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Why Generic Automation will Change the Electronics Manufacturing Services Industry

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Overview

- What is Generic Automation?
- Why is its use Growing?
- How can it Improve the EMS Industry?
- Use Cases
- New Helpful Technology
- The Future
- Conclusion

What is Generic Automation?

- Reusable Equipment
- Fast Changeover and Redeployment
- Generic Tools: Robots, Grippers, Dispensers, Screw Drivers…

Versus

Why is its use Growing?

- Labor Wage Increase and Shortage of Labor
- Moving Manufacturing back to USA
- Shorter Product Life Cycles
- Standardization of Product Designs
  - Designing for automation means less custom equipment and challenging tool designs

How can it Improve the EMS Industry?

- Decrease Time to Market
- Lower Manufacturing Cost and Improve Speed
- Duplicate production at multiple sites
  - Can introduce products at the local sites: improves local economy and saves exportation taxes


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Benefits and Savings

Dollar Benefits (Tangible)

- Return on Investment
- Reusability
- Pay Back
- Total Cost of Ownership
- KOIs – Key Operating Indicators
- Less Downtime
  - No long buy offs

Value Benefits (Non-Tangible)

- Fast Turnaround
- Flexibility
- Time to Market
  - No Waiting for Suppliers to Produce New Systems
  - Less Time Between Product Generations
- Less Risk on Investment
  - If product is discontinued

Use Case Example

	Manual Assembly	Hard Automation	Generic Automation
First Product			
Initial Investment	$0	$500,000	$1,000,000
Direct Labor Head Count / Shift	10	2	2
Labor Rate / Month	$700	$700	$700
Total Labor / Month	$14,000	$2,800	$2,800
Total Cost First Year	$168,000	$533,600	$1,033,600
Total Cost Subsequent Years	$168,000	$33,600	$33,600
Payback Length	**0 years**	**1.5 years**	**3 years**
Every Subsequent Product			
Initial Investment	$0	$500,000	$100,000
Direct Labor Head Count / Shift	10	2	2
Labor Rate / Month	$700	$700	$700
Total Labor / Month	$14,000	$2,800	$2,800
Total Cost First Year	$168,000	$533,600	$133,600
Total Cost Subsequent Years	$168,000	$33,600	$33,600
Cost Savings Per Year After Payback	**$0**	**$211,400**	**$211,400**
Payback Length	**0 years**	**1.5 years**	**0.3 years**

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Use Case Example Results

	Manual Assembly	Hard Automation	Generic Automation
4.5 Years with 3 Products ROI	0 years	4.5 years	3.6 years
Savings	$0	$0	$190,260
4.5 Years with 6 Products ROI	0 years	9 years	4.5 years
Savings	$0	-$951,300	$0
9 Years with 3 Products ROI	0 years	4.5 years	3.6 years
Savings	$0	$951,300	$1,141,560
9 Years with 6 Products ROI	0 years	9 years	4.5 years
Savings	$0	$0	$951,300

New Technology

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- Collaborative Robots
  - Quicker deployment and programming
- RFID Sensors
- Adaptable Grippers
- 3D Printed Tools
  - Fast for prototyping and testing before the investment in permanent tools

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Vision of the Future

- Library of Modules
- Tool Shed for most Applications
- Daily Changeover
- Full Factory Continuity
- Site to Site Continuity
- Much Faster Time to Market

Conclusion

- Manufacturing will Grow in the US
- Automation will be Required
- The Reuse will be Crucial for Short Lifespan Products
- Technology will Continue to be Developed for Generic Automation
- The EMS Industry will Adapt

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THANK YOU, QUESTIONS?

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