Robotics Assessment Template

Discovery

The Basics

1. Date:

2. Company Name:

3. Meeting Participant:

Company Overview & Background

1. Industries Served

2. Facility Size & Key characteristics (equipment mix, number of cells, layout, assembly line vs. job shop)

3. Revenue (current & projections for coming year)

4. What are your pressing issues today? Pain points or emerging needs?

5. What are your customers' key needs? Quicker deliveries, lower costs, product variety/availability, customer service, etc.

6. Number of Customers? Percentage of repeat business?

Employees

1. Number of Employees (total/office/production)

2. Full burden rate for production employees?

3. Employee turnover rate? Do you have high turnover for any particular tasks? Any tasks that cause employees to leave?

4. Is there an individual responsible for EHS compliance?

Production Overview

1. Overview of manufacturing process – key operations
2. Make for stock, make to order, engineer to order, assemble to order, etc.? Rough percentage of each?
3. Describe your production mix and volume
   a. Highest and lowest volume products?
4. What production schedule do you run? Multiple shifts?
5. What percent capacity level is the company running?
6. Consistent production bottlenecks?
7. Total lead time for typical order?
8. Scrap rate? Is there an active program to reduce scrap/waste?
9. Do you have significant quality problems, rework costs or costs associated with product returns?
10. Are workers performing quality control inspections at any point in the manufacturing process? (could be measurements, assembly completeness, condition, etc.)
11. Do you have to meet part traceability (date/lot code, etc.) requirements?
12. Are you challenged with low utilization on your manufacturing equipment?
13. Are there dull (repetitive), dirty, or dangerous tasks currently performed by the workforce?
14. High precision and dexterity tasks?
15. Do you workers suffer from repetitive stress injuries?
16. Have these or other issues resulted in workers comp claims?

Robotics Background

1. Where do you think automation and robotics can help your business?
2. What is your current engagement with robotics & automation?
   a. Have you developed in-house expertise or relied on 3rd party support?
   b. What is your desire for future projects? Same approach or different?
3. What is your motivation to explore robotics further?

Application Assessment Template

Complete one template for each potential application identified

Overview

1. Name of application
2. Company process expert/resource (for follow-up questions/discussion)
3. Describe process objective
4. Material input conditions (how is it presented, size, weight, material)
   a. Photos
5. Describe each operational step in cell
   a. Photos
6. Material output conditions (how is it staged for next cell/operation, final state, size, weight, key requirements)
   a. Photos/Drawings
7. Are any parts fragile or have special requirements for handling?
8. What equipment, tools, fixtures, jigs, etc. are utilized in the process?
   a. Photos/Drawings
9. What environmental factors? (temperature, dust/debris, workspace available, etc.)
10. Number of workers to operate cell

11. What manual setup/programming/data recording is done by operator during process?

12. Identify all evaluation/decision points that occur during the process

13. Does operator ever veer from or have to make adjustments to the standard process? If so, why?

14. Any other information that should be considered?

Details

1. Cell utilization/operation schedule

2. Cycle time(s)

3. Volume. (per shift, week, month)

4. What percent of production passes through this cell?

5. Product mix through cell

    a. Frequency of change?

    b. Is there a changeover process?

6. What challenges are experienced with this cell?

7. Quality inspection checkpoints?

    a. Example of pass/fail parts

    b. What happens to failed parts? Where do they go?

8. What safety considerations are in place currently?

    a. What may be required to automate cell?

Complexity Factors

1. What equipment/systems may need to integrated into system?
2. Type of application(s)
3. Perception needed?
4. Logic need to be built into system
5. Precision needed?
6. Cycle time requirements? (>30-40 ppm typically means industrial robot or cobot in non-collaborative mode)

Potential Benefits

Do you see potential for...

Quantitative Benefits

Typically want to see a 2nd or 3rd benefit beyond reallocated labor value to be successful project.

1. Increased production
   a. Reduced cycle time
   b. Increased utilization
2. Improved quality
3. Improved safety, reduced worker concerns/complaints/claims
4. Reallocated labor hours to more value added tasks
5. Reduced labor cost at process level
6. Reduced WIP

Qualitative Benefits

1. Part traceability

2. Improved employee satisfaction

3. Reduced turnover/improved worker retention

4. Attracting best talent

5. Project "technology forward" company image