Reshoring Production Capacities? Manufacturing Automation to the Rescue!

Presented by Ryan Moran

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Ryan has worked for SMC Ltd. for (16) years and have been in contract manufacturing for (24), with a focus on automation for assembly, testing / verification, and packaging. Graduating with a degree in Mechanical Engineering, he started as an Electro-Mechanical Designer for Automation and has worked in various roles to get here today. In his current role, he works with our customers, sales team, quoting, and engineering teams globally to comprise a comprehensive phased-in capital approach for new and/or existing applications.
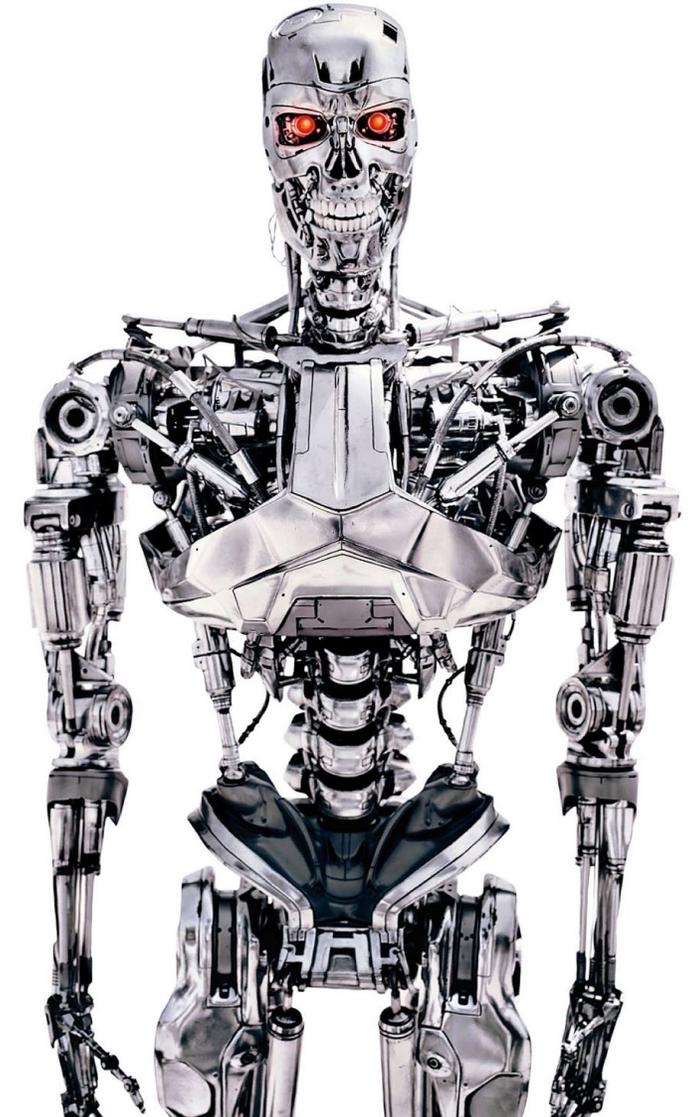
Nearshoring & Reshoring Production Capacities

▪ Shifting production capacities from overseas to domestic or neighboring market

▪ Main drivers
  - Supply Chain Management
  - Quality Control
  - IP Protection
  - Closer Customer Proximity

▪ Added benefit of strengthening economy
  - Creating manufacturing jobs
  - Reducing unemployment

RESHORING

How Can Automation Help?

- Struggling with Labor Shortages?
- Increase Overall Scale?
- Improve Overall Efficiencies?
- Looking to Increase Overall Quality & Control?
- Interested in Attracting New Talent?

Scales of Solutions

- Cost & Timing Drivers

- Current & Future Product Needs *(Rate Required)*

- Number of SKUs

- Organizational Maturity w/ Automation
  - New to Automation
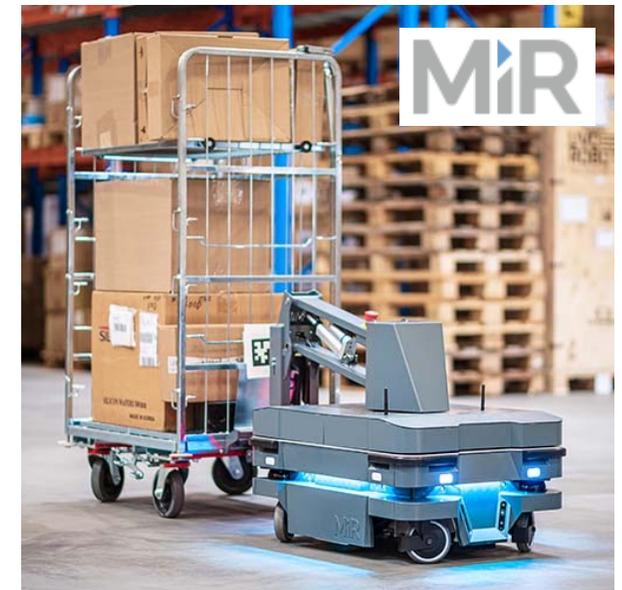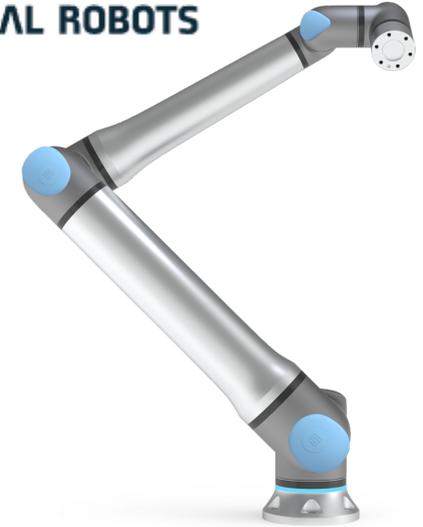 - Some Experience
  - Well Verse

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New to Automation

- Cobots, AMRs, Custom Manual & Semi-Auto Stations, etc.
- Wide Range of Applications to Automate Repetitive Tasks
  - *Machine Tending*
  - *Tray Loading & Unloading*
  - *Palletizing*
  - *Product Movement / Warehousing*
- Making Automation Easier
  - *Quick to deploy*
  - *Ease of Programming & Troubleshooting*
  - *Established Training Material*
- Continual Advancements
  - *Payloads & Reach*
  - *Accuracy & Speeds*
  - *Reduction in Cost of Ownership*
- Local Partner / Integrator – *External Training*

UNIVERSAL ROBOTS

Some Experience with Automation

- Integration of Custom Systems
  - Establish Relationships
  - Strengthen Automation Team *(Engs & Techs)*
- Ensure Robust Systems, Documentation, & Strategy
- Internal & External Training Programs
  - *PLC Programming*
  - *Robot Programming*
  - *Vision Systems*
  - *Troubleshooting*
- Plan for & Invest in Industry 4.0
  - *Integration of PLC, SCADA, & MES*
  - *Precursor for Data Analytics*
  - *Start w/ Pilot Line and scale to Plant(s)*

Well Versed with Automation

- Integration of Larger Scale / Higher Speed Systems
- Full Deployment of Industry 4.0
  - *Facility Monitoring*
  - *Creation of Various Dashboards (Operations, Techs, etc.)*
  - *Real-Time Decisions*
- Machine Learning
  - *Analytics of Data*
  - *Vision Programming*
- Robust Recruitment & Education
  - *Internships / Co-Ops*
  - *Focus on Internal Training*
  - *Growth & Career Paths*

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Ensuring Success

- Understanding of Expectations & Specifications

- Selection of Partner(s)

- Team Resourcing

- Design Status & Product Availability

- Training & Education

Expectations & Requirements

- URS, RACI, Validation Plan, Timeline
  - *Reduction in Changes / ECOs*
  - *Confidence in Timeline*
  - *Resource Allocation*

- Confidence in Processes
  - *Proof of Principle(s) Needed?*
  - *Engineering Studies Required?*
  - *Scalable?*

- Understanding of Acceptance Criteria
  - *Product and Equipment*
  - *Quantifiable Inspections & Verifications*
  - *100% In-Process vs Offline AQL*

Selection of Automation Partners

- Cost & Timing

- Experience in Proposed Solution

- Solutions for Product Ramp

- Experience with Validation

- Location - Build / Debug / FAT

- Service Team *(if needed)*

- Availability at Time of PO
  - Visit the facility
  - Meet the team

Team Resourcing

- Your Organization
  - *Team Structure - PM, TE, AE, QE, Tech, Production Rep.*
  - *Availability and Allocation*
  - *Recruitment of new hires*
- Customer Team
  - *Primary Contact*
  - *Team Structure - PM, TE, AE, QE*
- Automation Partner(s)
  - *Primary Contact*
  - *Team Structure - PM, Design, Electrical, Controls, Build, Validation, etc.*

Design Status & Product Availability

- Design Maturity
  - *Prototype vs Commercialized*
- Product Quantity Requirements
  - *Automation Debug & Acceptance*
  - *Validation*
  - *Any Product Testing*
- Product Availability
  - *Alignment on Timing*
  - *Understanding Scale of Supply*

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Training & Education

- Knowledge Transfer from Customer *(Product)*
  - *Education on Years of Development*
  - *Test Methods Required*
- Training of Personal *(Processes)*
  - *External Partners*
  - *Internal Sessions*
- Investment in Employees *(Systems)*
  - *Personal Growth*
  - *Organizational Growth*
- Partnering w/ Local Schools

Questions???