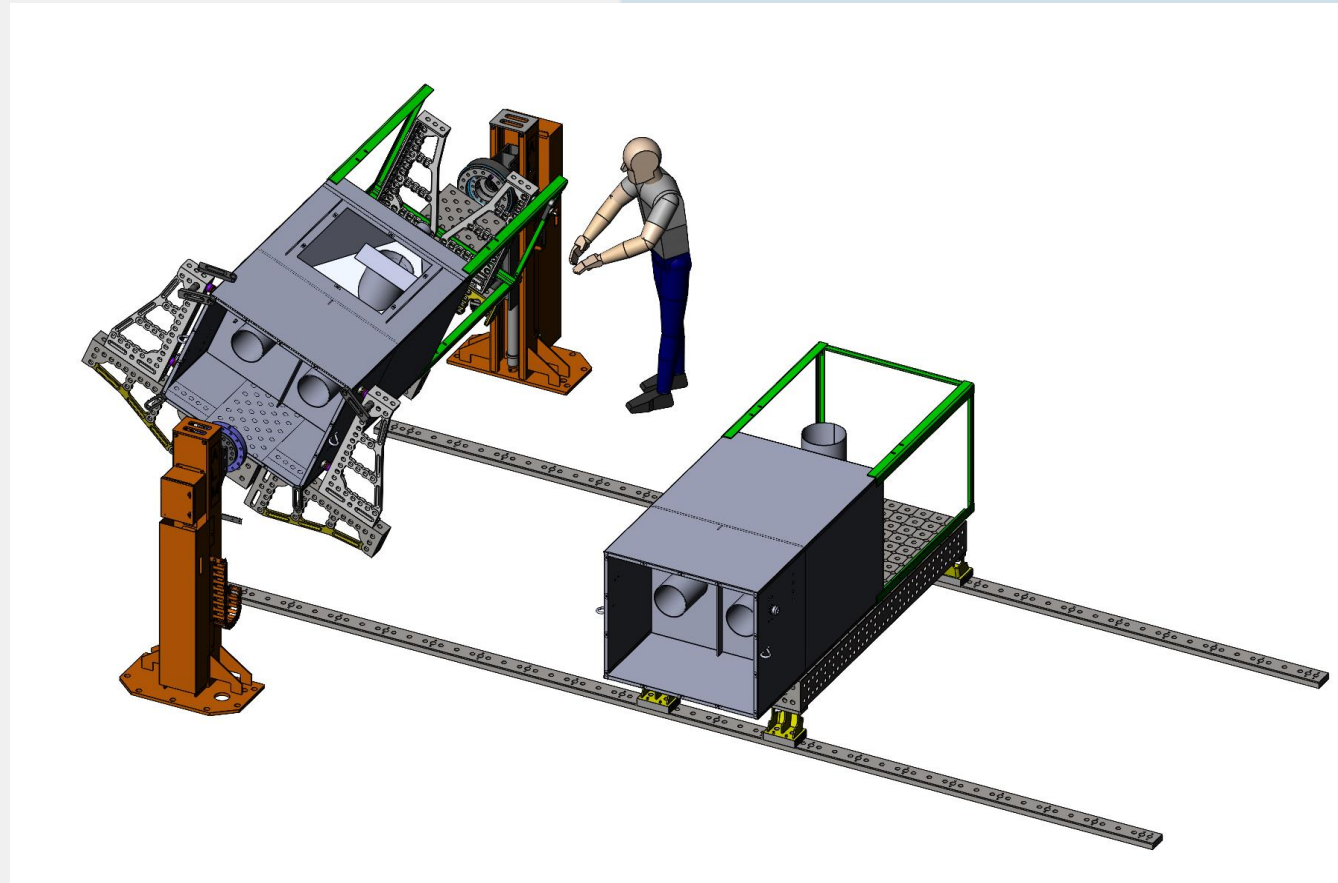
**TOTAL TIME**

**45**

**HOURS PER PIECE**



# Proposed Solution



## Proposed Process

- Changeover requires:
  - Sliding tables into position
  - Sub-assembly work continues in the background

**TOTAL TIME**

**15<sub>hrs</sub>**

---

**3X**

**TIMES FASTER**

# WHY IT MATTERS:

**92**

**TOTAL HOURS  
SAVED/PIECE**

**=**

**2X**

**FASTER  
TO MARKET**

PROPOSED  
**PROJECT PHASES**

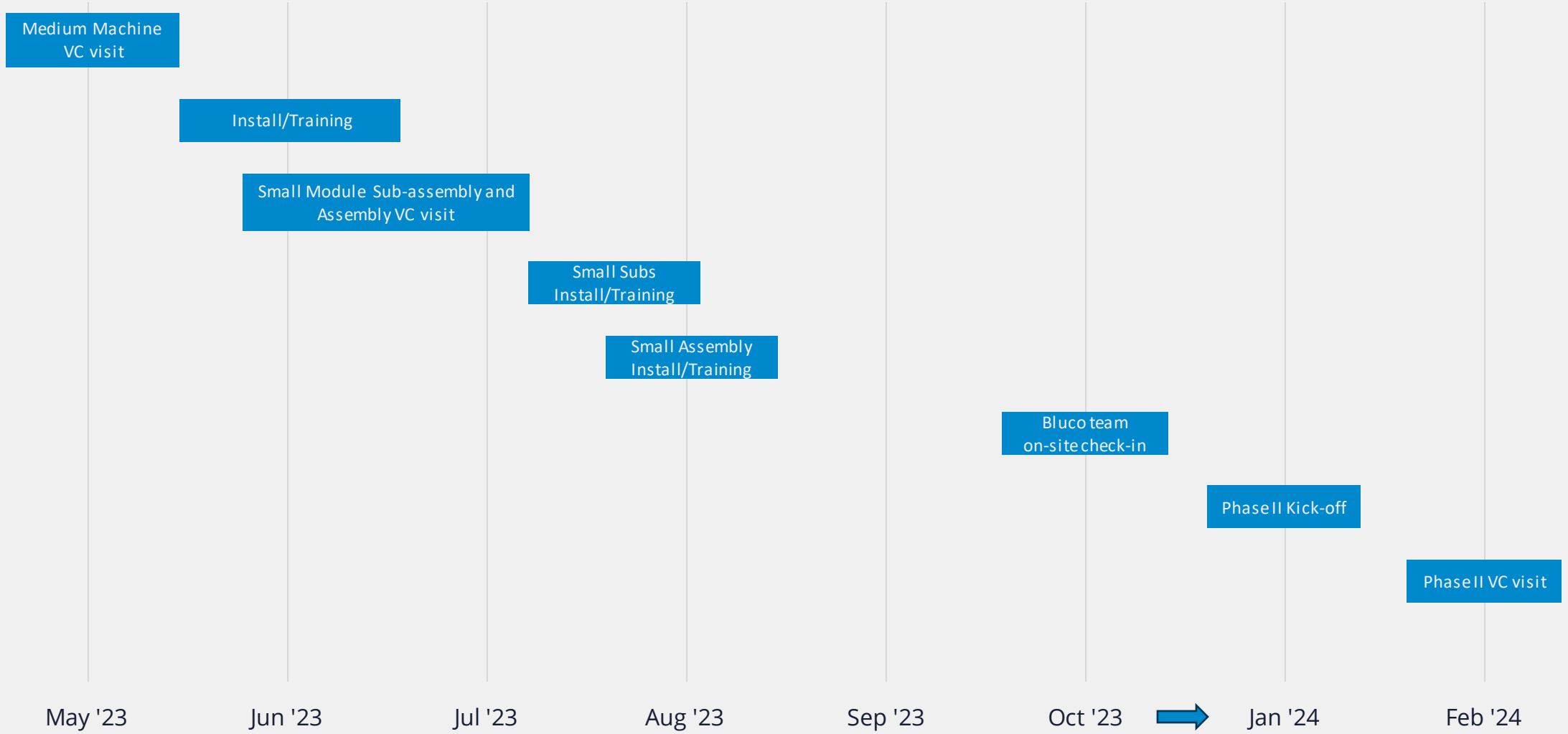
# Proposed Project Phases

## PHASE ONE

- Medium Machine
- Small Module Sub-assemblies
- Small Module Assembly

## PHASE TWO

- Large Machine Chassis



PROPOSED

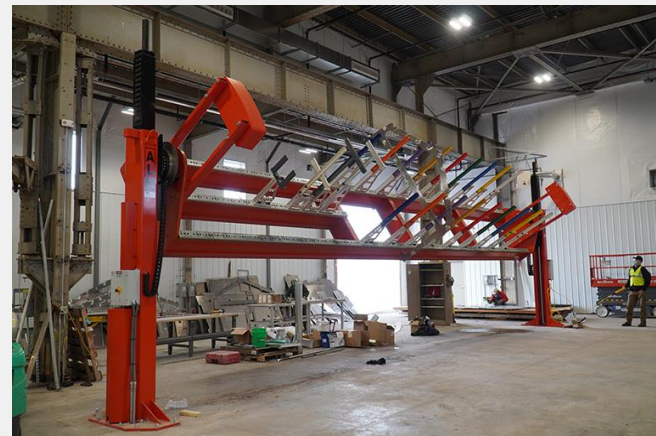
# Integrations

PROPOSED PARTNER

**INVIO**  
AUTOMATION



- Best-in-class Industrial Automation
- 65+ years experience
- Seamless integration with Bluco modular





**PROPOSED PARTNER**



- Best-in-class Automated welding solutions
- Waukesha, WI location
- Seamless integration with Bluco modular



## PROPOSED PARTNER



- Best-in-class 3-axis lift, tilt and rotation
- 10+ years partnership
- Seamless integration with Bluco modular

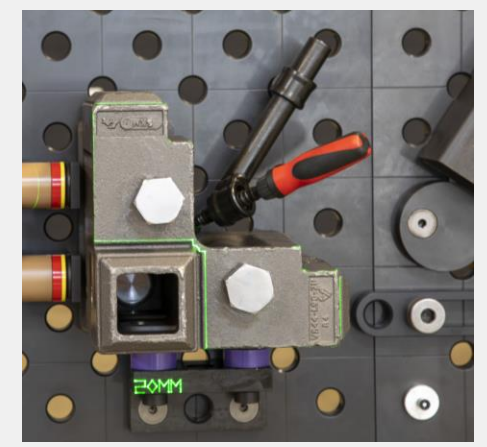
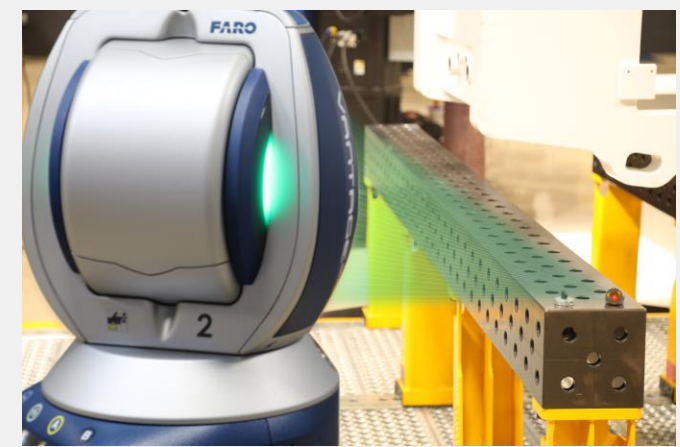
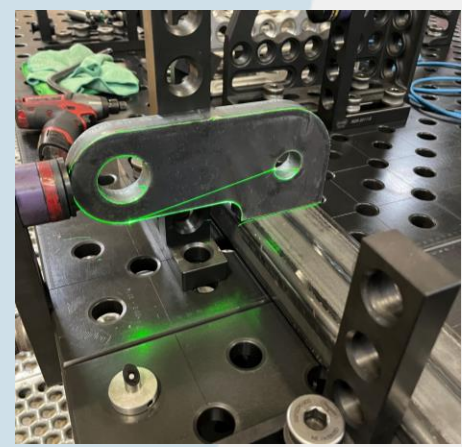


PROPOSED PARTNER

**FARO**®



- Best-in-class laser projection
- Global leader in 3D measurement
- Seamless integration with Bluco modular



INVESTMENT + FINANCIAL  
**OPTIONS**

**18**

**HOURS SAVED/PIECE**

---

**1,800**

**HOURS SAVED/YEAR\***

## Medium Machines

- M2000 Manipulator #1
- M2000 Manipulator #2
- Modular table & Component Kit

***\$ - Your Estimate Here***

*\*Potential savings based on production of 100 units/year*

**3**

**HOURS SAVED/PIECE (AVG.)**

---

**3,600**

**HOURS SAVED/YEAR\***

## Small Module Sub-assemblies

- Floor Solution
- Roof Solution
- U-form base & components

***\$ - Your Estimate Here***

*\*Potential savings based on production of 1,200 subs/year*

**40**

**HOURS SAVED/PIECE**

---

**4,000**

**HOURS SAVED/YEAR\***

*\*Potential savings based on production of 100 units per year*

## Small Module Assembly

- M4000 Manipulator

***\$ - Your Estimate Here***

**30**

**HOURS SAVED/PIECE**

---

**3,000**

**HOURS SAVED/YEAR\***

## Large Machine Chassis

- Rail system
- Modular tables

***\$ - Your Estimate Here***

*\*Potential savings based on production of 100 units per year*



HOW DO  
**YOU FEEL?**



WHERE DO WE  
**GO FROM HERE?**

Schedule your visit to the  
**Bluco Validation Center**

Call 1-800-535-0135 or email [Sales@bluco.com](mailto:Sales@bluco.com)