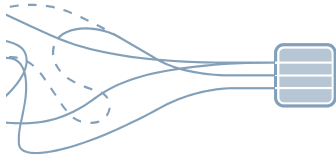


Strategic investments: The four misconceptions about manufacturing automation and how to deal with them



ACM CONSULTING INC

IMPROVING ORGANIZATIONAL EFFICIENCY & COMMUNICATION



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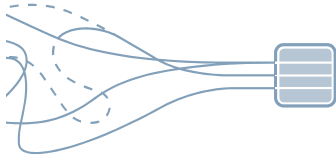
What are the consequences of using automation and technology to solve your business problems? If you do not focus on the business issues first, automation will cause you to make mistakes faster only with less labour intensity. Was that your intent when you spent time and money selecting the right machinery to automate your manufacturing processes? I am going to guess not.

I once worked with a client who was a medium-sized manufacturer and they were looking for ways to increase their capacity so they went ahead and automated as many manufacturing processes as possible. They bought robots to move products from one manufacturing cell to another, they used conveyor belts that could automatically sort the products and they implemented a new measurement system to support all of this new technology. The plant was covered in shiny new machines, it looked very impressive. What they found was that not only was their capacity only scarcely increasing, but they were less efficient than before. There was more work-in-process inventory (actually more inventory in general), increased labour costs and increased waste. Does this sound familiar?

There are some misconceptions and perceptions about manufacturing automation that I would like to dispel in this paper. To be clear, I am a proponent of using technology to support to your business and as a way to help strategically grow your business, but not as a way to fix your business. I believe that there are four misconceptions about manufacturing automation: that automation equals efficiency; that automation equals productivity; that automation equals quality; and that automation equals reduced labour force. The premise of this article is that you need to fix your business issues and processes first, and then use automation to support and enhance those processes. If you do anything else, you will only make mistakes faster and more frequently.

Automation=efficiency

The main reason that companies purchase equipment is to become more efficient. What I mean by efficient is that the manufacturing processes become more organized, the flow of products within the manufacturing facility becomes more focused on getting products out the door and preventing the wasteful use of the manufacturing system. This does not describe most of my experiences in company's use of automation for manufacturing. I have found that many companies become more inefficient as a result of the new automation because all they have done is automate bad processes. It is not uncommon for companies to purchase the newest piece of machinery because it can do things faster and better and it replaces the current labour-intensive process. These machines can represent a huge investment,



but companies do not always assess the ROI that they will achieve by purchasing the equipment.

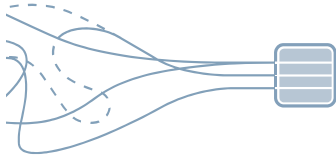
The machines may increase production volume, but is there demand to support that increased production volume? Are there maintenance people that can support the equipment appropriately? What I find is sometimes companies increase their production without having the increased demand to support it. So what happens in that situation? Simple, increased inventory, increased costs and decreased efficiency. The companies are now producing more than they can sell, but the facility looks more efficient because the machines are always running. We need to ensure that we don't equate efficiency to usage. Just because the machine is running all of the time does not mean that it is efficient. Running the machine all of the time may actually have a negative impact on your business if you are not able to sell the additional production. Increased inventory, increased waste and increased handling costs of those products by moving them around your facility are a few ways that you can watch your profits get sucked away.

Automation=productivity

Just as we discussed in the previous paragraph about efficiency, automation does not always mean increased productivity. Productivity means the ability to increase throughput with the same or less resources. When companies buy machines to increase production, are there resources that are no longer needed? If they still need to keep those same resources, then are they becoming any more productive? It seems like some companies are only transferring the cost of the resources somewhere else. In order to increase the productivity of the facility, companies need to be getting rid of those resources that are no longer necessary. This can be done through the sale of hard assets or the redeploying or laying off those employees that do not support the new technology. Again, we must avoid focusing on the productivity of the machine itself and not be influenced by how busy the machine is and the fact that it is constantly running. If it is not impacting the ability to sell more products to the customer, then it is a drag on the company's finances.

Automation=quality

The third misconception is that automation of a process means that the quality of that process or product will increase. One would certainly hope that is the case, but my position is that statement rarely holds true. When investing in technology, companies need to ensure that they know how to maintain the machine, how to fix it and what is its optimum use. The mere purchase of a machine does not mean that quality is going to increase. Without the right people to service the machine and without understanding how to get the most out of the machine, the quality may actually decrease. Companies need to ensure that proper and proactive maintenance is being done on the machine and it is only running when needed. Those companies that have not properly maintained their machines know that this



has impacted their quality. You must understand the impact that lower quality has: increased time spent inspecting parts; increased defects and waste; and increased time the machine must run in order to make up the difference. All of these things hurt a company's bottom line. A poorly maintained machine will only increase the total number of products that need to be manufactured in order to produce enough high quality ones to meet demand.

Automation=reduced labour force

The final misconception that people have about manufacturing automation is that it equals a reduced labour force. This is the case when the machine is properly maintained and you have the right resources to maintain it, leading to less people required to do the work. But this is not generally the case. If this is not the case, then not only will quality suffer, as described above, but you will actually require ADDITIONAL resources to support demand. Think about what happens when your car is improperly maintained. It usually costs more and requires more time to fix the problem than if the car had been maintained properly. You need to ensure that you have the right resources to maintain the machine and have regular maintenance done, even if that means downtime. I have seen too many companies keep putting off scheduled maintenance to meet a deadline for a customer, only to have the machine breakdown and require 2-3 days of maintenance work instead of the planned 2-3 hours. Is that worth the trade-off?

The key to using automation successfully is to first address the business needs and process issues within your company. Develop the ideal flow of materials within your facility to maximize the amount of sellable product while minimizing the amount of effort and resources required to manufacture that amount of product. Once you have designed this optimum process, find automation that can support and enhance that process. The technology should not dictate the process; it should permit you to go through the process steps faster, with less waste and higher quality. You need to dig into the real reasons why the machinery is needed (because sometimes it is not needed, only desired). Is it to increase capacity because demand for your product is increasing? Is it to increase quality because your current manufacturing process causes a lot of defects and returns? Before investing in technology, you need to assess the cost and the benefits to your organization. You need to answer these simple questions – How is this going to help get more products out to my customers faster and what is my expected return on investment? Once you know the answers to those questions, you can select your new automation technology accordingly and sail off into the success sunset.