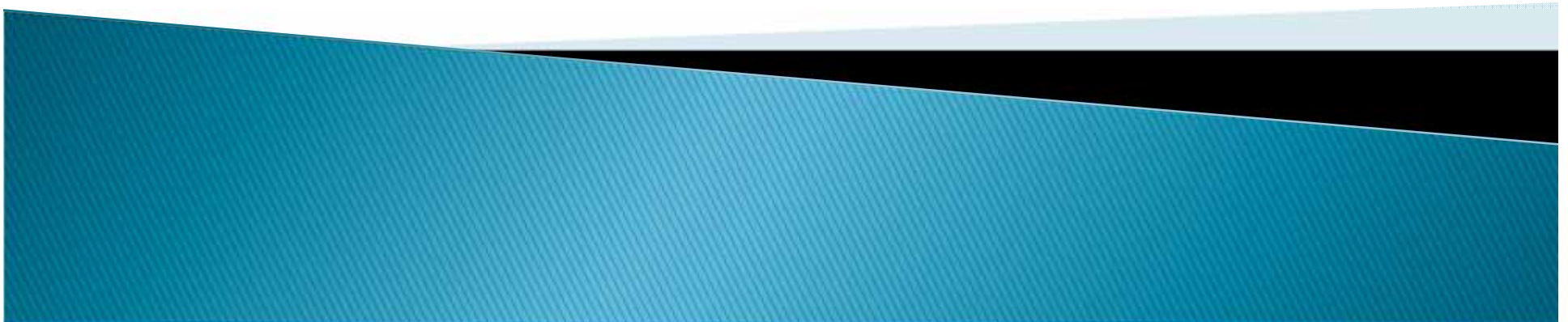


# GT Machining and Fabrication

Queen's MBA Team 417  
(Team Jamrock)



# Napanee Ontario



# Purpose

- ▶ Assignment for Operations Management Class
- ▶ Analyze existing operations at GT Machining & Fabricating Ltd.
  - Map Existing Processes
  - Identify bottlenecks, inefficiencies
- ▶ Make recommendations to improve overall efficiency



# First Task: Rapid Plant Assessment

- ▶ RPA: Perform a rapid audit of the state of an operation
- ▶ Typical score for Manufacturing company:
  - 55 Points
- ▶ GT Machining and Fabrication:
  - 73 Points!
  - Very impressive score!

**Rating Leanness**

Client: **GT Machining**  
 Date: **Dec 1st, 2009**  
 Auditor: **Queen's MBA Team #27**

**RPA Rating Sheet**

Quick reference on the RPA using check marks in a grid in 4 categories of a score from "good" (only "excellent" (9) or "best" (10)). The total score for all categories will fall between 0 and 115 (100) and the total in the score is all categories with an average score of 7. Factors to consider to start a lean program are identified in the table, as well as the type of evidence to look for in the RPA. The RPA is a process for identifying the current state of the plant and the potential for improvement. When done, the RPA team will have the data to start a lean program. The RPA is a process for identifying the current state of the plant and the potential for improvement. When done, the RPA team will have the data to start a lean program.

Category	Number of items in RPA	good (7)	excellent (9)	best (10)	total score (0-100)	average score (0-10)
1 Customer satisfaction	1, 2, 30			✓	11	11
2 Safety, ergonomics, cleanliness, and order	4-6, 30			✓	7	7
3 Visual management systems	7, 8, 4-10, 30		✓	✓	5	5
4 Scheduling system	11, 30		✓		5	5
5 Use of space, movement of materials, and product flow	1, 11, 13, 30	✓			3	3
6 Levels of inventory and work in process	2, 11, 30		✓		5	5
7 Framework and organization	4, 5, 10, 15, 30			✓	9	9
8 Condition and maintenance of equipment and tools	6, 30			✓	7	7
9 Management of complexity and variability	8, 11, 30			✓	7	7
10 Supply chain integration	10, 30		✓		5	5
11 Commitment to quality	11, 14, 15, 30			✓	9	9
Total score for 13 categories: <b>73</b>						

Total number of points: **17**

# Primary Product: E-CHU

Enhanced Container Handling Unit



US Military order for 1700 units.  
Currently producing 50 units per month.  
1100 Units of the contract completed so far.

# E-CHU Component 1



# E-CHU Component 2

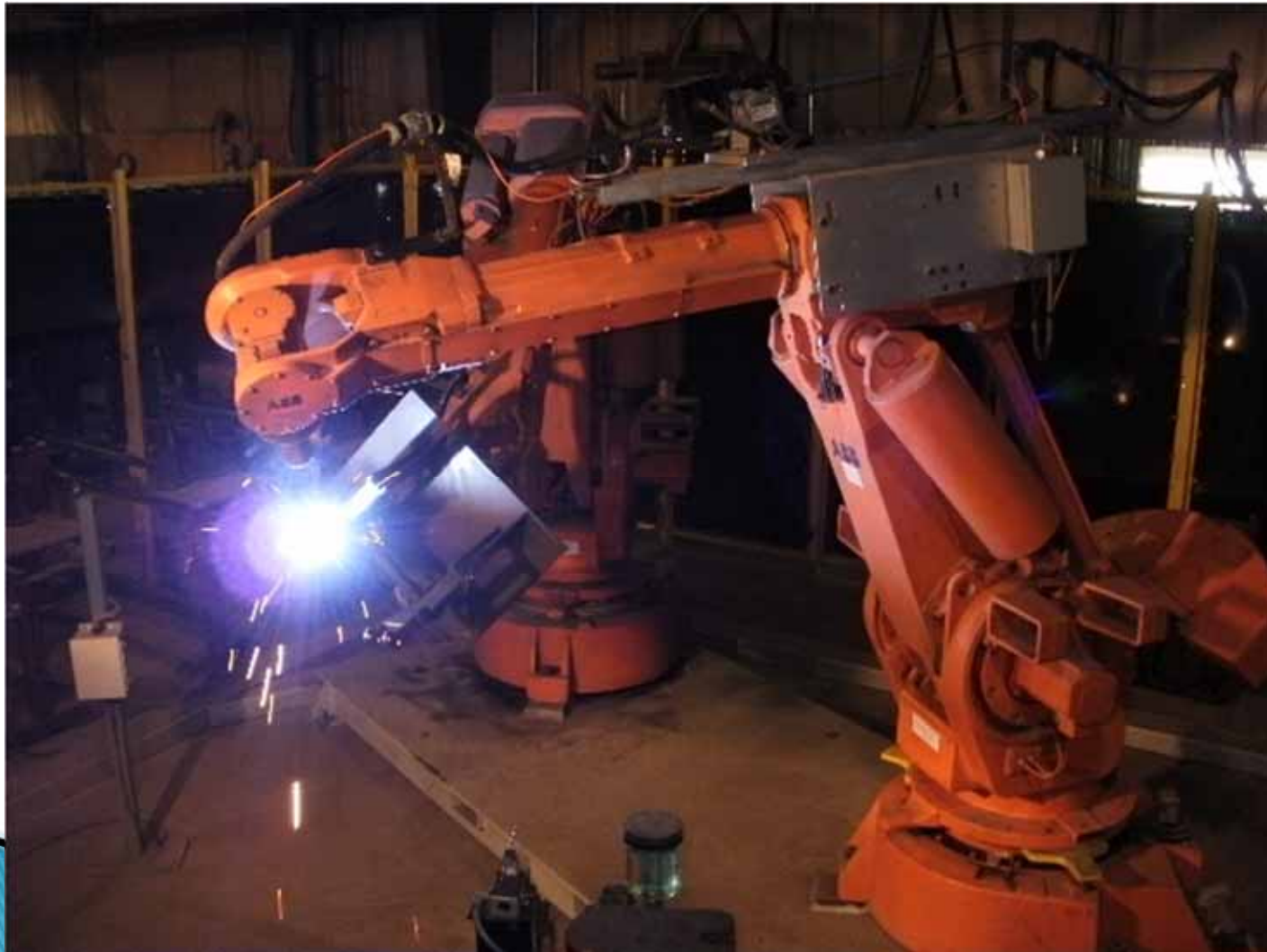


# E-CHU Component 3





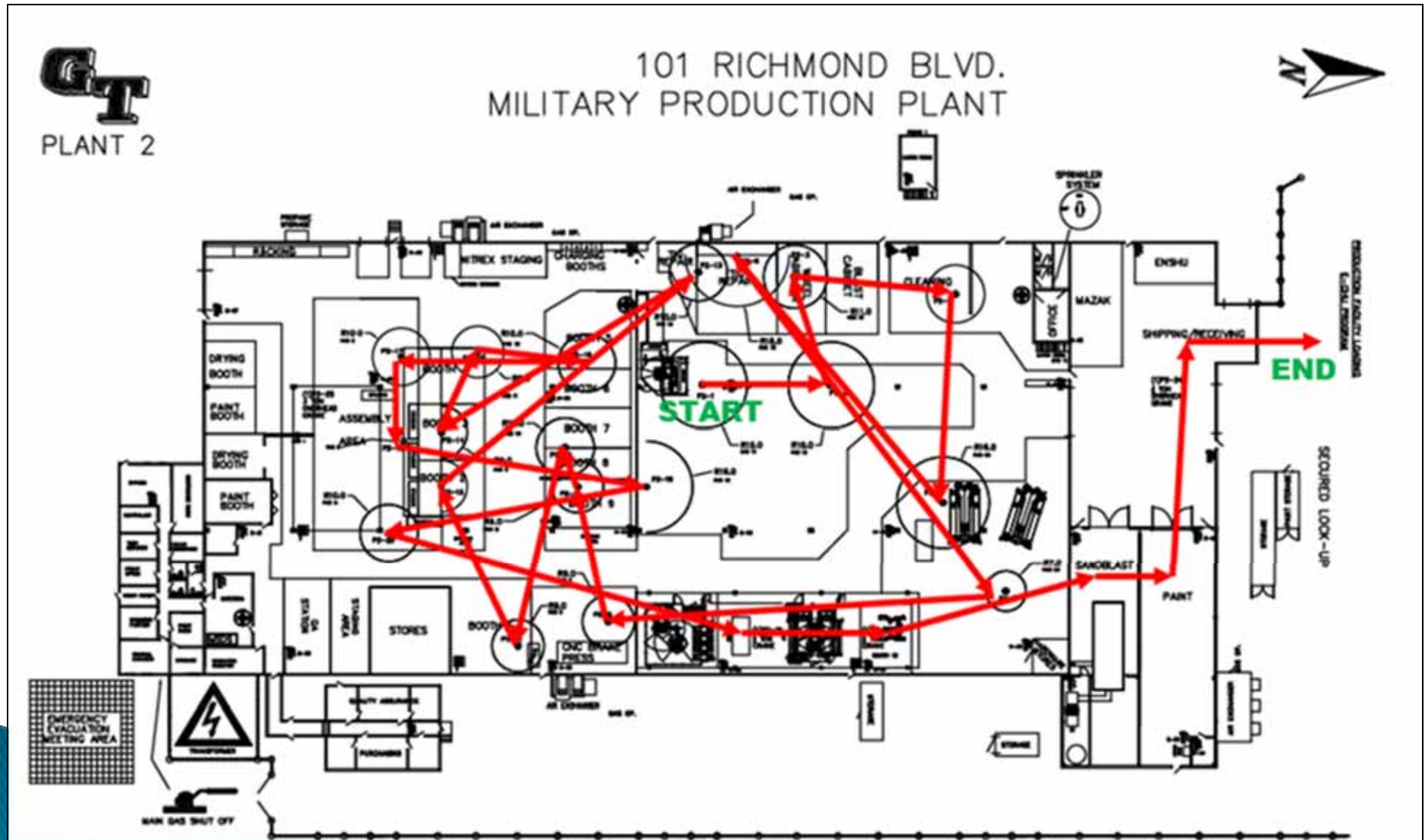
# Robotics / Automation



# Job Shops



# Process Flow



# Bottleneck - Paint and Blast



# Problem

- ▶ Moving WIP too often
- ▶ Job Shop Production Process
- ▶ Bottleneck: Paint and Blast
- ▶ Lack of space

But...

- ▶ Can't stop production to re-organize
- ▶ Production contract duration unknown



# Paint and Blast Bottleneck

Recommendation	Advantages	Disadvantages
Add Weekend Paint and Blast Shifts	<ul style="list-style-type: none"><li>• Easy to implement</li><li>• Not a significant source of higher costs</li><li>• Effective - could increase productivity by 40%</li></ul>	<ul style="list-style-type: none"><li>• Quality could fall</li><li>• Difficult to find qualified staff willing to work on weekends</li></ul>
Outsource Sandblasting	<ul style="list-style-type: none"><li>• Nearby machine shop has excess sandblasting capacity</li><li>• Frees up space in plant</li><li>• Easy to in-source again later (exit strategy)</li></ul>	<ul style="list-style-type: none"><li>• Loss of process control - quality could suffer</li><li>• Could lose priority if other supplier finds more profitable business</li></ul>



# Moving “Work In Progress”

Recommendation	Advantages	Disadvantages
Temporary Shutdown to Reorganize	<ul style="list-style-type: none"><li>• Set up a proper systematic assembly process</li><li>• Save significant NVA time</li></ul>	<ul style="list-style-type: none"><li>• Enormous costs to shut down temporarily</li><li>• Potential loss of customers.</li></ul>
Acquire Overhead Crane	<ul style="list-style-type: none"><li>• Would speed WIP movement throughout the plant</li><li>• Could be installed fairly quickly</li></ul>	<ul style="list-style-type: none"><li>• Costly</li><li>• May cause disruption of current processes</li><li>• Safety would need to be reviewed</li><li>• Can current facility handle it?</li></ul>



# Take-Aways

- ▶ Realities of the “Real World”
  - Current contractual commitments mean that stopping production to reorganize and become more efficient is not feasible.
- ▶ Knowledge Silos
  - Changes to operations make sense when analyzing the situation at GT Machining from a purely Operations Management perspective.
  - But, when “backing out” and taking a business wide look at the problem, a reorganization of the plant operations doesn’t make business sense.





# Thank You!

