# Board Converting NEWS

## AICC Panel Discussion: Automation Vs Semi-Automation

**BY SUSAN RILEY**

Automation was a hot topic at the AICC Annual Meeting last month and an ongoing issue that all modern box plants wrestle with to some degree or another. What level of automation is best for your plant and how do you evaluate what that would be?



**Tim Connell, Director of Sales, A.G. Stacker, moderates the session.**

Tim Connell, Director of Sales at A.G. Stacker, moderated a panel session focusing on automation versus semi-automation in the plant. When his customers are considering whether to automation certain processes, Connell said he poses three questions:

"How fast do you want to go? How good do you want to be? And what are you willing to spend to get there? When you have those answers, you will know what level of automation to pursue," he said.

In the past few years at his plant, Connell said they have installed several new CNC machines and cobot welders that have improved efficiency and safety as well as a tube cutting laser that cuts structural steel. Most recently, A.G. Stacker implemented a digital workflow platform to automate their internal processes.

"Regardless of the level of automation pursued by any and all of us, I think it's important that we understand that we still need people managing and owning that process," Connell said. "As we like to say in our shop, we want owners, not renters."

Three seasoned panelists shared their experiences and some of the lessons they have learned along the way. Dennis Wood, Director of Manufacturing at Premier Packaging, has been involved in eight acqui-

sitions and the construction of three green-field plants while helping numerous other plants with their processes. Premier Packaging operates six sheet plants and they have installed six new production lines over the past couple of years.

Jeremy Cohen of Acme Corrugated Box, has spent the last 22 years working in the family business and has held nearly every job in the company from machine operator to purchasing to wrench turner. Today, he's the General Manager and Vice President.

Keith Thomas is Director of Strategic Initiatives and Business Development at Michigan City Paper Box, a rigid box company that focuses primarily on packaging for the jewelry industry. Thomas, an electrical engineer, has been selling rigid boxes for more than 20 years and has contributed to significant developments with automation in his years with the company.

The following Q&A was edited for clarity and space.

**Connell:** We've been hearing a lot this week about labor costs being up and productivity not being up. With consistent labor issues plaguing us all, what should our goal be with automation?

**Wood:** In a little broader context, whether you're an equipment supplier, whether you're a converter or whether you're an IT person, we all went through the labor issues — getting enough people to keep machines running. A couple of years ago, we started tracking a number I never thought I would ever track which was the percent of time that a machine ran or conversely, was down. Productivity is zero when there's no one there to run it. That really was the genesis of some of the recent stuff we looked at. It was not as much labor cost, but how do we get better asset utilization by having it able to run even when the person doesn't necessarily show up.

**Connell:** Is that a training or retention issue?

**Wood:** Retention, availability of people to hire, I don't think anyone in this room in the last two years was able to fill every position they wanted to fill.

**Connell:** Do you think well trained people tend to hang around longer than those that weren't really given a fighting chance?



**Tim Connell, left, and Dennis Wood.**

**Wood:** How about well onboarded people. There's a saying that culture trumps strategy every time. You can have a great strategy to train, but if you don't have a great strategy or a great ability to inculcate someone in a culture and create a proper culture, you're still going to be in trouble.

**Connell:** Which do you think is more realistic goal? Is it to be more productive with a similar number of people or more productive with fewer value people?

**Thomas:** I would say the latter, but fewer value people, meaning more competent, capable people that are able to work on a machine as opposed to being the machine, as I heard it a recent previous AICC conference. With us, we're doing a project we're calling Project 521. We've done the first stage of it where we've taken five people down to four. We're trying to now eliminate three other positions. One of the big differences with us, with a rigid box company, we're putting our graphics on when the boxes are in three-dimensional format, so between that and packing three-dimensional products, it's a lot of human intervention.

**Connell:** When you replace those people with automation are they repurposed or do they usually disappear?

**Thomas:** I think the disappearance will be through normal attrition. We're certainly not any place near getting rid of people. We will need to upskill people. We'll find places for those people for sure.

**Connell:** Are employees threatened by automation or can it be used as a recruitment and retention tool?

**Cohen:** I would say a little bit of both. I think when you roll out automation, and we've rolled out a boatload of it in the last 18 months, it all depends on how you sell it to your people. When you have good people, you want to repurpose them. You want to put them in some other spot and that's what we've done. When you're transparent with people and you tell them a position won't be there, but we think you can do X, Y and Z, I don't think the threat exists and I don't think people are threatened by it. On the flip side, I think it can be a recruiting tool for the younger generation when you have stuff like touchscreens and computer interfaces as opposed to hand cranks and the old school way of operating a corrugator.

**Connell:** What about the veteran operator who understands the process intimately and he knows he's driving the machine. Do you find that those guys are getting scared off by some of the automation you implemented?

**Cohen:** I think that's really on an individual basis. We have a high rack storage system. It goes from the corrugator to a high rack storage system — automatic delivery without being touched by a person. The forklifts were eliminated, we have those people operating in the high rack system. One of those guys sat on the forklift for 15 years and he's embraced it completely. On the flip side, we have automatic top sheet insertion, automatic pallet insertion, automatic unit doubling, automatic stretch wrapping, and we've had some old timers who used to operate an old school console with push buttons, and they found it very difficult to embrace.

**Connell:** What are the first steps when you want to decide and prioritize which tasks or processes require additional automation?

**Thomas:** I think the first step is to look at your process and determine which of those functions you don't see people wanting to do anymore. We used to have people taking three-dimensional boxes and spotting them to a glued wrap before they go into a graphing machine. If we hadn't automated that process 20 years ago, we would need 32 of those people, and we still have a couple machines that operate in that manner and we're having trouble finding two people who can do that, so I think it's about survivability. We don't want people to be the machine, we want them to work on the machine.

**Connell:** What do you think your gain was, was it higher productivity, was it higher quality or was it just making the job that much more tolerable?

**Thomas:** Yes, I mean I think productivity encompasses a couple of those other pieces — quality, reliability, sanity — and I think the idea of automating has really helped all those things. I mean with automation, the neat thing about

it, you can kind of dial it in and turn it up; you can only go so far with a person in doing that. When we were having people that were manually spotting boxes, they were probably in the 1,000 an hour range. With automation, we're 2,000 an hour range so certainly productivity is a big one.

**Connell:** Dennis what about you, where do you start?

**Wood:** Stay close to people in the industry to see what's out there. You've got to be able to conceptualize what you might do next. Make sure you have good dialogue with the people who are developing stuff. There are brilliant people, hundreds of companies that can supply automation to our industry. Then take the time to watch and listen to what's happening with your people and process to see what you can do to improve their engagement, reduce their chances of injury or repetitive motion type things and what can be done to improve overall productivity.


Jeremy Cohen, left, and Keith Thomas.

**Cohen:** There's always the growth factor. That's kind of its own category. The other points we look at consistently are safety. Is there an ergonomic issue at the plant I can rectify? Productivity enhancement, quality enhancement — is there something I can buy or make to reduce the amount of rejects? And labor — is there something I can do to reduce my dependency on labor? So those are the main categories we look at, and those typically come to light because the bottlenecks usually come right out at you. I walk through the plant nearly every day, and they shine at you, and you know where they are over time. Then we always look at data to support it. But those are the main things we look at.

**Connell:** What are the ROI variables most considered and if you had to pick one, other than safety, what would you focus on?

**Cohen:** It has to be justified on sales growth on top line that you can go out and get it. The investment we just made, we're seeing a great return on investment in labor and reduction of labor. But also for us waste is a big factor

in payback. In our new system what we're seeing is a reduction. We measure waste daily by shift — we're hawks on waste — but we've reduced material handling waste byabout 40 tons a month just by material handling elimination with automation. That's a big cost savings for us. But we don't justify our investment based on that, it'll be justified on growth. If it's a smaller project, let's say $250,000 or less, you can look at probably doing that on cost savings, whether that's labor, waste, productivity enhancements, downtime reduction, things like that. But once you get over a certain number, in my opinion, you're going to justify that automation on future business.

**Connell:** Keith what about you? You've got a lot of manual processes, or probably more than these other two, what ROI value variables stand out to you?

**Thomas:** Certainly productivity. One of the integrators we spoke to early on in our process said that it used to be people were looking for a three-year ROI on any kind of investment, now it's about survivability. It's not a matter of when you're going to get paid back, it's a matter of are you going to still be in business. I keep going back to what we did 20 years ago. Had we not done that, we certainly wouldn't be the same type of business. But productivity, I think when you're looking at ROI, again we were able to double our speed from what we were doing manually with this first phase of our automation. The second phase coming up, if it takes three more people off the line, we won't double our speed again, but it will still be more consistent. Your productivity is more reliable, more consistent. You're not looking at down machine centers.

**Connell:** Anybody else have anything to add to that?

**Wood:** An actual consideration in the last few years has been asset utilization which directly ties to what Jeremy was saying, which is sales growth, more output. Does automation allow us to better utilize the existing asset, not just through increased speed, but through increased uptime because of less demand on total bodies. Those of you that toured the plant — it obviously has significantly fewer people operating in it than it did before we retooled. We went from some very old equipment to some very modern equipment, so that's the payback. I'm with Jeremy, I've never seen a machine line, even a small percentage of it, be paid back in labor savings. It's got to be revenue generation; it's got to be increased contribution per machine hour or more total hours of asset utilization.

**Connell:** In terms of ROI payback term, Keith you had mentioned three years. Is that still acceptable?

**Thomas:** I think three years is acceptable. I think it's being extended again because it's just a necessary thing. So, if it goes to five years, it's just something that you can count.

**Connell:** At what point do you start to get disinterested if other paybacks are going to be too long or if it's going to be good enough?

**Thomas:** It's a good question. I mean what we're doing is an expensive investment to try to get rid of three people per machine center. The Covid years gave us an interesting situation to be in. Our business grew, and everybody in this room had some great years during that time, but if we get that much additional business, how are we going to handle that because we really had trouble getting people to staff that and our lead times were tripling. So, I think that was kind of a preface into the future with more business. We have to find ways to remove the bottlenecks in our manual processes.

**Cohen:** I think what Keith said is important. Our corrugator superintendent always says speed costs money. How fast do you want to go? We had a competitor go out of business. They hadn't put a dollar back into that plant in 20 years. So, survivability, right? You have to automate to survive, it's the only way, especially as an independent, you have to make that investment. And in the near term, if you don't make that investment, your bottom line might look good, right? You won't have that depreciation expense, but at the same time you're losing out to everybody else in this room who's reinvesting in automation and increasing their throughput capabilities. It's not always about justification, it's about survivability and reinvesting in your business.

**Wood:** For those of you that attend these regularly, I think it was a year and a half ago we were in California. Mitch Klingher stood up and talked about ROI investment. If you remember, he said the days of figuring out your three-year ROI are going to be over for a while. You have got to look at what your business needs to be viable and it's absolutely true.

**Connell:** In this age of digital transformation, what tasks or process in your plant cannot be automated?

**Cohen:** You still need people to manage the process. Any machinery salesperson will tell you it's just going to work. It's not just going to work. Automation needs tending; it doesn't need operators; it needs tending and those tenders need to understand it. You can't eliminate that. You need that tender to understand what's going on because when automation goes wrong, somebody needs to correct it. To Dennis' point — you still need box makers. You still need people who understand work quality and how to make a good product coming out. You can't substitute that with automation.

**Connell:** Great points, Dennis do you want to add to that?

**Wood:** Automation is not a replacement for leadership, you cannot automate good leadership. I think Bill Gates said

that if you automate an efficient process, you enhance the process. But if you automate an inefficient process, you expose your inefficiencies. And so, leadership, good box makers, those are key to capitalizing on the automation.

**Connell:** Keith, any processes in your operation that cannot be automated?

**Thomas:** The operators that will need to maintain the automation equipment and we'll probably need to add an automation engineer or automation technician that really understands the programming as well. That's another thing the automation I feel brings into it as a whole other programming layer that's interfacing technologies that our normal technicians aren't used to with laser sensors and camera sensors and vision and so forth.

**Connell:** In terms of your hand automation, is it more like what we talked about with our cobot welders?

**Thomas:** Yes, that's the hope with our packing line. We're spotting lines where we're putting the boxes on the racks, those robots, they're doing a pick and place operation, which is pretty well dialed in. This new era that we're coming up to, and we're ready to order our equipment in about two weeks, is of putting cotton in boxes, putting lids on boxes, putting those boxes into a master carton. There's not something out there that does that, we're really starting from scratch with that so I'm kind of holding my breath. I'm hoping I'm here next year to tell you all how it went, but that's where I would be with that.

**Connell:** Those tasks that you have to do manually, all that specialty stuff that cannot be automated, is that your independent advantage when you look at your competitors or are they having to do things the exact same way?

**Thomas:** Well for us, we're looking at it the opposite way. We're looking at it more that by automating these manual processes, it's something our competitors are going to have a tough time catching up to us.

**Connell:** Anybody else have anything to add to that?

**Cohen:** I would say I agree. For us, and I think it depends on the independent in the room, because each business is unique, but for us we want to do as little manual intervention as possible. It's just a different mindset.

**Wood:** One of the things I learned going down this road was that your efficient process today is out the window when you add the automation. So, you're not necessarily adding automation to an efficient process, you are completely changing the process. So that upfront time of thinking through and spending enough time with the leadership that's going to be making it happen to understand what the new process is and how do you make that efficient so

that you really are adding automation to an efficient process in the future is one of the big keys.

**Cohen:** We've been operating our system for about seven months. We automated it because we know we needed it to enhance our business, but we haven't nailed down the processes yet to make it the most efficient and we're learning that. Some of that is learning as you go. So, I think you have to take that into consideration because when you do something dramatic and you really change the process with the automation, you're going to have to revamp and retool and retrain. It's a big undertaking, it's sometimes more of an undertaking than putting the stuff in.

**Connell:** When you change the process like that, what is the biggest challenge? Is it getting them to understand the technology or just the fact that they've got increased productivity now that they're not accustomed to which forces them to change?

**Cohen:** I think it's training the people to understand the vision. You know how you want to deploy it. Communicate that to everybody who's going to touch it because if you don't and you bring that thing in and they don't know how you wanted things to work, you can guarantee it won't work the way you want it to work. We met with everybody in the plant from the janitor up and told them how this is going to work, how we envision it to work. I think once you have that baseline set and you give them the vision of how the system is supposed to work, most people will come to work and try to make it work successfully.