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BOO! Did we scare you? Yeah, it's hard to frighten you with a single written word on a page. That said, how're things looking now that we're in Q4? Ready for yet another new year? 2023 is riiiiight around the corner. And, as we know, creeping behind corners can in fact be frightening. We're prepared. And we hope you're getting yourself ready as well!

In this issue we feature our quarterly conversation with Paul Critchley who has been gracing us with his perspective on Lean Manufacturing throughout 2022. This month's feature is entitled, "Why 0% of Lean Transformations Fail." That's a staggering factoid that Paul dives right into in his current dialogue here. Let us know what you think about his column! We're enjoying it.

The other spotlight is written by BELT Technologies' CEO, Denis Gagnon who spill his knowledge about the adoption of robotic counterparts on the manufacturing line to help ease the pain of the labor shortages we've all been feeling since 2020. And, according the article, with many current workers set to retire in the coming years, the manufacturing sector could have a shortage of 2.1 million skilled jobs by 2030. There's been some skepticism about the practice of working robots into the mix, but this piece sheds some interesting light and data on the topic.

As always, if you've got a story you'd like to share, we'd love to hear it. Send us anything you've got, and we'd be happy to consider it for publication in the pages of this magazine. If you have an idea you'd like to check in with us first before dedicating time to it, by all means, reach out to chris@thegatewaymag.com and he'll set you straight on whether or not it's something we'd be interested in running. That said, he's interested in just about anything, so don't be shy!

Sending all our best,



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Precision on the **Move**

LABOR SHORTAGES LEAD TO A RISE IN ROBOTIC WORKERS

With ongoing hiring issues, manufacturers are turning to robots for help. And metal belts are integral to the functioning of these robots.

Written by Denis Gagnon, BA, MBA
CEO of Belt Technologies, Inc., in Agawam, Massachusetts

The past two years have seen major upheaval in the manufacturing and warehouse industries due not only to supply chain issues, but a nationwide labor shortage affecting almost every industry. One survey¹ found that 73 percent of warehouse operators say they cannot find enough labor, and this trend is not predicted to end anytime soon. In fact, with many current workers set to retire in the coming years, the manufacturing sector could have a shortage of 2.1 million skilled jobs by 2030, according to Deloitte². To offset the hiring struggles, many manufacturers are turning to robots to keep their operations moving.

While critics will say robots are replacing human workers, a recent study found that 57 percent of global manufacturers said the robots in their facilities are not displacing workers but working in conjunction with them. Adapting to a robot/human hybrid work environment has provided many manufacturers the opportunity to expand their output, train workers for new positions with higher skill levels and attract a younger labor force interested in working with technology³. Although many companies are struggling to hire, some lucky ones were able to expand thanks to the help of robotic workers, as well as create new roles for human workers when adding robots to their facility.



Metal belts are cleaner, more durable and offer higher precision movements than their fabric or rubber counterparts. (117/140)

With the rise in robotic workers, there also comes a surge of new tech, significantly increasing the capabilities of robots inside a manufacturing facility. Although there are some incredibly high-tech options that integrate artificial intelligence, the vast majority of robots are used for things like welding, painting, pick and place, packaging, labeling, assembly, inspection and testing, palletizing and other repeatable tasks that can be mundane and taxing for human workers. Metal belts are an integral part used within many robotic workers, and the assembly lines they work on, to increase their productivity and longevity.

Why metal belts? A common type of metal belt used inside a robot is a drive tape. In a robotic arm, the drive tape works as a tendon, helping the arm to move in a repeated, steady motion such as grasping a package. Stainless steel belts are the better choice when it comes to producing sensitive electronics, medical equipment and other products that require absolute precision as they are virtually non-stretchable and able to execute the same motion over and over without failing or outgassing. Not only that, but they are easy to clean, do not require any lubrication and do not generate particulates. This not only makes them easy to maintain but also ideal for sterile environments like clean rooms and vacuum spaces. Other benefits include high resistance to both extremely hot and extremely cold temperatures as well as a high strength-to-weight ratio, making them perfect for almost any application or industry.



Other benefits of metal belts include high resistance to hot and cold temperatures as well as a high strength-to-weight ratio. (127/140)

A specific application that metal belts are ideal for is the manufacturing of semiconductor wafers. Stainless steel drive tapes can perform with near-zero backlash, which optimizes positioning accuracy and creates reliably smooth robotic movement. Stainless steel drive tapes can also be customized for optimal performance in any application, which for semiconductor devices, includes dielectric etching, atomic layer etching, vapor deposition, plasma beveling, electrochemical deposition and more. Since the metal belts are sterile and easy to clean,

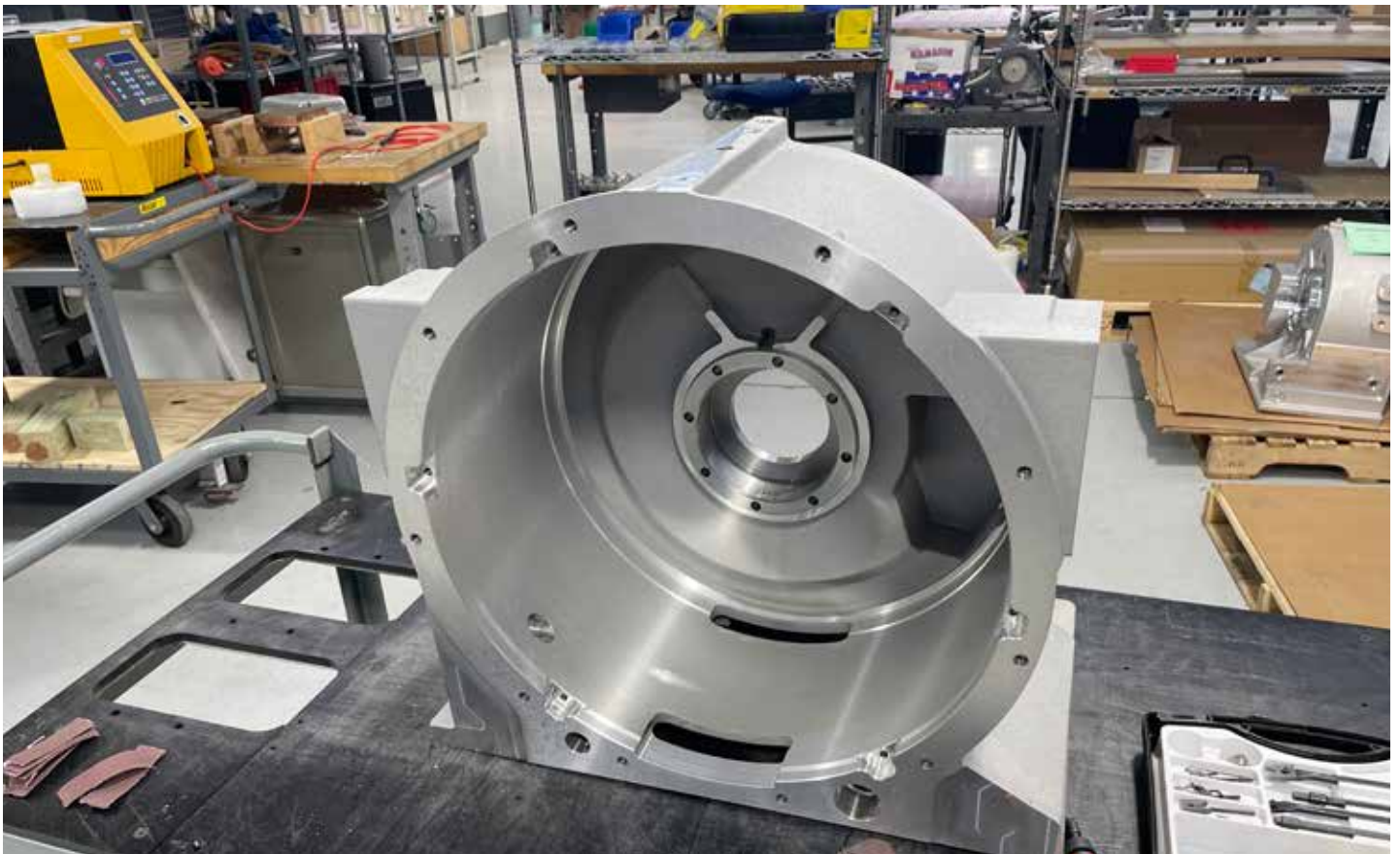
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they operate efficiently within the demands of a contamination-free environment, which is needed for the delicate creation of semiconductor wafers.

Another common application for metal drive tapes includes 3D printers, which will also commonly use stainless steel printing belts. Some metal belts can be coated with surface treatments including elements like silicone, Teflon® or neoprene to increase or decrease

the friction of the surface. In the case of 3D printing, friction-reducing properties are often used to make the drive and printing tapes smoother, resulting in precise and repeatable results. Because they are more durable than their fabric counterparts, the metal belts can run longer despite the taxing load being placed on the belt day in and day out. With less need for replacements, cleaning and maintenance, the machine can run for longer and turn out more products.





Many factors have contributed to a rise in robotic workers in manufacturing facilities across the country. With the help of metal belts inside these incredible machines, many manufacturers are able to keep up with demand despite struggling to hire human workers.

About Denis Gagnon

Denis Gagnon has been the CEO of Belt Technologies since 2019. A graduate of Babson College with a BA in accounting and Columbia Business School with an MBA in finance, Gagnon is a seasoned professional with more than 25 years of financial and executive management experience with multinational firms.



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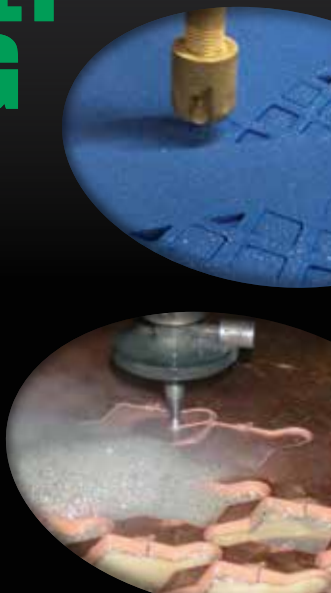
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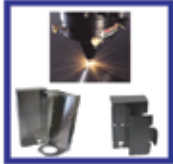
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WHY 0% OF LEAN TRANSFORMATIONS FAIL



Written by
Paul Critchley

You read that right. 0%. None. Nil. Nada.

If you're actively practicing Lean, then you've probably also read other articles, blogs and claims about how 50%, 75% or even 90% of all Lean transformations fail. The authors of these diatribes will then go on about all the reasons behind such a high rate exists (disengaged management, too much lingo, yada yada yada...). If you're really lucky, you'll stumble across an article that a consultant wrote, in which case you'll find that he/she will give you just enough insight into their unique solution to this issue to make you want to contact them to learn more about how they, and they alone, can save you from a most certain demise.

Welp – I'm calling BS.

Show me the data

For years I read these same articles, and for a long time I mimicked their claims in my own speech. We've all witnessed the effects that unsupportive leadership, an over-reliance on tools and a half-baked approach can have on Lean initiatives. In my 20+ years on shop floors, I'd seen plenty of mistakes made. So yeah – I could buy that somewhere around 70-80% of transformations fail.

But then I began to wonder; where did this notion come from? Where was the data to support such claims? I went looking, and was amazed at what I didn't find. Most of this "data" is anecdotal. There are any number of articles that claim some high percentage of Lean failure, and after chasing them down their respective rabbit holes, many end in statements like this one from a consultant: "...these numbers are also consistent with what I see in industry, somewhere around 70% failure rate." Okay – so maybe this high failure rate was this guy's experience... but based upon how many inputs? What industry? And what is his knowledge base/frame of reference? I kept on looking, and only found a lot of similar language like that. Most included a statement like "according to industry experts"... ugh.

The Origin of Lean Misinformation

We can trace this whole movement back to two distinct sources: a 2007 census done by Industry Week and the MPI Group (a research company out of Cleveland), and an interview comment made by Robert Miller, Executive Director of the Shingo Prize in 2010. In an effort to understand where all of this came from, I dove into each of these.

The IW/MPI census included just 433 anonymous respondents, which I think is too low of a sample size to draw any conclusions from. Despite the low response rate, this survey is the most often cited source by the "Lean failure" movement, with the piece most often referred to being the "only 2% of companies achieved their anticipated result" response that respondents gave. Again – context here is critical, and something we don't get when this data set is simply

referenced and not explicitly presented. From what I can find, that's a pretty myopic view of the survey results. In truth, when you dig into the actual results (as published by Industry Week themselves), it says that only 12.8% of companies surveyed made "no progress" towards their goals. So what's up with the

remaining 85.2%? They're somewhere in the middle, I guess. That doesn't say "failure" to me – it says they aren't yet where they want to be, and that's not bad. It's continuous improvement after all!

So now for Robert Miller's comment. He made it while doing an interview on Radio Lean, which is now defunct. Anyway, here's the referenced quote: "About 3 years ago we felt we needed deep reflection. After 19 or 20 years we went back and did a significant study of the organizations that had received the Shingo Prize to determine which ones had sustained the level of excellence that they demonstrated at the time they were evaluated and which ones had not...We were quite surprised, even disappointed that a large percentage of those organizations that had been recognized had not been able to keep up and not been able to move forward and in fact lost ground ... We studied those companies and found that a very large percentage of those we had evaluated were experts at implementing tools of lean but had not deeply embedded them into their culture."

What is Lean about, really?

So first off, I didn't read a percentage in there anywhere. And to be fair, 20 years ago I could do lots of things I can't do anymore. Let's be honest here – the places that go for the Shingo Prize no doubt cram for the test. It's like every ISO audit I've ever done or been on – we always make sure we put our best foot forward when the auditor shows up. I'm willing to bet that this is no different. Attaining Shingo Prize-level Lean is no small (or cheap) feat, so rest assured that every person in the place is going to make sure that they aren't the ones that cause the company to fail. Once the audit is over, everyone probably relaxes a little, too... I'm not saying that it's right; I'm saying that it happens. I also wouldn't categorize that as a "failure", either. But that's me.

I'm not a member of this massive Lean transformation failure sect, and for good reason. By definition, you're never truly done with Lean. You can always remove more waste, engage with people more, deliver more value... and quite frankly that's the point. Lean is about striving to be better and learning about what that takes to achieve "better" together. The struggle is part of the journey.

There are things we must do to give Lean its best chance at success; that's absolutely true. But let's stop making these broad brush claims about Lean failures being rampant, because they don't help anyone. In fact, it sometimes keeps people from beginning the journey at all, and that's the polar-opposite of what Lean is truly all about. Instead, let's analyze what it takes to continue our journeys, and how we can help each other keep moving forward to make things better – for all of us.

About Paul Critchley

Paul Critchley is a recognized thought leader on employee engagement and continuous improvement and has helped businesses around the world achieve greater levels of success through the application of Lean techniques. A frequent speaker, he has keynoted at numerous corporate events, as well as at international conventions such as AME's annual Lean conference and at OpEx Week. He's also the host of "The New England Lean Podcast," a weekly show that focuses on Lean leadership and New England-based businesses.

Paul is a former Board Member of the Northeast Region of AME, holds a B.S. in Mechanical Engineering, a M.S. degree in Management and a M.S. in Organizational Leadership.

He is passionate about Lean and creating organizational cultures that are sustainably engaged. He co-authored his first book - *The Whole Professional, A Collection of Essays to Help You Achieve a Full and Satisfying Life* to bring a fresh perspective on Work/Life Balance and how individuals and organizations can work together to achieve greater levels of attainment.

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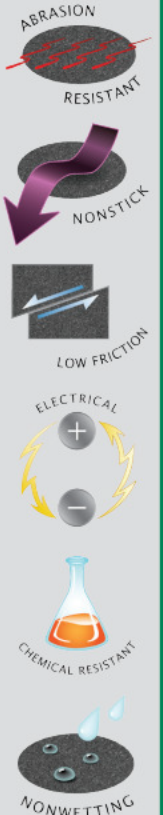
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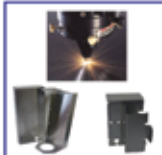
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VICOR CORPORATION IS NAMED 2022 MASSACHUSETTS MANUFACTURER OF THE YEAR

ANDOVER, Mass., Sept. 21, 2022 (GLOBE NEWSWIRE) - Vicor Corporation was recognized for manufacturing excellence on September 16 at Polar Park in Worcester, Mass., by the Massachusetts Manufacturing Extension Partnership (MassMEP). Following the opening of the first-ever Converter housed in Package (ChiP™) fabrication facility in Andover, Mass., Vicor has been acknowledged as a leader in Massachusetts manufacturing.

“It is a great honor to be recognized for manufacturing excellence,” said Mike McNamara, Vicor vice president of operations. “Vicor has innovated its advanced power-on-package (PoP) technology for its high-performance, high-density power modules. We feel privileged to receive this award on behalf of the many people at Vicor who made this possible.”

Thanks to the support of State Senator Barry Finegold, representing the Second Essex and Middlesex district, Vicor joins an elite group of manufacturing companies that have achieved excellence in manufacturing in recent years. This select group, which embodies the values of innovation, automation and sustainability, received a commemorative plaque in honor of their achievement.

For more than 40 years Vicor has manufactured its high-performance, high-density power modules in Andover and Lincoln, R.I. A recently completed Andover factory expansion reflects Vicor’s continued leadership in high-density power modules and underscores a continuous drive to innovate, automate and increase capacity to meet rising demand. The expansion is integral to the long-term Vicor business strategy to support high-growth markets including automotive electrification, high-performance data centers and advanced robotics.

“Our new ChiP fab is the world’s first power module foundry capable of supporting demand for high-density power modules with the scalability required by an expanding ecosystem of applications and customers,” said McNamara. “Our manufacturing process allows us to cost-effectively produce power modules with short cycle times and superior quality.”

The new, vertically-integrated ChiP fab utilizes proprietary techniques analogous to those employed

by semiconductor wafer fabs. Patented processes differentiate Vicor by enabling much higher-density power-system solutions.

About Vicor

Vicor Corporation, the leader in high-performance power modules, solves the toughest power challenges for customers, enabling them to innovate and maximize system performance. Easy-to-deploy Vicor power modules provide the highest density and efficiency enabling advanced power delivery networks from the power source to the point-of-load. Headquartered in Andover, Massachusetts, Vicor serves customers worldwide with unequalled power conversion and power delivery technologies. www.vicorpower.com

THERMO FISHER SCIENTIFIC EXPANDS CELL AND GENE THERAPY CAPABILITIES

Thermo Fisher Scientific, the world leader in serving science, today expanded its cell and gene therapy capabilities with the opening of its new previously announced viral vector manufacturing facility in Plainville, Mass. The 300,000 square foot, state-of-the-art site will add approximately 300 jobs to support the development, testing and manufacture of viral vectors, which are critical components in the development and commercialization of gene therapies.

“Thermo Fisher Scientific’s new, state-of-the-art viral vector manufacturing facility in Plainville is a clear statement from a world-class company that the Commonwealth is not just the leader in R&D, but also in bio-manufacturing. I will continue to work closely with Thermo Fisher as they create jobs and help cure disease.”

“Plainville is an impressive addition to our pharma services network as we continue to invest and innovate cell and gene therapy services, products and workflows,” said Marc N. Casper, chairman, president and chief executive officer of Thermo Fisher Scientific. “We are enabling our customers to speed their scientific discoveries in cell and gene therapy while also supporting their manufacturing needs, whether they are early in the development process or ready to transition to clinical or commercial scale.”

The new cGMP-compliant Plainville facility significantly expands the company’s clinical and commercial viral vector capacity to six sites in the U.S and Europe. The site features sustainable construction design,

flexible laboratory and production suites, adjacent warehousing, and office space, as well as Thermo Fisher's advanced bioproduction and analytical instrumentation technologies.

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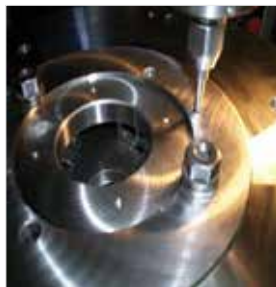
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