

THE RECORD

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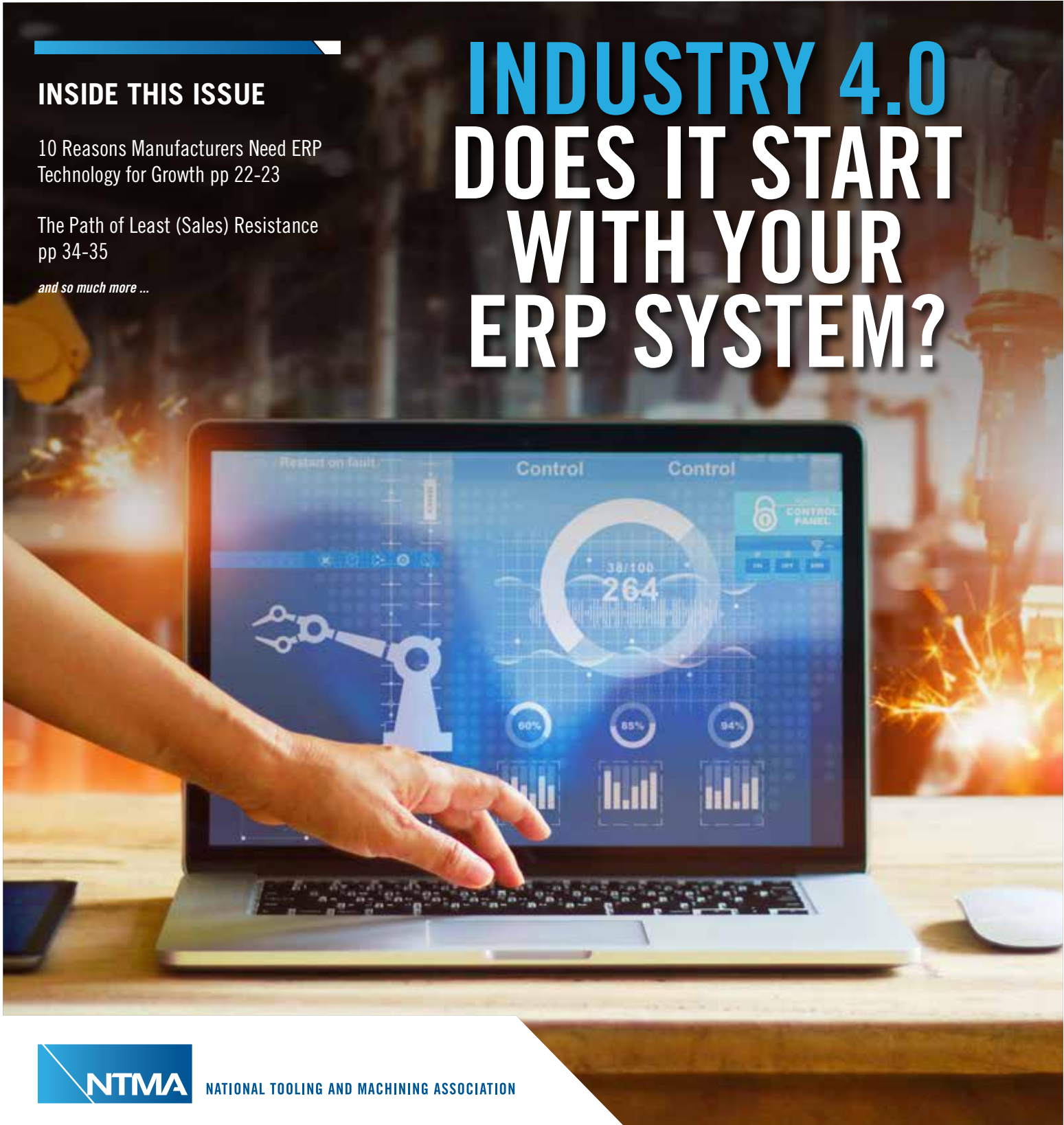
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10 Reasons Manufacturers Need ERP Technology for Growth pp 22-23

The Path of Least (Sales) Resistance pp 34-35

and so much more ...

INDUSTRY 4.0 DOES IT START WITH YOUR ERP SYSTEM?



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THE RECORD

OPERATIONS & EDITORIAL

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Upcoming NTMA National Events



Emerging Leaders Conference '22
Monday, August 29 – Wednesday, August 31
Indianapolis, IN



Manufacturing Engage 2022
Tuesday, October 25 – Friday, October 28
Kansas City, MO

What's Your Story?

Send Us Your Story

Each issue of The Record will feature stories from members – and we want to hear from you. Send us stories of success, or those that fit the theme of the month's issue. The submission deadline is the first of the month prior to publication.

Contact John Stevens at jstevens@ntma.org

Upcoming Themes for The Record

July

Emerging Leaders Rising 2022

August

IMTS 2022 ... Network, Educate, Purchase ... What's Your Plan?

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PRESIDENT'S UPDATE

Wow, half the year has come and gone. Talking to many of our members across the country, the good news is that most are very busy. Of course, “busy” brings its own challenges: the need for people, raw material issues, and so on. I am normally one who looks forward and not backward; however, in this day and age, I feel looking back is a good reminder of who we/you are and the critical role we play. Just two short years ago, our world, our nation, our homes, and our businesses were hit with one of the largest unplanned disruptions in most of our lifetimes. The widespread effect of the pandemic was uncertain at the time. Many lost loved ones, many lost jobs, many lost their businesses, and many people were emotionally paralyzed. I say all that to say, most NTMA members had those same feelings of the unknown, personally and professionally, and yet today we have lost few members, we stand on the other side and our businesses are thriving. You are LEADERS and OVERCOMERS, and you have again overcome a major industry disruption. Not only am I proud of each of you, but many people/families/businesses across our nation are proud of you, with few of them realizing the important role you have played in restoring their daily lives.

While traveling and speaking across our nation recently, I have used the numbers to prove small- to medium-sized businesses’ importance and specifically manufacturing businesses’ importance.

- 99% of “all firms” in the US are less than 500 employees
- 98% of “all firms” in the US are less than 100 employees
- 93% of “all firms” in the US with less than 100 employees are “manufacturing” firms
- In “NTMA/Metalworking-Specific” firms in the US, based on NAICS codes, there are 24K firms
 - 96% are less than 100 employees
 - 92% are less than 50 employees
 - 80% are less than 20 employees
 - 44% are less than 5 employees

I point this out because we all need to understand and realize the critical role we play in our nation's economy and employment. Never apologize or talk down about your company size. Instead, we should be promoting what we do and the role we play. Use these statistics when hiring people who have no clue as to the importance of small- to medium-sized businesses and how our success can and does contribute directly and indirectly to the needs and philanthropic causes in our nation. So often, today's media only highlights large corporations and their contributions, while most small businesses’ contributions seldom make the front page. I would remind you, neither do our employment numbers nor our economic contributions make the front page, but we know our contribution and it is our responsibility to make it known.

This month's The Record focuses on “Industry 4.0 ... Does it Start With Your ERP System?” Whereas, I will let our industry partners/experts speak to it in detail, I believe the importance of Industry 4.0 in our businesses today starts with the “connectivity” of information. We can no longer depend on human interaction and analysis to guide our decisions and directions. The pace of business has outpaced our ability to communicate without system help. It has outpaced our ability to utilize standalone systems which require human interaction and the flow of communication.

Today's world demands a connected workplace where information is collected, analyzed, and distributed for immediate action in and outside your facility. Whether big or small, do not let your size allow you to justify your lack of need for such connectivity in your organization. In this day and age, we must figure out how to be more efficient and to produce more with the same number of employees; we must figure out those areas where we can improve. The question of this month's topic; “Does it Start With Your ERP System?”, is a great start.

Whereas, almost every shop has an ERP System, the following questions give a more in-depth realization about it:

1. Are there capabilities that are not being utilized by your ERP?
2. Can additional information be connected to and/or analyzed by your system?
 - a. Quoting
 - b. Procurement
 - c. Machine monitoring

Industry 4.0 is about transforming the digital and physical technologies focused on interconnectivity, automation, machine learning, and real-time data to improve how the business operates internally and externally and with customers. The results of Industry 4.0 are to improve business operations and increase revenue growth while ensuring your competitive edge in the marketplace. I encourage each of you to find your lane in the Industry 4.0 journey and move forward. The time is now. If you need help, reach out to NTMA's industry partners who are ready, willing, and able to help you begin your journey or boost it.

I would be remiss not to mention NTMA's focus on growing the association. Our membership year to date is net positive. With more members, we can increase our member services and collaboration, and increase our seat at the table for all small- to medium-sized US manufacturers. Please do your part in asking other shops in your area to join NTMA. We are the “Voice” of the small- to medium-sized precision manufacturing space.

There Is Strength in Numbers ...

Roger Atkins, President – NTMA



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NEW MEMBER HIGHLIGHTS

NTMA welcomes our newest members - joining the collective power of over 1200 manufacturing and precision metalworking companies.

Do you know of a business who could be a welcome addition to our association?

Please contact:

Carrie Marsico (cmarsico@ntma.org) and help us continue to build on the strength of our industry for years to come.

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Citadel Manufacturing is a custom machine shop that focuses on quality, promptness, and an absolute mastery of our craft. Our services include the fabrication, precision machining, assembly, and inspection of a wide variety of parts and components. We currently are heavily focused on manufacturing parts and repairing gear boxes and other equipment for the Trenching, Construction, and Oil Field businesses. We are conveniently located near Fort Worth, TX. From start to finish, you can trust us with making your bottom line more profitable and efficient. With our "do it once, do it right" philosophy, most of our business has originated from positive word-of-mouth referrals and we intend on keeping it that way.

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IN THE NEWS

A CYBERSECURITY INSURANCE TALE

By: Doug DeRose – Vice President and CFO, NTMA



Like the rest of the working world, I'm pretty busy these days. There are always plenty of projects to get done and a few more I should be working on - even right now as I write this. About a year ago, there was one project that Roger Atkins, NTMA's President, asked me to look into. This project focused on a topic everyone in the precision machining industry was focusing on: cybersecurity. It only makes sense to practice what we have been preaching to members through e-mails, articles, and conferences.

My response at the time was, that our Cloud-based computer network made us pretty rock-solid against such potential exposure. After a few conversations with peers on the subject, I was convinced I was about to spend a ton of time just completing an insurance questionnaire that would lead to paying for even more insurance. After all, we are a trade association - we are not making parts for the government. Ultimately,

I decided that I really needed to move on to more pressing issues.

However, the subject gradually crept up my list for two reasons: I continued to hear horror stories about cybercrime - and Roger continued to ask if I had looked into it. Finally, it reached the top of the list in late 2021. I called our agent and got started on a questionnaire. I found it wasn't so time-consuming because the majority of the questions on the comprehensive document were either easy to answer, or for our IT provider to answer. Over a couple of weeks, it was completed and in the hands of our agent. A few weeks later a reasonable quote was in our hands and we decided to move forward. With the help of our agent, we secured \$1.0M coverage through Corvus. There was nothing on the questionnaires that made them jack up our premium, or - better yet - deny coverage. While I thought that was good to know, the best part was yet to come.

Corvus provided NTMA with a Dynamic Loss Prevention Report. This "rapid, accurate, and actionable security assessment" provided us with security recommendations based on NTMA's assets. Eight key areas were looked at and rated on a scale of 0-100. Overall, NTMA received a 97%, which seemed to fit with my opinion on our system security. With that said, the results showed me that three areas were below 90%.

Areas of Corvus Dynamic Loss Prevention™ Overview:

1. Ransomware & Cyber Extortion
2. Phishing & Dark Web Monitoring
3. Business Interruption & System Failure
4. Disclosure of Sensitive Information
5. Contingent Business Interruption
6. Social Engineering & Cyber Crime
7. Network Security & Privacy
8. Hacking, Malware, Unauthorized Access

The report gave us that detail (called Security Criteria), which will allow us to get with our vendors and staff to make changes to improve those scores. Our main focus is on improving the lowest of the areas (which was at 74) and making necessary changes to get the score into the 90s this year. The other two areas won't need as much attention to bump their scores up. Without this benchmarking data, sure, I would've felt good because we secured coverage with a reasonable premium - but would I have a list of areas of needed improvement to target? The point isn't that one insurance company or product is better than the rest. Rather, it's the exercise and the information you get back from that initial effort that provides value and peace of mind.

NTMA LEADERSHIP, CONNECTING, LEARNING, AND BUILDING RELATIONSHIPS – IN-PERSON – WITH OUR CHAPTERS

NTMA President Roger Atkins and NTMA Chairman Alan Ortner have been visiting our NTMA Chapters this spring and summer – including trips to shops in the NTMA Northwestern Pennsylvania Chapter, Northern Utah Chapter, and New Jersey, Philadelphia, and NE Pennsylvania Chapter



Bill Starn (Mecal by Starn), Alan Ortner, Joyce Ortner, and Greg Wasko (Starn Tool & Manufacturing)



Lon Sippy (Highpoint Tool & Machine) with Alan Ortner



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Lon and Mark Sippy (Highpoint Tool and Machine), Alan Ortner, and Joyce Ortner



Ken and Bonnie Kuhn (Kuhn Tool & Die Company), Joyce Ortner, and Alan Ortner



Joyce Ortner, Tami Adams (Chapter Executive, NTMA Northwestern PA Chapter), and Alan Ortner



Roger Atkins, Frank Semcer Jr. (Micro Stamping Corp.), and John Lohse (Betar, Inc.)



Brad Robeson (Clean Machine) and Roger Atkins



Roger Atkins and Sid Creager (Interwest Laser)



Roger Atkins and Wes Michie (Skydandee Manufacturing)



Steve Van Orden (Paramount Machine) and Roger Atkins



Roger Atkins and Mark Darley (SilencerCo)



John Lohse (Betar, Inc.), Gabe Draper (Factor), Paul Schindel (Three Bears Communication) and Roger Atkins



Matt Wardle (JD Machine) and Roger Atkins



Sammy Keochareun (Hoyt Archery) and Roger Atkins



Roger Atkins and John Joost (Advance Manufacturing Technology)



Andy Martin (CNC Pros) and Roger Atkins

HOBSON & MOTZER: INVESTING IN THE FUTURE



AN EARLY ADOPTER

Innovation is in Connecticut-based NTMA Member Hobson & Motzer's DNA. Throughout the precision metal manufacturer's 110-year history, the ability to respond to changing demands and market conditions, and to leverage evolving technologies, has set it apart in the manufacturing world.

"We were early adopters of jig boring, visual grinding, EDM, and wire," says company President Bruce Dworak. "I have a newspaper article from the mid-60s where they refer to Hobson & Motzer as an 'old established company' bringing on the cutting-edge EDM machine. The capabilities and scale of our company are always growing and evolving, but facets of the culture and business strategy have endured over generations of leadership."

The company's acute attention to detail – and a culture where a passion for excellence is embodied in its talented, dedicated workforce – has led to new and exciting opportunities, primarily within the medical device sector. To meet the accelerated demand for highly complex, precise components that are getting smaller and smaller, Hobson & Motzer continually improves upon its technology and capabilities and invests in its 400+ workforce. The company partners with expert equipment builders, works toward vertical integration, and ensures its R&D, engineering, and manufacturing teams are well versed in the latest techniques and materials. These competencies allow the company to bring in new processes to augment existing capabilities and reduce lead times and supply chain risk.

The company's vertical integration strategy dovetails nicely with customers' desire to streamline supplier networks. As a strategic partner to select medical device industry leaders, Hobson & Motzer provides customers with a holistic, full-scope services approach. As medical devices advance, the company's focus on next-generation solutions helps to meet the demand for more sophisticated components, often with very tight tolerances.

The company's advanced CNC capabilities allow for complex components to be produced in a single

operation with better precision and from more difficult materials. "We see more 'lights out' capability across technologies, whether that's bar-fed CNC multi-tasking lathes, Swiss machines, or wire EDM," says Dworak.

ADVANCED EQUIPMENT AND TECHNOLOGY

Capital investment in new machinery and technologies is critical to meeting expanding capacity and supporting the technology needs of an innovative customer base. There has always been a reciprocal relationship between technology and innovation. The company has shied away from purchasing used equipment due to the increased downtime and potential limitations, given the capabilities of more advanced equipment. The one exception is in the stamping department where older presses can be refurbished and outfitted with new controls, electronics, and ancillary equipment, depending upon the application.

The company recently added ultra-precision five-axis machining, multitasking lathes with extensive milling capability and bar feeders, laser systems, CMMs, and multi-sensor inspection systems on the metrology side. Metrology is an area that can sometimes be overlooked. "Efficient and repeatable measurement of precision complex components is a capability that is becoming increasingly important, so we've committed significant resources there," says Dworak. "The next step is to capture and analyze data, so we look for connectivity and automation of the data processing to improve quality and optimize processes."

Capitalizing upon the latest technology is critical to meeting quality and precision targets. The majority of the company's production equipment is networked for automated data acquisition, with applications developed as needed to support specific data analysis requirements. Data on OEE (overall equipment effectiveness) and causes of downtime is gathered to optimize processes. The company's metrology platform enables inspection results to be uploaded to the company intranet for storage and analysis. The ability to report data supports the NPD process, which is generally an iterative process, and guides better decision-making.

BORN TO EXCEL

Hobson & Motzer's ability to pivot and rapidly respond to exciting developments in the med device industry – delivering tighter tolerances, precision parts, and exceptional quality – is what makes the company tick. Dworak credits his dedicated team with the company's decades of success. "This is what we were born to do. Just as innovation is in our DNA, the desire to excel and exceed expectations is in our blood. We love what we do, and knowing that – at the end of the day – the components we build improve the lives of surgeons and patients alike is enormously satisfying."

This article originally appeared in Mass Device, and is reprinted here with the permission of the publisher. You can view the original article at: <https://www.massdevice.com/hobson-motzer-investing-in-the-future/>





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Room Block Deadline: Friday, August 5th

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Presented by: Kristin Carlson – President, Peerless Precision, Inc.

Leaders are Not Born. Leaders Are Made.

Presented by: Dave Capkovitz – Principal, EBITDA Growth Systems & Mike Watkins – Principal, EBITDA Growth Systems

How to Utilize Social Media to Advance Your Company and Yourself

Presented by: Bill Skowronski – Senior Content Marketing Manager, Red Caffeine

Be the Voice of Emerging Technologies in Your Shop

Presented by: Ben Barton – Solutions Engineer, Paperless Parts

*Sessions start by 3 pm on Monday, August 29, and wrap up by 11:30 am on Wednesday, August 31.

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TRANSFORMING THE TALENT MARKETPLACE

Partnerships Lead to Solutions

By: Bill Padnos – Executive Director, AMPED and the National Tooling & Machining Foundation

In early May, I had the opportunity to be in Dallas for two days to witness the VEX Robotics World Championship 2022 in action. For over a 10-day period, 20,000 students from 37 countries participated in the largest robotics event of all time. The excitement on their faces and the energy in the Convention Center was a sight to be seen.

However, that was not the best thing that I witnessed during my trip to Dallas; that took place at Alexandria Industries, 25 minutes north of the Dallas Convention Center.

Chris Flemming, NTMA North Texas Chapter President, asked about the NRL program. After my presentation and our conversation, I took advantage of being at a member shop and went on a short tour with the operations manager. While on the tour, one educator asked if she could stay and discuss with Chris about their school district's machining program - to ensure their curriculum matched the needs of local industry. **This** is how we close the skills gap.

According to the US Chamber of Commerce; ***Foundation's Hiring in the Modern Talent Marketplace***, the top three potential solutions to fixing the skills gap are:

- 1. Greater upskilling initiatives within the company for existing employees.**
- 2. More education/CTE programs to build the talent pipelines.**
- 3. Improved alignment between skills and competencies taught in educational/CTE programs and the skills and competencies needed in the workforce.**

According to the report, transforming the talent marketplace starts with partnerships, both educational and in the workforce. As more media

narratives attempt to pit educational, workforce, or training initiatives against each other, respondents to the survey used for the Foundation's report have a stronger message: bring them together. Maintaining or improving education and workforce partnerships is a priority to over half (61%) of respondents' organizations.

Building partnerships with educators is increasingly becoming popular among companies to assist in sourcing talent – because it works.

Respondents also stated that they see partnerships as a tool to provide organizations with the skills they are missing. Many organizations report that applicants are lacking skills that are most needed for their vacant positions. Defined in this survey as: "the concept that there is a disproportionate lack of skilled talent among the available workforce to fill the needs and jobs of US employers," – the skills gap has been and will continue to be ever-present in discussions around hiring, talent, and the workforce.

As you continue your quest to find qualified candidates for your open positions, ask yourself: Are educators in your community your partners, or strangers? Building partnerships with educators is increasingly becoming popular among companies to assist in sourcing talent – because it works. Two-thirds (65%) of survey respondents who currently use partnerships to source talent lauded their effectiveness in providing talent solutions.

Industry 4.0 is already impacting, and will continue to impact, your operations and your hiring process.

Automation will create the same number of new roles in manufacturing as those it eliminates. Working with educators so students learn both the fundamental skills along with an ability to apply them to new technology can no longer be ignored by any machine shop.

Over three-quarters of respondents (78%) to the Foundation's survey agree that employers will have to reevaluate their hiring requirements to find candidates to fill vacant positions. As skills become more of a focal point in the hiring process, hiring decision-makers expect skill assessments to become paramount when evaluating candidates. Over two-thirds of respondents (67%) say the use of skills assessments as part of the interview process will increase in the next year.

As employers change their hiring requirements, educators must understand how key it is for students to demonstrate and communicate their competencies and skills when they are applying for jobs. Survey respondents also reported competency is at the top of their list when evaluating a potential candidate - over a formal education. When asked to rank different types of skills such as digital skills, critical thinking and problem-solving skills, communication skills, technical skills, and other interpersonal or soft skills when hiring, respondents were most likely to list critical thinking skills as most desirable.

The post-pandemic economy has created challenges for our members on many fronts. Are you willing to change your recruitment practices to turn them into one of your strengths? The idea that we are now in a new world where the number of job openings outweighs potential applicants is both daunting and intimidating. Shops that are willing to change their hiring practices will thrive in the new economy.

Helping Fill the Skills Gap



NTMA Mechanical Aptitude Test

A powerful tool to help you identify and hire the right people for the role.

NTMA's Mechanical Aptitude Test was developed in consultation with industry experts to assess the understanding of basic mechanical principles, along with the applications of those principles to everyday shop situations. The test is a great tool to assess applicants who may have limited experience, but have the capacity to pick up on-the-job training and learn the position quickly!

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For more information, visit <https://ntma.org/workforce-development/mechanical-aptitude-test/>

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TAAF (Trade Adjustment Assistance for Firms) offers **\$75,000 in federal matching funds to help small manufacturers that have been directly import-impacted**. Manufacturers use the funds for projects that help them regain competitiveness locally, nationally, and potentially globally. GLTAAC manages TAAF in Ohio, Indiana, and Michigan.

Did you know that TAAF funding allows SME owners to work with outside consultants while paying for half of every invoice?

This program has assisted many manufacturers, as you can see in this newsletter and on the GLTAAC website.

Connect with the stories, and then reach out to me to set up a time to meet, either through Zoom or in-person, where we can imagine how to grow the strength of your local manufacturers.

Jani Hatchett
GLTAAC Project Manager
734-998-6227

How the TAAF Process Works

Phase 1: Qualify – GLTAAC works with manufacturers to determine eligibility. Then we prepare and submit the TAAF application.

Phase 2: Plan – GLTAAC's experienced professionals help clients develop an action plan outlining how they'll use the TAAF program's \$75,000 in matching funds to grow their business.

Phase 3: Implement – Clients select the best outside expertise to implement the plan and the TAAF program pays 50% of the cost.

Learn more at www.gltaac.org

JOINT TECHNOLOGY SUMMIT MAY 24-25TH 2022



After almost a two year leave, the NTMA and AMT Technology Teams joined forces once again for their annual meeting just north of Chicago at host sites DMG MORI in the Hoffman Estates and HEIDENHAIN in the Schaumburg area. The packed agenda featured content rich technology as well as time for an interactive roundtable.

Marlow Knabach, President of DMG MORI, welcomed the group of 25 to day one of the summit. After individual introductions, speakers from QuesTek, Gosiger, and Lockheed Martin entertained content on Computationally Designed Materials, Automation Use Cases, and Cyber Security, respectively. Day

one ended with a tour of DMG MORI equipment and their spectacular facility. The evening reception at local CityWorks Eatery and Pourhouse allowed the members of each team a more relaxed time for further introductions and discussion.

Gisbert Ledvon, Director of Business Development Machine Tool at HEIDENHAIN, graciously kicked off day two with an introduction of HEIDENHAIN. The teams interacted with speakers from Ansys and AMT on the topics of Simulations-Additive Process and the AMT Economic Outlook for manufacturing. Benjamin Moses, Director of Technology at AMT, moderated the roundtable on Technology Barriers and Hurdles to

complete the sessions of the summit. The summit closed with facility tours led by Mr. Ledvon and HEIDENHAIN's Directors of Marketing, Operations, and Sales as well as their engineering staff.

The 2023 Joint Technology Summit is already in the works for early next year and anticipated to be another successful meet up.

Should you like more information on the technologies presented or have a topic to be considered for the next summit, please contact Linda Warner at NTMA or Benjamin Moses at AMT. lwarner@ntma.org or bmoses@amtonline.org



Benjamin Moses (AMT), Rena Montedoro (NTMA), Linda Warner (NTMA), Gisbert Ledvon (HEIDENHAIN)



Left to right: Chris Chidzik (AMT), Frank Seger (Tru-Edge Grinding), Drew Borders (Blaser Swisslube), Debbie Holton (Metrix Connect LLC), Patrick Walsh (Ehrhardt Tool & Machine), Linda Warner (NTMA), Jan De Nijs (Lockheed Martin), Arie Thompson (Gosiger), Tim Wetzel (Homeyer Precision Mfg.), Bob O'Donnell (O-D Tool & Cutter)



Benjamin Moses – AMT



Speaker: Jan De Nijs – Lockheed Martin



Speaker: Arie Thompson – Gosiger



Speaker: Jeff Grabowski – Questek



Arie Thompson, Tim Wetzel, Bob O'Donnell



Randy Gilmore – National Center for Defense Manufacturing & Machining (left), Jamie White – U.S. Army Research Development & Eng. Command Mfg. Science & Technology Div. Aviation



Doug Watts (MAG Automotive, LP), Gisbert Ledvon (HEIDENHAIN), Noel Greis (KINEFAC Corp), Colby Finn (Quality Vision International Inc.), John Tuohy – (FANUC), Craig Ronald (The Gleason Works)



Marlow Knabach – DMG MORI USA, Day 1 Host – National Associate Member



Speaker: Chris Chidzik - AMT



Marlow Knabach – DMG MORI



Gisbert Ledvon – HEIDENHAIN
Day 2 Host – National Associate Member



Drew Borders, Debbie Holton, Patrick Walsh

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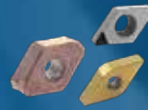
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ARCH Medical Diagnoses Production With Datanomix

ARCH Medical Solutions is a group of 11 business units throughout the US that produce orthopedic implants and precision components for surgical robotic systems. Craig Michaud, Director of Engineering at the Seabrook, NH, facility, onboards new customers and products, benchmarks capital expenditures, and implements new technologies.

THE DRIVE TO MONITOR PRODUCTION

Craig led a team that evaluated machine monitoring at ARCH Seabrook four years ago. According to Craig, “We benchmarked all of the top production monitoring companies, starting with an in-depth review and landing on a solution that met most of our requirements.”

With the system, ARCH could monitor uptime and downtime, but operators needed to enter machine states into a tablet to provide context. And even though the solution had good reporting that was easily customizable, it required Craig’s team to do the majority of the work to analyze the data. “We could pull all of the data from the system for analysis, but we found that not all of the data was interesting or even useful.”

“Datanomix gives us deeper insights into every job, so we generate better quotes.”

MORE FROM MONITORING

Since ARCH wasn’t getting everything they wanted from their monitoring, they decided to evaluate Datanomix. “With Datanomix, we were impressed that we could get insights directly from CNC machine data, instead of having our operators enter reason codes on a tablet.” ARCH installed Datanomix on some Willemin-Macodel machines, which are specific to the medical industry, as well as a few Matsuura 5-axis palletized machines.

Craig was impressed with the responsiveness of Datanomix. “They went out on a limb to make sure we were getting the data we needed,” said Craig.

“We weren’t expecting any vendor to have 100% of everything we wanted, but over the past two years, we’ve seen progress on all of the areas we consider to be important to ARCH’s success.”

PRODUCTION INSIGHTS MADE EASY

By benchmarking production as parts are made, Datanomix provides a baseline for where production should be, instead of using just experience and intuition. “Datanomix scores live production against the benchmark. A simple letter grade lets everyone know exactly where we are against where we could be.”

Craig appreciates how Datanomix presents data. “The data we’re receiving – production trends, real-time scoring, TAKT parts, and automated charts – are all relevant. And the web interface is super intuitive, allowing anyone to see what’s happening in real-time, or to dig deeper to uncover trends and solve challenges. And, at 6 am every morning, Datanomix emails the Coffee Cup Report, an executive summary of yesterday’s production.”

DATA-DRIVEN DECISION-MAKING

Datanomix saves ARCH from looking at work orders and calculating actual production vs. expected production. “Between automatically capturing spindle utilization and benchmarking performance, Datanomix lets us know exactly where we’re at instead of where we think we are. We know if we’re on track to deliver for our customers on time and with the right margins.”

With Datanomix, ARCH can see if a low grade is because of issues with the process, or if an operator is stretched too thin to get decent output for a machine. “Sometimes a grade of C is OK because the operator is running two other machines and that machine is the least important. At least we know and we can use data to make better decisions around scheduling future jobs to help take the stress off of our operators.”

BETTER DATA FOR QUOTING

One business function enhanced by Datanomix is job quoting. ARCH has always done a good job of capturing the cost of operations, but with the additional operational data from Datanomix, quoting accuracy has increased. The Quote Calibration Report offers an in-depth analysis of every job run, showing how the job performed against the Datanomix benchmark.

“When we price our jobs, we use data from past jobs, so we get the margins we need. When the job is not as profitable as we like, we analyze whether it was a machine issue, the process was bad, or we just made a mistake on the quote. Having the data from Datanomix – cycle times, utilization, alarm codes, and more – gives us deeper insights into every job so we generate better quotes.”

“With Datanomix, we were impressed that we could get insights directly from CNC machine data”

MOVING FORWARD

In addition to connecting more machines, ARCH is adding large-screen TVs in TV Mode to the factory floor. “The more people that know what’s happening, the more our efforts make sense to everybody. Datanomix makes it easier to make decisions on the shop floor, which speeds up troubleshooting and accelerates continuous improvement. We expect TVs to have a big impact.”



10

Reasons Manufacturers Need ERP Technology for Growth

By Adam Grabowski, Director of Marketing, Global Shop Solutions

1.) PARTS MOVE THROUGH THE SHOP FASTER.

When you get parts through the plant faster, customers will order more and your shop will look like this:

- Schedules are efficient and accurate, based on true capacity
- Machinists always know what to work on now and next
- Know exactly what you have in inventory and where
- Instantly know the status of all jobs in real-time
- Correct quality issues in real time instead of afterwards

2.) SCHEDULE AND DELIVER ON TIME.

Efficient, accurate scheduling lets you deliver on time, manage change, and uphold promises to your customers. You can also:

- Correctly estimate lead times
- Know your true capacity for machines, work centers, and personnel
- Identify production bottlenecks in real-time
- Instantly see how inserting a job into the schedule will affect other jobs
- Know the status of all jobs in real-time

3.) ACHIEVE A 99% QUALITY RATING.

Consistent near-perfect quality makes it easier to win more jobs and earn and maintain ISO and other quality certifications. Engineers and machinists can:

- Always work off the correct document versions
- Identify bad parts as they are made (rather than during or after shipping) and view them in a single dashboard
- Take and document cause and corrective actions in real-time
- Trace every part with 100% accuracy as it moves through your shop floor
- Easily produce quality documentation for ISO and other compliance auditors

4.) GROW SALES.

ERP software provides a hidden return: sales growth from delivering a quality part on time every time and knowing your bids are competitive, profitable, and margin-true.

- Sales orders are accepted, and work orders are sent to the shop floor within minutes
- Answer any customer question in a single phone call from a single screen
- Know job costs and margins to enable precise estimating and quoting
- Access entire sales history instantly by customer or part number

5.) MAINTAIN ACCURATE INVENTORY.

Knowing jobs are never late from lack of materials or more expensive than they should be reduces risk. Precise inventory management looks like the following:

- Lot bin tracking enables complete traceability of parts
- Physical inventory counts are fast and accurate
- Barcoding all material lets you know exactly what you have in inventory and where it is
- Rarely pay expedited shipping charges for incoming material
- Jobs are never late due to lack of raw materials

6.) COMPETITIVE EDGE WITH TECHNOLOGY; EASY CUSTOMIZATION.

ERP technology lets machines, systems, and devices do much of the work employees used to, allowing them to focus on decisions, thinking, and improving the business. Customize into the system what is special about your manufacturing. With Global Shop Solutions ERP you can:

- Have TVs throughout the shop floor broadcast TrueViews™ so employees know job status in real-time and what to work on next
- Use tablets at each work center make collecting labor easier and more accurate
- Move material faster using RFID, labels, and handheld scanners
- Have all systems, from expense collection to machines and tooling, are integrated with your ERP system
- Get rid of manual spreadsheets to store data because everything is in your ERP system

7.) ALL COMPANY DATA IN ONE SYSTEM; ALWAYS ACCURATE.

Make better decisions and manage proactively based on data you can trust to be true. Know right away when something critical happens in the business, like a new deal, completed shipment, or accounts paid.

- Easily find jobs that were well below margins
- Review dashboards that show real-time shop, inventory, and labor data
- Use KPIs to learn whether you're meeting, exceeding, or lagging industry standards
- Improve accountability throughout the shop floor
- Justify price increases to customers by showing your costs

8.) KNOW JOB COSTS.

When you can trust your costing process, you know how much each job costs. Fast quoting and accurate pricing brings in new customers and brings back existing ones.

- Track direct labor down to the penny – for each job and job sequence
- Track material costs in real-time as jobs move through production
- Compare actual vs. estimated costs while the job is in progress
- Know exactly what you have in inventory and what it costs
- Know margins are correct by knowing your true costs

9.) CONTROL LABOR COSTS.

With ERP, shop floor operators can log on and off jobs and job sequences without leaving their workstations. Collecting time and performance metrics becomes fast, efficient, and accurate, which allows you to reduce and control your labor costs.

- Track labor down to the minute for jobs and job sequences in real-time
- Reduce indirect costs by holding operators accountable for their time
- Track the number of hours in each job in real-time
- Cut admin overhead costs by simplifying an automating back-office processes
- Minimize overtime by reducing rework, overdue jobs, and waiting for parts

10.) GREAT CUSTOMER SERVICE.

ERP lets you go beyond merely upholding promises and stay one step ahead by anticipating customer needs and having all the information you need when they ask.

- Access all customers from a single dashboard
- From PO history to WIP, drill down into any information about a customer from a single screen
- Automatically alert you or your customer when critical events happen
- Customers don't wait for answers because employees have access to all the information they need in one system
- Customers can answer questions about orders (such as WIP or shipping status) from a mobile app with your branding



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Nicole Wolter, president of HM Manufacturing. HM Manufacturing is renowned for products that include gears, timing belt pulleys, splines, shafts, chain sprockets, sheaves, and related parts for power transmission and precision mechanical components.

HM Manufacturing Gears Up For IMTS 2022

By: Kathy Webster, Managing Editor, AMT – The Association For Manufacturing Technology

“Manufacturing is innovative, but IMTS is special. It’s an exciting adventure.”

Find ME at
www.IMTS.com/NicoleW



www.hmmanufacturing.com

Every two years, technological innovations at the IMTS – The International Manufacturing Technology Show-capture one top-notch gear manufacturer’s full attention. When HM Manufacturing wants to upgrade or replace a machine, network with industry people, or see new technology, they go to IMTS.

“We’ve purchased almost every machine in this operation through IMTS,” says Nicole Wolter, president of HM Manufacturing. “Being able to see the technology, meet people, ask questions, that’s how we stay up to date.”

TECHNOLOGY SEEKERS

HM Manufacturing, based in Wauconda, IL, makes drive products that include gears, timing belt pulleys, splines, shafts, chain sprockets, sheaves, and related parts for power transmission and precision mechanical components. As a second-generation leader of HM, Wolter understands the importance of investing in technology – not just for the machines, but for her workforce.

“People are blown away by our equipment, but it’s so much about what we’re able to do,” says Wolter. “We have a young workforce, so it’s about investing in them as well.”

For Wolter and HM, technology is a blessing not just because it makes sense in the manufacturing

industry, but also because technology helps HM appeal to the next generation.

“Manufacturing is different than it was 20, 30 years ago,” says Wolter. “When you invest in technology now, it’s great because kids coming from high school or community college are looking for advanced technology.” Wolter notes that younger students are enthusiastic about advanced machines and get excited about the interaction, because it’s something they’re familiar with.

“Big OEMs are making these incredible machines that have interfaces almost like iPads,” says Wolter. “This is motivating for young people who are already so involved in this kind of technology. I think this is the way of the future in manufacturing.”

ALL-IN FOR IMTS

IMTS is a company-wide event, with the entire team attending on Friday. “Everyone that works at the company walks the show,” says Wolter. “During our lunch hour, we reconvene and say, ‘What did everyone look at?, ‘Is there something we are missing?’”

Stopping operations for one day is worth it, because the whole team gets to see new technology. Different things come to light for different people while walking the floor – things they never expected.

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NTMA SERVICE AWARDS 2022

NOW ACCEPTING NOMINATIONS

The Service Awards are given out each year at the Manufacturing Engage Conference. We need your help finding the best candidates for these awards.

Award categories are:

MEMBER AWARDS

HONOR AWARD

Nominate a member for continuing meritorious service and dedication to the industry and/or the Association by a regular member; traditionally awarded for longevity of service in dedication, as opposed to a single act or service in a short-time industry or Association position.

L.A. SOMMER MEMORIAL AWARD

For outstanding and continuing service of the highest magnitude; emphasis is placed on service to the Association by a regular member, both of the highest order and over a period of time, connoting excellence in a particular role in NTMA, rather than as a participant in a single event.

WILLIAM E. HARDMAN AWARD FOR EXCELLENCE IN TRAINING

For a company or individual (regular member or education member) which consistently demonstrated strong support and active participation in structured training for the precision custom manufacturing industry.

NON-MEMBER AWARD

DISTINGUISHED SERVICE AWARD

For outstanding service to the industry by a person outside the NTMA regular member companies.

Help us recognize deserving individuals and/or companies that have supported and advanced the industry and the Association.

Submit your nomination(s) by Friday, August 12th, 2022.

For a nomination form, contact Linda Warner at lwarner@ntma.org



For more information, please contact
Linda Warner at lwarn@ntma.org or 216-264-2824.
Applications and self-assessment documents can be found here:
<https://ntma.org/resources/ntma-awards>
Applications should be sent to 6Saward@ntma.org

NTMA 6S Excellence Award

PURPOSE:

To improve the perception of American manufacturing by promoting and recognizing excellence in member shop organization and efficiency.

HOW IT WORKS:

- NTMA companies apply for the award by submitting a self-assessment based on criteria that demonstrate best-in-class practice in the six S's:
**1. Safety 2. Sort 3. Set in Order
4. Shine 5. Standardize 6. Sustain**
- Certificates are awarded every year for the first five years based on self-assessments submitted. Once the recipients receive five certificates, they are also presented with a trophy.

SPONSORSHIP OPPORTUNITY:

- Conference exposure via introductions, etc.
- Promotional exposure: web, print, blogs, and emails that promote and support the award.

SUBMISSION DUE DATE:

Please submit your application by September 1, 2022 to be considered.

NTMA & AMT TECHNOLOGY AWARDS NOMINATIONS NOW OPEN

The NTMA and AMT Technology Awards are designed to recognize and share excellence for those whose use of technologies are strengthening the precision manufacturing industry.

There are two award categories:

- *Technology Excellence Award*
- *Leadership and Culture Excellence Award*

If you would like a nomination form for either category, please visit: <https://ntma.org/resources/ntma-awards>.

Submission Deadline is December 2, 2022

WINNERS IN EACH CATEGORY RECEIVE:

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- Featured Article in The Record
- Recognition at the MFG Meeting - Spring 2023
- Free Registration and Hotel at the MFG Meeting
- Plaque to be given out at MFG Meeting
- If applicable, National Associate Member (NAM) to provide social media exposure for winner
- Hosted webinar in 2023





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Time Tracking

By: Paul Van Metre – Co-Founder, ProShop ERP



Manufacturers can't make good decisions without data. Accurate data from the shop floor is essential to making good business decisions in the office. Those decisions can include which part numbers to raise prices on, which customers to expand with or to let go of, which industries to focus on, and the types of work to pursue. These high-level strategic decisions can have far-reaching implications on long-term shop profitability and overall success.

There are few things that should be more important to a manufacturer than how its employees spend their

time. In a precision machine shop, labor is generally the largest expense, so how that labor spends its time is critical. Knowing how much time employees spend on each job, if they are hitting their time targets, and how that compares to the original estimate, are all essential data needed to make smart decisions.

Time tracking can often be a contentious topic in the shop. Some employees understand the importance, while others feel like management is just trying to "Big Brother" them and are looking for ways to punish poor performance. It is up to the leadership team

to have the right intentions and to communicate effectively to the team. As time tracking is so essential to so many critical functions, the difference in company performance between companies that time track effectively, and those that do not can be enormous. I have visited hundreds of shops and have observed some that time track excellently and reap the benefits from it, and I have more shops where management is not able to get buy-in from the manufacturing staff and perpetually battle all the negative effects. Let's outline some of the key things that effective time tracking allows.

JOB COSTING – In most machine shops, labor is the largest expense on any work order. Therefore, there is no possible way to get accurate job costing without accurate time tracking. Knowing the fully burdened cost of each employee that tracks hours on a job allows the most accurate picture to be represented as the labor expense for that job. When time tracking also includes information about the work center being utilized, that direct overhead expense of the equipment can also be identified for more accurate job costing.

SCHEDULING – Scheduling works by placing jobs on to a calendar or Gantt chart with their anticipated time budget. As work progresses, updating the remaining time left to complete that work order is an essential part of keeping accurate schedules. Without knowing how much time has been spent so far, it's very difficult to know the amount of time remaining. So, keeping accurate time tracking records can help determine how much of the time budget has been spent, whether that's time is hitting the targets that were set, and calculating anticipated ending times. The ending times, of course, will dictate the starting times of subsequent jobs, so if we extrapolate that out for weeks or months, it becomes clear that accurate time tracking is essential for accurate scheduling. Without accurate scheduling, it is hard to set accurate promise dates for customer deliveries, potentially leading to unhappy customers.

R&D TAX CREDITS – Most shops don't realize how many activities they routinely perform that are eligible for federal and state R&D tax credits. Of course, the biggest expense is generally labor. Making fixtures, proving out G-Code, troubleshooting problems with new jobs, any type of prototype job, and a lot more, are all eligible for R&D tax credits. But without good time-tracking records, it would be very hard to defend those credits in an audit. So the more accurate the time-tracking records are, the more money you can apply for and get back. I have personally talked with clients who have gotten six-figure returns after spending just a couple of hours pulling together records of R&D activities, most of which are time tracking records.

ESTIMATING ACCURACY – Estimating new projects is not an exact science generally speaking. Even the most experienced estimator will never be exactly right about set up times and cycle times. Improvements to accuracy in the estimating process cannot be made unless the system has feedback about the actual amount of time things take. That, of course, is done with time tracking. For example, if an estimator quotes 2 hours for a setup and 15 minutes per part cycle time, and it turns out the actual set up takes 4 hours and cycle time is 25 minutes, the company will certainly be losing money and the estimating team will not know how long it actually takes in the future unless they have that accurate time-tracking data. So closing the loop and having accurate actual X will allow corrections to be made in the estimating process, which over time compounds to allow considerably more accurate estimating processes.

THROUGHPUT & PRODUCTIVITY – As any researcher will tell you, just the process of measuring something generally improves performance. When a collaborative culture of time tracking is cultivated, employees are more aware of how they spend their time and will almost always improve their own numbers organically.

CONTINUOUS IMPROVEMENT – The old saying that “you can't improve what you don't measure” holds true for employee time. Without specific mechanisms and data to identify opportunities for improvement, it's hard to know where to spend the time that has the best ROI. For example, if you have good time-tracking data that your average set up time is 50% over target, and you know which part numbers have the longest setup times, you can more effectively focus on those activities which have the biggest bang for your buck.

TIME & MATERIAL (T&M) JOBS – This one is pretty self-explanatory. If you're doing a T&M job and not tracking time, you're giving away free money.

EMPLOYEE ENGAGEMENT – I have seen shops that have developed a culture where employees are proud of and brag about the high percentage of time they track. They almost gamify it in some ways. The more you can have employees be aware of and discuss their time-tracking activities, the more engagement you'll have and the higher performance you will get from the shop floor.

CORRECT JOBS GOING SIDEWAYS BEFORE IT'S TOO LATE – Every shop has jobs that go sideways. They take much longer than expected. The shops that have accurate real-time employee time tracking can be alerted to jobs that are not going well while there is still plenty of time to make improvements to the outcome. If time is not tracked, or it's tracked on paper and analyzed after the job is shipped, there's no opportunity to make improvements while the job is still running. This can make a huge difference in losing money on jobs or making changes before it's too late.

INVENTORY VALUATION – Reporting WIP (work-in-process) and inventory is important for the financial health of companies. There is no accurate way to represent WIP and inventory without time-tracking data, because most of the value tied up in those parts is labor that has not been sold yet.

PROFITABILITY – Everything we've talked about above ultimately is an ingredient in the recipe for a profitable business. When time tracking becomes a cultural norm and employees care about tracking their time accurately, the information becomes a significant driver of activities that drive profitability.

If the actual process of tracking time is not simple, fast, and accurate, then it will likely not happen. I believe it should be possible to track nearly all an employee's time with high accuracy in less than 5 minutes per day. When time tracking is fast, and accurate and employees are bought-in to its importance, it truly changes the paradigm of the shop and allows companies to dramatically improve their rate of performance and profitability over time. That's an idea that any shop owner can get behind.



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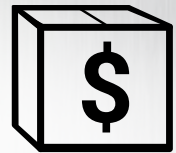
STANDARDIZATION

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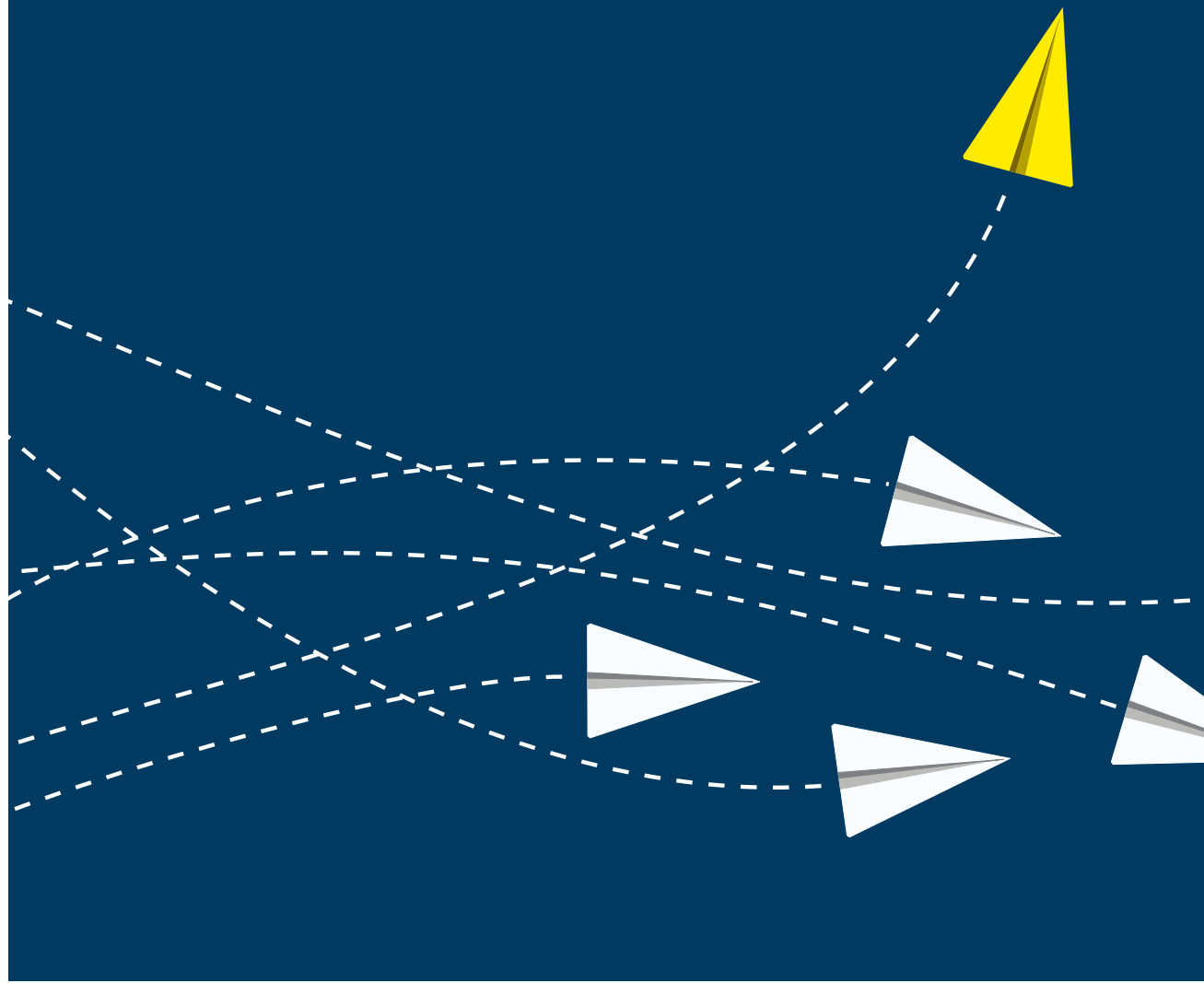
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The Path of Least (Sales) Resistance

By: Rob Felber – Owner, Felber PR & Marketing



Sales, the elusive goal of lead generation, can often be sidelined by roadblocks, hurdles, and potholes. Any delay in your sales procedure can allow doubt, buyer hesitation, or worse, a competitor into the process. This article is NOT about overcoming objections or even listening better; save those tactics for the sales trainers.

Let's look at the most common barriers to sales and how you will remove them.

MEET ON THEIR SCHEDULE

I am going to lead with my favorite – be available. You cannot engage in conversation and show how brilliant

your solution is for their problem if you are playing phone tag or the “what’s a good day for you” mini-series. In the last year, I have opened my calendar up to zoom and in-person meetings. My prospects and clients can book a date in seconds that is convenient for them and is guaranteed open on my calendar. A calendar invite is generated for both of us – my calendar emails me and I also receive a text alerting me to the new booking.

BE VISIBLE WHEN THEY ARE READY

It has become common knowledge that prospects spend a significant amount of time researching their problem before contacting a salesperson or dare I say picking up the phone (BTW, they don’t call; see point one on calendars). The battle for a fast and efficient sales process begins with being able to be found on the internet. If your company, e.g., your solution, does not show on a Google search, you’re not even in the game. Make sure your website is search engine ready.

ANSWER THEIR QUESTIONS AS THEY ARE ASKED

If you have even 3 months in sales, you probably already have heard a few of the same questions. Draft those questions and your best answer and place them in front of your prospect before they ever contact you. In addition to being available and found, you can keep the process going by anticipating and answering the most common questions. Using frequently asked questions documents, case studies, and customer references will help your prospect gain confidence in your brand and solution. Of course, use well-placed calls-to-action (CTAs) throughout the process so they can quickly engage you when they are ready to talk.

DO NOT LET PROCEDURE DERAILED YOUR SALES PROCESS

Your prospect is ready to buy. More than a signal, they have verbalized “I am sold, where do I sign.” You say thank you and place five pages of credit check and paperwork in their face. Now, that’s pleasant. I am not suggesting that you bypass good business practices, just that you move the paperwork up in the sequence. If you indicate that your prospect is qualified, why not use credit checks as a sales

technique to accelerate the sale? “Mr. prospect, it seems like we’re a good fit for your problem, and while you still have questions, would it make sense to start establishing your account so we can move even faster should you choose our company?” We also suggest you do everything possible to streamline your account establishment. If you rely on a credit department, meet with them, and explain that while we need to protect the company, the sale can be jeopardized by long delays. At the end of the day, nothing happens until someone buys something; so, let them (buy).

LET THEM SPEAK TO YOUR CLIENTS

There is an old joke about when a prospect asks for references, you respond with “do you want good ones or bad ones?” The reality is no one offers bad references. The way to not have reference checks be a barrier is to have a vetted and fresh list of clients who are willing to speak to your prospects and are available. I have experienced recent requests for client references, and I keep a pre-approved list I can send immediately. These are clients that have already told me they are willing to speak to our prospects without additional notice. Now, I may still give them a heads up, but I know I do not need to ask their permission every time I use their name.

Do you have any other tips or tactics you use to keep the sale moving? Email me at RobFelber@felberpr.com and I'll share with our network – you might even trigger a reader to inquire about your services!



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By: Michael Watkins, MBA/JD, EBITDA Growth Systems

TWO THINGS

Keeping Succession in Mind

There has been a continued escalation in the number of Baby Boomer small business owners that are contemplating an exit from their company in the very near term. We suspect that there may be an economic downturn that further accelerates the escalation. When we are contacted by one of these business owners, we typically ask them a battery of questions relating to revenues and profitability. And while the answers to finance-related questions are important, from a valuation standpoint, we view the answer to the following two questions to be even more significant.

1. Can your business continue to operate and flourish without your involvement?

Harvey McKay authored a book entitled, “Dig Your Well Before You’re Thirsty.” For the small business owner, seeking to exit this translates – if you wait until you want to sell before you find a successor, it is too late to maximize the value of your company.

The owner must start two or three years in advance to develop resources that are capable of running the business.

When considering the value of the business, the owner must take themselves out of the equation. The business should be an asset that generates cash, not an extension of the owner. It should be able to operate without daily and direct motivation, involvement, or leadership from the owner.

If the business cannot function without the owner, that is a problem. The company simply will not be worth much, and no one will pay much for it.

2. Is your customer base highly concentrated around a few key customers?

Oftentimes, business owners have all their eggs in too few baskets; in fact, many companies depend on only a few customers for 50- 80% of their revenue. When the majority of a company’s revenue is tied up in a handful of customers, a potential buyer will be suspicious of the quality of future revenue streams. What happens if one or more of the customers go bankrupt? What if they change leadership, and the replacements go in a different direction? What if the marketplace becomes more competitive or technological advancements threaten the industry? Well-positioned business owners account for these changes by diversifying and expanding their customer base; thereby, mitigating their risk, and making their business more stable, as well as more valuable.

The objective of the business owner seeking to exit their company through a sale should be to begin to create value for a potential buyer three to four years in advance of an exit. Having good answers to these two questions will go a long way in establishing that value.



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MADE IN THE USA

Reasons to Champion American Manufacturing

By: Brian Korbek, President & Chief Operating Officer of Precision Parts Fast, a precision machining and additive manufacturing company in Englewood, Colorado.



Growing up in Salina, Kansas, I didn't expect to have a career in manufacturing – that was the business of my father and grandfather.

Their company, Premier Pneumatics, manufactured pneumatic conveying equipment that processed raw materials through pipelines using air. While

my brother and I have fond memories of summers spent in the Premier Pneumatics materials science and research laboratory, we also watched the manufacturing industry decline as many jobs were outsourced overseas.

When manufacturing companies first started outsourcing 40+ years ago, cost was the only dominant factor to consider. Business leaders knew that cheaper labor abroad yielded higher profits at home. They saw a strategy that expanded operations and provided capital for investments. Outsourcing may have been a profitable plan at the time, but it cost millions of American workers their jobs and, especially in recent years, it has come with risks and expenses that were not anticipated before.

Today's landscape is much more complex, and while American business leaders should consider being globally connected, we must also prioritize locally sourced parts, products, and components. In 2021, my brother and I founded Precision Parts Fast, a precision CNC machining and industrial 3D printing company in beautiful Englewood, Colorado. We're on a mission to help reinvigorate the American manufacturing industry – and we're joining other manufacturing leaders in calling for the reshoring of supply chain operations.

Let's explore eight reasons why investing in American manufacturing is critical to the success and prosperity of our fellow citizens and our country.

1. SUPPLY CHAIN SECURITY AND SELF-SUFFICIENCY

Major supply chain disruptions due to COVID-19, workforce shortages, weather challenges, and other factors highlight the need for American manufacturers to become more self-sufficient.

The American public loses faith in our industry when we can't get parts and products into their hands on time.

Additionally, we're vulnerable when we depend on manufacturing from other countries, and unforeseen crises, such as the 2021 Suez Canal obstruction have repercussions on our economy for months.

By reshoring our operations and investing in American manufacturing, we keep our customers happy – and our economy more self-sufficient.

2. DISPARATE QUALITY STANDARDS

Not only does the US have some of the most stringent manufacturing standards in the world, but we also have the ability and oversight to enforce our high standards. When production occurs overseas, American business owners have limited legal jurisdiction should errors or problems arise.

There's a reason we have the saying, "You get what you pay for." While many manufacturing companies have chosen to move operations abroad for cheaper foreign labor, bypassing American quality control measures often results in poorly made products.

3. RISING LABOR COSTS ABROAD

Starting in the late 1970s, some of America's most prominent companies decided to outsource manufacturing jobs globally based on cost benefits alone. Historically, foreign labor has been cheaper than paying an American workforce, but today labor wages are rising in many places around the globe.

Outsourcing is becoming a less enticing option for manufacturing companies; the price gap is narrowing as the cost of living rises in formerly underdeveloped countries and workers require higher wages. This increase in labor costs adds to the already high shipping costs and long lead times of transporting foreign-made parts and products to the US.

4. EVOLVING GEOPOLITICAL TENSIONS

Relying on foreign labor for manufacturing needs is fraught with risk in a world with evolving geopolitical tensions.

Should relationships sour and tensions escalate between the US and countries in which we have manufacturing contracts, our country will squander leverage for trade relations. In turn, manufacturing companies could lose access to their parts and products – and significant time and money – because global leaders failed to reach agreements. Keeping operations stateside ensures that we retain control of our assets and inventory no matter how the geopolitical landscape shifts.

5. RESEARCH AND DEVELOPMENT (R&D)

R&D roles have long been essential to help the manufacturing industry create new technologies and source materials. Still, there is more work to be done: we need to research and develop the manufacturing process itself.

As business leaders, we can accelerate the advancement of the manufacturing economy by thinking critically and creatively about improving processes and reducing production costs.

With our technological prowess, we can be one of the most advanced manufacturing economies in the world if we continue to develop and incorporate more efficient systems to produce our own top-quality parts and products.

6. ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) CONCERNS

Today, American businesses and consumers alike are concerned about ESG issues. Manufacturers can achieve ESG goals and attract customers aligned with our values by reshoring our operations. Localizing our supply chain helps manufacturing companies reduce carbon emissions and our collective environmental footprint. A supply chain centered on American manufacturing requires fewer environmental resources to deliver goods, thus decreasing

dependencies on global transportation – a significant contributor to carbon emissions.

Prioritizing sustainability efforts also creates a virtuous cycle of incentivizing clean energy R&D partners to source greener manufacturing solutions.

As many American consumers and companies are becoming more environmentally conscious, they are spending more money with companies committed to sustainable business practices. As a result, reshoring manufacturing is not only beneficial to the environment, but it will also likely lead to more prosperous growth for American manufacturers in the near and long-term future.

7. CONSUMERS ARE LOYAL TO AMERICAN-MADE GOODS

While many American consumers think globally, they also want to source parts and products made in the US. Many modern consumers are value-driven and devoted to the growth and prosperity of the American economy. They'll pay more for high-quality products from American companies. By reshoring manufacturing, companies could see a boost in sales simply because their customers are as committed as they are to the future of the US.

Our country's sustainable and prosperous future depends on a strong manufacturing climate – and it's our responsibility to lead the way. We must keep sharing information about the benefits of American manufacturing, educate the public about a self-sufficient and sustainable supply chain, and quell fears about rising costs.

While the manufacturing landscape is much more complicated today than 20 to 30 years ago, the future will only become more complex. If we start to invest more in American manufacturing now, we'll invest in our citizens, communities, country, and the global environment for generations to come. It's time we rebuild American manufacturing and solidify our legacy as a robust and innovative world leader.

Job Creation And Mitigating the Student Debt Crisis

Restoring American manufacturing increases the value of the American worker.

Manufacturing jobs are shamefully undervalued in today's society, and not enough high-performance people pursue careers in our industry. We need everyone, from the engineers designing parts and products to the workers actually producing them, to strengthen our economy by developing and manufacturing components here in the US.

When we invest in goods and services made in the USA, we create job opportunities. As domestic production increases, so does the demand for highly skilled workers in the US. The rise of automation may be shifting the role of the worker but is not eliminating it altogether. As business leaders, we must empower our teams to evolve alongside manufacturing tools and systems while attracting new generations of talented workers.

American manufacturing can also provide an alternative path for our country's young people and help mitigate the student debt crisis. Many manufacturing jobs don't require a college degree and still provide a good living. It's time we let future generations know that spending tens or hundreds of thousands of dollars on a university education isn't the only pathway to success.



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