

Special Report

'The 6 Key Factors To Consider Before Investing In Robotics For Your Production Facility'

By Mike Evans



Total Peace Of Mind

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Introduction: Can Automation & Robotics Really Help?

So, you've been wanting to improve your production facility to give you better quality, cost and delivery outputs. Are you thinking there must be better ways than this, but you're not quite sure of the possibilities. Well, this guide is for you!

This quick but essential guide will give you six important guidelines about investing in automation and robotics and hopefully help you decide if it is for you, or allow you find out more.

Deciding on automation & robotics can depend on many factors, including:

- The type of product that you produce.
- The variations of that product.
- The complexity of the product.
- The volumes produced.
- The production life of the product.
- The quality levels required.
- How "automation ready" is your company?

Please note the topics in this document are not intended to be exhaustive.

They're meant to give you a basic understanding to help you through a thought process. This guide will highlight some points for your consideration. It will give you food for thought, depending on your current understanding and knowledge of automation & robotics.

I hope you will find it useful.

Warmly yours,

A handwritten signature in black ink, appearing to read 'Michael Evans', with a long horizontal flourish extending to the right.

Michael Evans

Guideline # 1: How you can improve product quality and consistency

Due to the consistent nature of Automation & Robotics, once the production facility is set there is very little chance of deviation from part to part and from hour to hour.

Automation and robotics do not get tired or even need a coffee break, they just keep going, sometimes in the dark. Depending on the process they may give the occasional call for topping up with component parts.

Being an automated process you will not get a product that has been partly assembled due to lunch or other distractions breaking the production flow. All component parts are monitored throughout the process ensuring a high level of product quality and consistency. If a part needs to be rejected for any reason it will be selected, based on defined parameters not by an operator making a subjective decision, thus safeguarding a defective product going to market.

Don't worry if a fully automated process sounds a little frightening, improved product quality and consistency is still not out of reach!

It is possible to "semi-automate" the process, that is automating elements of the process which are crucial to the quality and consistency outputs that you need.

Following the semi-automated process it is possible to maintain all of the quality controls to safeguard your product through automation.

And at the same time have manual operator intervention at the less critical points of the process such as loading component parts and unloading finished goods.

Which leaves elements such as the assembly, functional test and final inspection to the automated controlled and consistent part of the process.

Guideline # 2: Reduce operating costs without losing control

In today's climate of increasing cost pressures forcing manufacturing off-shore, there is another option for you to consider.

You can reduce your operating cost at your current manufacturing facility. Specifically, your direct costs and your overheads by making sensible use of Automation & Robotics.

This will mean evaluating your current manufacturing process and reconfiguring it to become more automated than it is today by implementing some possibly minor changes. Or considering introducing a new bespoke automated production facility.

Obviously there are some key factors to consider when making these decisions:

An existing product: “is there sufficient production life left?”

A new product: “what are the volumes and what is the production life?”

The cost of change?

Whatever the circumstance that you find yourself in, you have choices that you can evaluate.

With a good, well thought-out automated process it is possible to reduce your labour content from manual operators to machine operator to machine minder to fully automatic, which can run 24 hours a day if required.

The case for Automation & Robotics is getting stronger due to the fact that companies manufacturing offshore with very low labour costs are now themselves automating due to labour difficulties and poor quality control.

Once automated you will be at essentially the same cost base as offshore but without the increasing logistics costs, time to market, not to mention the carbon footprint!

Guideline # 3: Six ways to increase production output capacity

Production output capacity can be affected by overall equipment effectiveness, downtime, performance, changeovers or poor quality.

Having an Automation & Robotics production facility that has been scoped and engineered correctly, will not only be a very effective piece of equipment, downtime will be reduced, performance will be enhanced and quality levels will improve.



Vehicle gearboxes being automatically assembled leak tested and filled with oil ready for fitting to the vehicle

Automated equipment produces parts at a consistent output rate, which does not vary throughout the day or night. This means that your production output can be relied upon.

Dependent on the application and process, the system could be left with little supervision throughout the day, night or weekends. And production output will not be affected by employee variables such as individual competency or level of training.

Guideline # 3: (continued) '

For production processes that have a range of part number variants, quick tool change methods such as SMED (single minute exchange of die) can be employed. Which can be further enhanced by operator selected programme change that automatically sets the equipment to produce the required part variant.

So, Automation & Robotics can increase production output capacity by:

- Having equipment that has been scoped and engineered correctly.
- Reducing changeover times.
- Having consistent performance.
- Reducing downtime or bottlenecks.
- Improving quality levels and right first time.
- Being available 24hrs.

Guideline # 4: Improving the working environment and job satisfaction

Employees are an integral part of any business and their interests should not be overlooked.

With the technology available today, employees should no longer have to endure poor working conditions and hazardous environments.

Employees can therefore benefit from Automation & Robotics which can carry out the hazardous and monotonous tasks of a process. Leaving the employee free to add value to the business in other ways which are mutually beneficial to the business and the employee.

When an employee does not have to concentrate on a monotonous task, they may be better placed to recognise and identify other business improvements around them.

Providing more challenging and rewarding work for the employee, can lead to the added advantage of less accidents, sickness and downtime, with the bonus of an engaged employee.

An engaged employee will reduce your labour turnover rate, giving the business long term value from the same employee. Your training costs will be reduced dramatically over a number of years. The same can be said of your employment costs of finding skilled employees.



“Recognition of employee performance on automation development reinforces the focus on quality manufacturing”

Guideline # 5: Is Automation & Robotics affordable for your business?

Your immediate impression may be "I can't afford this type of sophisticated/expensive investment". But it's essential that you suspend your conclusions until you've studied the hard facts and figures of any potential investment.

Any kind of investment in your business has to be justified, and the pay-back from improvements that robotics and automation can deliver often compare very favourably with other types of investment you have to make.

Let me give you a couple of examples...

Example # 1

“A recent project consisting of 3 automated robot cells with integrated camera vision systems for component recognition, picking and placing components at a rate of 0.64 seconds each, installed and commissioned into an existing production line”



Guideline # 5: (continued)

This project had a financial payback of less than 18 months. Beyond that it saves approximately £125,000 per year
With the added benefit of improved quality.

Example # 2

“An automated production line producing 150 complex filter units per hour resulted in improved quality and lower manufacturing cost by using less labour and providing consistent quality output”



This project released labour to be used in another part of the company whilst improving quality and saving manufacturing and quality costs.

Guideline # 6: The seven minimum requirements for a good Automation & Robotics Partner

Choose carefully, There are alligators in the water!

Firstly you want a “Partner” not a “Supplier”.

Buying a bespoke Automation & Robotic facility is NOT like buying equipment from a catalogue, it requires a great deal more consideration. So you need to select a professional partner who is going to be on your side right from the start.

Someone who will be open with you regarding the details and cost, and give you the full honest picture from the start, and at every stage thereafter.

Someone who will scope the project with you and not give you a cost until both parties are happy with the detail of the project. If this part is rushed, it is doomed for failure. So don't be put off by the time it takes to get this right. It's really important!

They should have experience in the “level of complexity” of the project, not necessarily the same kind project, as this will be rare.

They should be an automation company not a machinist or toolmaker.

They should have good internal documented project management systems that they are prepared to show you.

They should be familiar to working to British and European harmonised standards and naturally be able to demonstrate compliance the any relevant legislative directives, such as the machinery directive 2006/42/EC.

Finally ask what have they done of this type of complexity before? If they are reputable they will tell you, unless bound by a specific non-disclosure agreement.

Finally: Are you open to improvements through Automation & Robotics?

Dear Reader,

I trust that you have found this guide interesting and enlightening, and that you picked up some information along the way to help you and your team make better decisions when next considering the Automation and Robotics procurement process in your organisation.

I'd be very interested to receive any comments that you have, either about this guide or about your Automation and Robotics related experiences in general.

Please feel free to e-mail me directly at mike.evans@ebs.uk.com

However, if you are really serious about improving your production facility to give you better quality, cost and delivery outputs then why not take advantage of our accumulated experience through our free review process.

Simply pick up the phone and call me on 01554 779090. We can then explore the problems that you are currently experiencing, and I'll explain how Automation and Robotics may be right for you, in improving your quality, cost and delivery outputs!

Warmly Yours,

A handwritten signature in black ink, appearing to read 'Mike Evans', with a horizontal line underneath.

Michael Evans
Managing Director