Assess the Benefits of Labeling Automation

By Andy Schmitt
Regional Product Manager, Brady Corporation

March 2019

I want to automate, but where do I start?

Competition drives us to constantly improve our operations. Focusing on quality, delivery, customer service and delivering financial results pushes us to make smart business investments. Automation promises higher throughput, better craftsmanship and reduced overhead, but where do you start?

Too often companies that want to start automating jump all in with a big investment, only to find out later that the work they started automating isn't giving them the desired outcomes. Making smart automation investments requires mapping out your complete value stream to identify bottlenecks, labor-intensive steps and opportunities for improvement to get the most return. Many times changes like a simple process improvement or procedural change can improve efficiencies more than adding material handling, sophisticated robots or sharp algorithms.

Automation should be viewed as more of a journey that needs careful planning and prioritization. Getting started isn't too difficult if you start with this mindset. Start by identifying things in your business processes that consist of one or more of the following:

- Ergonomic issues
- Factory motion and movement
- Repetitive tasks
- Rate limiting steps
- Non-value added steps

Ergonomics

The efficiency at which people go about their work is impacted greatly by tools, processes and their roles. Ergonomics aims to study and optimize these efficiencies. In many cases, poor ergonomic processes result in poor productivity, but worse is when poor ergonomics impacts the health and safety of employees. Many small and inexpensive improvements can be made to provide better ergonomics for material handlers, assemblers, operators, inspectors and machinists with little impact on other areas. Look at ways your current laborers can improve their efficiency. Principles of lean management and continuous improvement can always be adapted to enhance throughput, often with the added benefit of less physically taxing work on your employees and a healthier work environment. In other cases, backbreaking or tiring work should be replaced by automated or semi-automated equipment.

Motion and movement

Setting up a spaghetti diagram of your workflow is one of the easiest ways to find motion in your production processes. These maps show the flow of material through production, and often times, that movement is based on inherited old processes using unsupported products. Visible material, equipment and personnel movement through the factory is a sign of an un-optimized process. In order to improve these processes, many companies try a number of time-saving processes, including rearranging the facility to reduce walking time, shortening delivery routes, turning to powered cart delivery or adding conveyor systems. Another way to think of people and products in motion is the lost time that could be used for making more high-value products.

Repetitive tasks

Steps that repeat often can be good candidates for automation. Repetitive tasks are targeted typically for two reasons: they are easier to automate than more complicated steps, and the work is often tedious. Automating repetitive tasks becomes more desirable the more the step repeats. Consider an inspection process that checks for product weight and dimensions. The work is often completed by an individual who checks the weight on a balance and physically measures the part using a ruler or guide. Repeating this process 1,000 times every day could easily yield mistakes. Instead, a calibrated vision system and a mass balance driving a PLC could allow a faster check, a mistake-free inspection and a quick green light to advance the work. Now consider the same process from the worker's perspective. To spend half of your day inspecting a product is probably not the most rewarding work. Freeing up operator time to instead run steps that advance the craftsmanship of the product is likely far more rewarding. The priority to automate increases if the task is repetitive and escalates an ergonomic issue, is non-value added or creates a bottleneck.

© 2019 Brady Worldwide, Inc. All Rights Reserved.

Bottlenecks

Bottlenecks are the primary pain points of your operations and increasing the flow of product through these rate-limiting steps is almost always guaranteed to offer a payback on your return. While bottlenecks can be fixed by adding more shifts, capacity and personnel, the cost associated with those changes can often be high, and not yield the best return. Bottlenecks are targets for automation because they present an immediate need for improvement, and even though automating certain steps may be more expensive in the near term than adding an operator, the long-term impact can be worth the effort. Keep in mind that when one bottleneck is removed another always shows up. Even though you fixed the immediate issue, another bottleneck may take its place and make your investment look wasteful. That's why it's usually best to map out each step's capacity to understand the true value an automation project will bring.

Non-value added steps

It may sound odd, but many efficiencies are lost on things that have little to do with the value your products provide. Non-value added work can be mandated from a number of external or internal sources, but even though customers might not be willing to pay more it, that doesn't mean you can avoid it. Some good examples are inspection and labeling. Consider your quality management system. The product has to work, but a customer may not care about the lengths you took to make it that way. Ask yourself:

- How I can keep my DPPMs (defective parts per million) low with less effort?
- Can I automate my tests and inspections to save time and money while still delivering exceptional quality?

Now consider your internal traceability program. You know you must batch and serial label all the goods you're producing to limit your liability or loss in the event of a quality incident, investigation or recall, but many customers see traceability as a non-value added step versus recognizing the value it actually provides. If your operators are spending a significant amount of time typing or handwriting label data, you're likely not being very efficient with this required work.

Where do I start?

Manufacturers have a lot on their plate with the daily management of their production schedules and activities. Typically broken down into several focus areas like warehousing raw materials, assembly and packaging, each of these functions may exist as a separate and dedicated area, or occur integrated into other processes. For a quick reference, we've rated each functional area against the anticipated improvement areas and the top five principle automation objectives. These representative ratings are based on our experience in helping drive cost savings with our customers via automation assessments and consultations.

Process steps	Non-value Add	Movement	Ergonomics	Repetition	Bottleneck	Cost to Implement
Warehousing	Med	**High**	Med	Low	Low	$$$
Labeling	**High**	Med	Med	**High**	**High**	$
Converting	Low	Low	Med	**High**	Low	$$
Assembly	Low	Med	Low	**High**	Med	$$$
Inspection	Med	Low	Low	Med	**High**	$$
Finishing	Low	Low	Med	Med	Med	$$
Packaging	Low	**High**	Med	**High**	Low	$$$

Ratings based on more than 100 individual automation assessments across more than 15 different industries

© 2019 Brady Worldwide, Inc. All Rights Reserved.

Warehousing consists of all the efforts to source, procure, receive, approve, inventory and deliver the raw materials used in manufacturing your product. Common issues include inefficient movement, storage of materials and ergonomic issues with searching and retrieving them.

Labeling comprises all elements of proper product marking including correct data from an enterprise resource planning (ERP) system, work order management, batch control, serialization, regulatory and compliance, product inspection, finishing, branding and packaging. Because of the interconnected nature of labeling with other process steps and the low cost to implement automation solutions, it's often among the first projects undertaken.

Converting steps transforms the raw materials into value-added products by cutting, molding, stamping, brazing or any number of physical transformations during production. Many of these steps can entail challenging repetitive tasks and are usually targeted for improvement on the basis of employee health and safety concerns or because of a potential bottleneck in the value stream.

Assembly includes all additive manufacturing steps required including fixing, welding, fastening, soldering, etc. Assembly is ideally repetitive in nature and targeted for automation to improve the consistency and quality of the finished goods. Assembly requires many parts to arrive just in time and can result in material movement inefficiencies. Because assembly typically combines multiple raw material streams into one, it's often the production bottleneck.

Inspection of your product is an important step to make sure you're meeting customer requirements and expectations. Good inspection can be the difference between successful and distressed businesses, but these diagnostic tests don't really make your product more valuable. They are often monotonous, and if you're doing 100% inspection, they can be an awful source of bottlenecks. Projects to automate aspects of your quality control efforts are usually among the first few recommended projects to advance your automation competence and are relatively inexpensive to initiate.

Finishing steps can include any aesthetically or functionally oriented procedures and are the final steps required to complete the product. They are often value added and not necessarily repetitive as many goods are customized in these last steps of production. Finishing processes are sometimes automated when they represent a bottleneck or when they represent the bulk of the work in the value stream.

Packaging is frequently seen as a potential place to employ automation solutions to drive savings. Packaging automation projects can be expensive, but many solutions exist in many price ranges since every manufacturer shares the same concerns. This can be even more appropriate if you are operating a distribution center within your manufacturing plant. Pick and fulfillment automation can make employees more productive and meet the growing need for same-day product shipping that supports the just-in-time manufacturing model.

Considering cost

Automating production areas can be extremely costly. Before jumping into a project, consider the opportunity cost of addressing one large objective against improving multiple targets with smaller incremental changes. The lower the cost to implement, the faster the return – and if done as part of a larger automation push, the increased bandwidth from several small projects can be reinvested to address other objectives. Considering cost and the five principle reasons to automate, look at labeling as one of your first automation projects. Labeling is not always a separate function and is often integrated into converting, inspecting, finishing and packaging steps. Look at how keystroke or transcription errors, label printing and label application can slow down operations. These steps require very little up-front investment to automate or semi-automate, and can dramatically reduce errors and time spent fulfilling non-value added regulatory, commercial and traceability requirements.

Free Labeling Automation Assessment

It's a good bet that product labeling should be one of your first automation projects. If you're interested in a free labeling automation assessment, please call 1-800-553-0894 or email bradyusa@bradycorp.com to schedule a phone consultation or site visit.

USA
Customer Service: 1-888-272-3946
Inside Sales: 1-888-311-0775
BradyID.com

Canada
Customer Service: 1-800-263-6179
BradyCanada.ca

Mexico
1-800-262-7777
Inside Sales: 1-800-262-7777 ext 177
BradyLatinAmerica.com

© 2019 Brady Worldwide Inc. ALL RIGHTS RESERVED