

THE FALL 2021

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- IN EVERY ISSUE
- 4 **FROM THE DESK OF THE PRESIDENT**
Is Technology Enough?
Steve Johnson
- FEATURED ARTICLES
- 6 **Calling All Entrepreneurs**
Daniel Hogan
 - 10 **In Memoriam: Joseph La Rocca**
David Acord
 - 29 **In Memoriam: Richard Scheck**

- ASSOCIATION NEWS
- 8 **Stanley Black & Decker Launches \$25M Effort To Close Trade Skills Gap and Fund Training**
 - 8 **TAUC, NABTU Team Up to Promote Jobsite Safety & Health as Pandemic Lingers**
 - 28 **TAUC, Stanley Black & Decker Announce New Industry Partnership**
 - 30 **TAUC Announces New Group 401(k) Program for Members**

INDUSTRIAL GRADE INNOVATION 2021

- 12 **IGI 2021: Embracing Change**
Timothy Hoch
- 14 **Vertical Rises, Wins IGI 2021 Startup Battle**
Todd Mustard
- 15 **The IGI Startup Battle: A Startup Within a Startup**
Tim Speno
- 16 **Meet This Year's Startup Battle Contestants**
- 17 **Winning the Future of Construction**
Kaihan Krippendorff
- 18 **The Girl Scout Leadership Pipeline: Solution to a Looming Workforce Shortage**
Karen Layng
- 20 **Smaller Markets, Bigger Profits: Cracking the Contech Startup Code**
Gregg Wallace
- 22 **Procure, Levelset and the "Connected Payment Chain"**
Kris Lengieza
- 23 **The Future of Happiness: Leveraging Mindset To Thrive in Disruption**
Amy Blankson
- 24 **What Is Data in Construction?**
Hugh Seaton
- 26 **Not Your Father's Hard Hat: High-Tech Trends in Head Protection**
Zach Richman
- 27 **Thank You to Our Sponsors**




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Is Technology Enough?



BY STEVE JOHNSON,
PRESIDENT, GEM, INC.

This issue of *The Construction User* is devoted to technology and includes extensive coverage of TAUC's fourth annual Industrial Grade Innovation Conference and Expo (IGI), held in St. Louis in August (see coverage beginning on Page 12). I was grateful to attend again this year and experience the energy and optimism of new tech startups as they showcased their cutting-edge products to contractors, building trades and owner-clients. As always, I left IGI confident about the future of our industry—but not solely because of what I saw on the trade show floor. This time was different.

At the very first IGI held in Dearborn, Michigan, in 2018, my predecessor as TAUC President, Jake Locklear of APM, said something that stuck with me. He pointed out that despite all the incredible new technology being developed for the construction industry, there's no such thing as a "silver bullet"—no single tool or piece of software that will magically turn your business around or increase your market share. Technology can help you do your job better and more efficiently, but it will never be a shortcut to success.

I thought about Jake's words as I watched the crowds pass through the trade show. Those of you who attended IGI might have seen the local Girl Scouts troop checking out the "robotic dog" and testing the latest virtual reality gear. Industry consultant Karen Layng, who also serves as volunteer Chair of Girl Scouts of the USA's Board of Directors, gave a fantastic speech explaining how the organization is training young girls in the skilled trades and

STEM disciplines for future construction careers (see article, Page 18). She believes that the Girl Scouts can be a critical ally in helping solve the worker shortage in our industry and creating a "talent pipeline" to contractors and the building trades.

Karen's speech was the perfect complement to all the hardware and software on display. She reminded us that success starts with human beings, not microchips. This has been and always will be an industry built around people first. If you don't have the right men and women in place, with the right training and the right attitude toward safety, your expensive "digital workflow solution" is useless.

The winning formula is to embrace technology and, at the same time, do as much as we can to educate and recruit the next generation of craftworkers. We need to upgrade our workforce just as much as we need to upgrade our servers. The Girl Scouts who visited IGI are on the right track because they belong to a group that has gone "all in" on helping them choose rewarding careers. But not every preteen or teenager is that lucky. That's where we as contractors need to step up and partner with our local building trades to reach out to kids—and their parents—as early as we can.

Technology is a great way to start the conversation. The innovation on display at IGI speaks for itself, and what it's saying is, "This isn't the same old construction industry." When teenagers realize that a career in union construction and maintenance will actually give them the opportunity to work with bleeding-edge

technology every day, it can be a huge eye-opener. But that's just the beginning. We have to carry the argument further. The "shiny new thing" approach only works for a little while.

So what else can we do to sell our industry? Simple: stick to the facts, because the facts are on our side.

Closing the Sale: Apprenticeship Data

The Illinois Economic Policy Institute recently issued a new report, *Union Apprenticeships: The Bachelor's Degrees of the Construction Industry*, which includes detailed data on apprenticeships in the U.S. between 2010 and 2020. "Joint labor-management apprenticeship programs are the bachelor's degrees of the construction industry, delivering training hours, diversity outcomes, competitive earnings, and positive social and fiscal effects that rival universities and community colleges," the report argues. "These outcomes are achieved without incurring \$39,000 in debt, which is the average loan burden for student borrowers across the United States. For young workers, the unionized building trades' registered apprenticeship programs offer excellent alternatives to achieving financial stability and upward economic mobility."

The entire report (available at illinoisepi.org) is worth reading, but I wanted to pull out a few of the more interesting data points:

- Union construction workers earn \$58,000 per year on average, **46% more** than non-union construction workers (\$39,700).
- **89% of union construction workers** have private health insurance coverage compared with just 55% of non-union construction workers, a 34 percentage point difference.
- **68% of union construction workers** have access to a pension plan compared with 54% of workers with associate degrees, 57% of workers with bachelor's degrees, and 65% of workers with master's, professional, or doctoral degrees.

The data on social and demographic aspects was also compelling. Did you know, for instance, that union apprenticeship programs are more racially diverse than non-union ones? Or that union construction workers have lower rates of poverty and higher rates of marriage than their non-union counterparts? The study also found that over 90% of union

construction workers have graduated high school and 19% have earned associate, bachelor's or advanced degrees, compared with just 74% and 14% of non-union construction workers, respectively.

What does all this mean? Our industry is not only making great strides in technology, but we also have an incredible **human** story to tell. People who join the building trades and put their all into it are rewarded with great jobs and a piece of the American dream. Put those two elements together and you create a powerful argument that many young people desperately want to hear. So let's stop wasting time searching for the "silver bullet." It turns out we had the real solution all along.

I hope you have a wonderful holiday season, and here's to a safe and prosperous 2022! ■

Technology can help you do your job better and more efficiently, but it will never be a shortcut to success.



Calling All Entrepreneurs

BY DANIEL HOGAN, TAUC CEO

The message going into 2022 and beyond is clear: the union construction and maintenance industry is open for business. I'd like to discuss some recent developments that have the potential to attract a new generation of entrepreneurs and investment and to position us for a fresh wave of long-term, post-pandemic growth. There **is** a light at the end of the tunnel, but it will require a lot of hard work from contractors and our partners in the building trades to reach it.

ARPA and the New Pension Paradigm

In March, President Joe Biden signed into law the American Rescue Plan Act (ARPA), intended to help combat the economic effects of COVID-19. There's a lot to unpack in the \$1.9 trillion funding package, but for contractors, a couple of provisions stand out. Most important, the legislation created a \$94 billion fund for the Pension Benefit Guaranty Corporation to provide federal financial assistance to more than 200 multiemployer pension plans in critical or declining status and facing insolvency. These plans will receive huge lump-sum, forgivable loans, enough to pay full benefits to roughly 3 million pensioners for 30 years. ARPA also eased certain regulatory requirements that will allow plans to more effectively deal with any investment losses sustained because of COVID-19.

In one fell swoop, ARPA substantially reduced, if not outright eliminated, the threat of unfunded pension liability for a huge swath of our industry. For decades, the looming specter of liability stifled growth, forced consolidation among contractors, and scared off entrepreneurs and investors from entering the field. Many contractors closed up shop altogether, leaving their remaining competitors on the hook for an even greater share of the pension liability. It also endangered the legacy of family-owned contractors. Parents who spent their entire lives building

businesses with hopes of passing the baton to their children and grandchildren found that younger generations were hesitant to take over because of the huge amount of potential debt that came along with it.

Full disclosure: TAUC was one of many contractor associations that argued for a solutions-oriented approach to the problem of unfunded liability. We believed that giving plan administrators a new set of flexible financial tools, including the ability to create hybrid, or composite, plans containing a mix of features from both defined benefit and defined contribution plans, was the best possible solution. But in the end, advocates for a government-funded rescue prevailed and were able to ensure its inclusion in ARPA. Now we can all move forward and work to ensure we make the most of this once-in-a-lifetime paradigm shift.

ERISA and the Importance of Precedence

More recently, TAUC received approval to intervene in two important legal cases as a "friend of the court." Both have the potential to create significant precedent as it relates to the ERISA Building and Construction Trades (BCI) Exemption, which exempts employers from withdrawal liability if certain conditions are met. We believe it is our duty to protect this exemption, which is crucial to maintaining success for unionized contractor firms.

The first case was an appeal in *Sofco Erectors, Inc. v. Trustees of the Ohio Operating Engineers Pension Fund*, which centered on the definition of the "partial withdrawal" test for a BCI employer. In our brief, TAUC pointed out that for many BCI employers, contributions to multiemployer pension funds have declined considerably in recent years, not because of moving work from unionized to non-unionized tradesmen, but instead because of certain types of construction, maintenance and repair work declining in specific industries, such as the electric utility industry. TAUC advocated for a clear and easily determinable test to determine partial-withdrawal liability for BCI employers. While the appeals court's decision didn't resolve our concerns, it did remand the issue back to the lower court.

Daniel Hogan is the CEO of The Association of Union Constructors and also serves as Impartial Secretary and CEO of the National Maintenance Agreements Policy Committee, Inc. (NMAPC).



The second case was another appeal, this time from an arbitrator's decision as to how to determine whether an employer qualifies for the BCI exemption in the first place. Pension law creates an exemption from the regular rules about withdrawal liability for an employer if "substantially all employees" of such employer perform work in the building and construction industry. An arbitrator had found that the "substantially all employees" requirement should be determined not by a head count of employees but instead by reference to "contribution base units" ("CBUs"). The arbitrator also determined that the test should be measured by looking at monthly snapshots of persons and CBUs, not over a longer period. The affected employer appealed the arbitrator decision to the U.S. District Court for the Western District of Missouri, in a case called *PSF Industries, Inc. v. Boilermaker-Blacksmith National Pension Trust*.

TAUC and the National Association of Construction Boilermaker Employers filed a motion requesting leave to file an amicus curiae brief. In the brief, we argued that the arbitrator's test was legally incorrect and would harm the interests of builders and contractors. The court granted our motion for leave to file the amicus and largely adopted our arguments: it reversed the arbitrator and ruled in favor of PSF Industries.

“The message going into 2022 and beyond is clear: the union construction and maintenance industry is open for business.”

What It All Means

Taken together, ARPA and the two ERISA court cases could have a huge effect on our industry and set the stage for a new era of long-term development and growth. Many of today's most successful construction companies (and longtime TAUC members) were started in the 1960s and 1970s by veteran union craftworkers and journeymen with a can-do spirit and fierce desire to succeed. The business landscape was very different back then; while there were plenty of challenges,

new entrants didn't have to deal with the massive unfunded liabilities and tricky BCI questions that came later. The ARPA provisions and recent court decisions have the potential to create a much more stable and attractive business environment, where a new generation of blue-collar entrepreneurs can make their mark, just like our founding members.

And when you factor in contractors' ongoing embrace of new technology (see coverage of IGI 2021 beginning on Page 12), our industry's portfolio starts to look even stronger. It's a given that Wall Street and the investor class will also notice these changes and look to make the most of them, too.

Sure, it's easy to sit back and paint rosy scenarios of the future. But we would do a disservice to our members if we ignored these recent positive developments and what they could mean in terms of new growth and market share. Nothing is guaranteed, and we'll need to work harder than ever, but we have a chance to do something great. That's all we can ask for.

I wish you a happy and safe holiday season and look forward to seeing you at one of our TAUC events in 2022. ■



Stanley Black & Decker Launches \$25M Effort To Close Trade Skills Gap and Fund Training



TAUC Industry Partner Stanley Black & Decker (SBD) announced last month it is launching “a five-year, up to \$25 million commitment to fund vocational skills training and reskilling programs in the construction and manufacturing sectors,” according to the company.

“Beginning Oct. 1, nonprofits around the globe can apply for grants as part of the ‘Empower Makers’ Global Impact Challenge,” SBD added in a release. “The program is a critical component of Stanley Black & Decker’s corporate social responsibility program that includes a goal to empower 10 million makers by 2030. The Impact Challenge is expected to skill and reskill up to 3 million makers over the next five years.”

SBD pointed to the current trade worker shortage and pointed out that there are more than 400,000 open construction jobs currently in the U.S. “The pandemic has exacerbated this problem with millions of workers displaced since early 2020,” the company added. “In addition, the shift to remote and hybrid learning significantly impacted career and technical education (CTE) schools and classes, which rely heavily on hands-on learning. Almost 60% of CTE administrators reported lower enrollment in their programs for 2021.”

“Stanley Black & Decker is for the makers, the builders and the tradespeople, those out doing the hard work to create the world around us and build a better future for themselves, their families and their communities,” said Stanley Black & Decker CEO Jim Loree. ■

TAUC, NABTU Team Up to Promote Jobsite Safety & Health as Pandemic Lingers

The Association of Union Constructors (TAUC), a leading advocate for more than 1,800 union contractor firms in the construction and maintenance sector, and North America’s Building Trades Unions (NABTU), which represents more than 3 million skilled craftworkers across the U.S. and Canada, jointly urge construction professionals to follow COVID-19 jobsite safety protocols amid the rise in breakthrough COVID-19 cases and the spread of the Delta variant.

The ongoing pandemic — and an overarching concern for the well-being of the men and women who maintain our country’s critical infrastructure — prompted both national organizations to take this important and unprecedented step.

In a joint letter to union craftworkers and employees of TAUC member contractors, TAUC and NABTU expressed support for a “layered approach” to addressing the pandemic. “At the jobsite, testing and tracing, adequate ventilation, physical

distancing, and masking and respiratory protection will protect members,” the two groups wrote. “To assist with that, we are asking you to consider getting vaccinated if you haven’t already. It’s one of the best ways to protect you and others from COVID-19 and the Delta variant.”

“The bond between union contractors and the men and women of the building trades has always been strong,” said Daniel Hogan, CEO of TAUC. “Since the pandemic began, that bond has only grown stronger as we worked side by side to keep the country running under extremely difficult circumstances. Through good times and bad, we always look out for one another and make safety our top priority. That’s why TAUC is proud to partner with NABTU in encouraging all construction professionals to follow and take seriously COVID-related safety protocols on the jobsite — and also to consider getting vaccinated. At the end of the day, our industry is nothing without our people.”

“We appreciate the collaboration and



communication with TAUC to put the safety of workers first,” said Sean McGarvey, President of NABTU. “As we do our part to lower the rate of infection in our communities amid the Delta variant surge, we urge everyone who is eligible and able to get vaccinated. Evidence shows that COVID-19 vaccines, combined with health and safety protocols, are the best tools available to protect each other on the jobsite. From issuing our national disease control standard to advancing infection control and prevention measures and negotiating mandates and testing on worksites, worker safety remains forefront for NABTU, and we will continue doing whatever it takes to protect our members, contractors and everyone in the construction industry.”

You can view the TAUC-NABTU letter at www.tauc.org. TAUC members are encouraged to share the letter with workers. ■



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Saying Goodbye to a Legend: Joseph La Rocca, 1925-2021

BY DAVID ACORD, TAUC DIRECTOR OF COMMUNICATIONS



Joseph La Rocca

Joseph Raymond La Rocca, a true legend in the union construction and maintenance industry, passed away peacefully at his home in Ventura, California, on Sept. 9, 2021, at the age of 96.

Joe served as Executive Vice President of TAUC's predecessor organization, the National Erectors Association, from its inception in 1969 until his retirement in 1986. In addition, he also served as the first Impartial Secretary of the National Maintenance Agreements Policy Committee, Inc. (NMAPC) and was instrumental in spearheading its creation and shepherding its unprecedented growth throughout the 1970s and 1980s.

Born in 1925 in Newburgh, New York, Joe was the oldest of five brothers. He enlisted in the Navy at age 17 and earned three battle stars in the Pacific Theater (Tarawa, Kwajalein and Okinawa) before he was 20 years old. Returning to civilian life after the war, he married his childhood sweetheart Maria, and they spent 63 wonderful years together before her death.

Joe started out working in construction and then formed a new chapter for the National Electrical Contractors Association (NECA) in Eastern New York. By the mid-1960s, he was working as NECA's Assistant Director of Labor Relations in Washington, D.C. Joe's success caught the attention of the General President of the Ironworkers, John Lyons, who was forming a new trade association: the National Erectors Association, which would later become TAUC. Joe soon came on board as its first leader, and the rest, as they say, is history.

Joe made TAUC and NMAPC what they are today. His passion for the business is a

vital part of his legacy. His leadership philosophy was simple: you don't just serve the contractors, the participating unions and/or the owner; your service is an even higher calling to the growth and prosperity of the industry as a whole.

In 2019, TAUC named our newest award program in his honor, the Joseph R. La Rocca Union Project of the Year. These awards recognize outstanding work performed under labor management cooperation and are judged using four criteria: collaboration teamwork, construction quality and craftsmanship, project execution/scale, and safety.

"It is difficult to explain how much Joseph La Rocca meant to TAUC and NMAPC and the impact he had on the union construction and maintenance industry," said Daniel Hogan, CEO of TAUC and Impartial Secretary/CEO of NMAPC. "He was a true legend and pioneer in every sense of those words. But his legacy encompasses far more than just our business. As anyone who met him in his later years can tell you, Joe lived his life to the fullest and was constantly making new friends. He had more energy in his nineties than most folks have in their twenties. He approached every day with optimism and gratitude. We, too, are deeply grateful for Joe, and send his family our sincere condolences."

Joe is survived by two children, Paul (Nancy) and Donna (Mark); a brother, Paul; two grandchildren; two great-grandchildren; and many nieces and nephews. The family is requesting that donations in memory of Joe be directed to the International Masonry Training and Education Foundation. Learn more at www.imtef.org. ■

Friends and Colleagues Remember Joseph La Rocca

Joe La Rocca was always respected as an honest broker for labor and management by the Iron Workers International. That's why we were the first International Union to sign on with the NMAPC. He was a true leader in our industry.

—Joseph Hunt, General President Emeritus, Iron Workers International Union

Joe was a member of the Greatest Generation—a World War II veteran who came back home and lived a remarkable life built on hard work, grit and integrity. With keen foresight and a deep dedication to blue-collar union workers, he helped build not one, but two organizations that transformed the union construction and maintenance industry. Everyone at TAUC and NMAPC owes him a debt of gratitude.

—Michael Pleasant, President and Labor Co-Chair, NMAPC; Assistant General President, United Association

Joe La Rocca built the foundation that has led to the growth and sustainability of TAUC and NMAPC. His passion and persistence live on to this day in the culture that Joe helped to instill within these two organizations and the union construction and maintenance industry as a whole.

—Steve Lindauer, Former TAUC CEO and NMAPC Impartial Secretary/CEO (2006-2021)

Joe gave me my lifetime opportunity in our industry when he hired me at the NEA in 1985. Even though he was forced to retire due to health conditions, he remained a friend and mentor the rest of my life. How can you capture the impact he had on our industry? You can't!

—Eric Waterman, Vice President, NEA/TAUC (1985-2002), Founding CEO of Ironworkers Management Progressive Action Cooperative Trust (2003-2012)

When I think of Joe La Rocca, I think of three words: first, dedication. Joe dedicated his life to promoting union construction. He was on the job 24/7. Second, passion. His passion for his work pushed him and those who worked with him to create new horizons such as the NMAPC to enhance opportunities for unions and union contractors. And third, compassion. Joe's love for his family and friends knew no boundaries. He was always there to provide support to those who needed it.

Joe was forced to retire when his doctor told him that the stress from running the NEA had put him in danger of having a fatal stroke. He called a meeting of the NEA Executive Committee to explain the situation. They listened to Joe and then asked him to leave the room. As NEA General Counsel, I attended the meeting. The committee asked me to outline the retirement benefits Joe was entitled to under his contract and concluded they were too low. Then the committee gave him a better retirement package. That shows the appreciation and respect the NEA had for Joe. He was a great friend, and I will miss him.

—Steve Fellman, former General Counsel, NEA/TAUC

I remember Joe for his toughness and discipline to stay the course. Joe was 17 years older than me, and I remember him guiding me (yelling!) with strong words as he was the change artist in developing the National Maintenance Agreements. In the early 1970s, I was working in the field as a project manager/superintendent doing a lot of work in the steel mills, foundries and auto plants—some of the real tough, dirty jobs. Joe had convinced the union leaderships that we had to change our wages and working conditions to get the maintenance work in those facilities. I was caught in the middle and looking for excuses. Joe was hard-nosed and pushed me to execute the program. Joe also wanted all jurisdiction to be by the book, and he would mentor me, again with his strong words, to get it right. After several years of fighting him, he convinced me that the change was necessary for the industry, and I developed great respect for him. He was a wise man, and the whole industry is better for his pushing for change.

—Bill Treharne, Director of Engineering and Administration, Midwest Steel

Joe was with us through the inception of the NEA and was a true leader and advisor to us all. He loved the construction community and held a very special place in his heart for union steel fabricators and erectors. As a leader and a man for others, he truly set the example of how to treat everyone with kindness, respect and love.

—James Mirgliotta, Executive Vice President, Forest City Erectors and former NEA President

IGI 2021: Embracing Change

BY TIMOTHY HOCH, CHAIR, TAUC INNOVATION AND TECHNOLOGY COMMITTEE



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One of the main drivers of new technologies is convergence — the sudden availability of multiple new capabilities, technologies, systems, attitudes, resources or ideas that coalesce into new solutions to long-term challenges, or even to challenges we didn't know existed until a solution became available.

The past few years have created a convergence of events, resulting in the rapid acceleration of digital transformation and technology adoption across the construction industry. The cost of computing power has continued to decline, investment in new technology has grown significantly, and a great many forward-thinking people have embraced the exponential benefits of testing and employing new technologies. The COVID-19 pandemic has further driven the adoption of new technologies, enabling the swift growth of remote work and virtual workforce management, as well as enhanced communications and collaboration across businesses and their workforces. It has also resulted in the rapid deployment of new safety technologies and has allowed many businesses to quickly adapt and thrive in the current work environment.

Exponential growth in emerging technologies will continue to be the norm over the coming decade and beyond. Augmented reality, virtual reality, mixed reality, artificial intelligence, machine learning, wearable technologies, enterprise software solutions, cloud computing, advanced safety technology and many other capabilities that are either available now or will be in the near future will continue to shape

our industry. Are you ready to embrace these changes?

We certainly are! And by "we," I mean TAUC's Innovation and Technology Committee, or IT Committee for short. It was formed in 2019 as one of the four core focus areas for the organization, joining Environmental Health and Safety, Labor Relations, and Government Affairs. The purpose of the committee is to foster networking among technology leaders across the construction industry, to share successes and failures, and to work as one voice to tackle significant challenges common to our businesses. Does your business have a representative on the Innovation and Technology Committee? If you are a TAUC governing member and would like to get involved, please contact either myself or Todd Mustard for more information.

Our annual capstone event is the Industrial Grade Innovation Conference and Expo (IGI), which was held in St. Louis in August. This was the first in-person TAUC event in nearly two years, and the turnout was simply amazing. Attendance was on par with the last pre-pandemic event in Cincinnati, and the trade show expo included representatives from several first-time businesses demonstrating their creative solutions to a broad array of challenges faced by the construction industry. Industry leaders demonstrated their software solutions, safety systems, leading-edge tooling, robotics, drones, virtual/mixed/augmented reality systems and a host of other cutting-edge technologies. Thank you to everyone who attended,

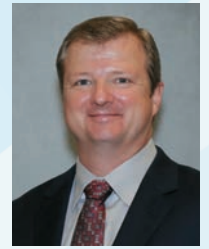
Exponential growth in emerging technologies will continue to be the norm over the coming decade and beyond.

presented or brought a new technology to demonstrate! You made the event a resounding success, and you will not want to miss the next IGI Conference and Expo, which will be held at the Broadmoor Conference Center in Colorado Springs next September.

Talent, Tools and Connectivity

The IT Committee met during the week of IGI to discuss emerging technologies and challenges and to welcome some new members. The meeting included presentations from Milwaukee Tool, Procore and EquipmentShare, as well as a preview of the IGI Startup Battle. Our roundtable discussion was engaging, as always, with members discussing successes and challenges across their respective businesses and openly sharing ideas and recommendations. The discussions led to a number

Timothy Hoch is Information Technology and Innovation Director at APM. He also is Chairman of TAUC's Innovation and Technology Committee.



of possible action items, with the committee identifying several key priorities for the next year.

Talent acquisition is one of the biggest challenges facing the construction industry. The committee explored developing partnerships with industry leaders and other TAUC committees to determine where we could influence industry workforce advocacy. Emerging construction technology and innovative new systems and solutions will draw younger talent to the industry, and TAUC should be at the center of leveraging these opportunities.

Another challenge is growing the IGI Conference and Expo. Attendance has been steady for the last two in-person events, and we believe there are opportunities to increase attendance while expanding the audience to include more owners and venture capital organizations. While many of the providers that participated in the recent expo offered software or digital systems, many new hardware and equipment solutions should be considered for future events. Expanding the trade show to incorporate broader offerings will help TAUC reach a larger audience.

The committee also discussed creating an internal initiative to research and share business success and challenges regarding tool-tracking software and processes, including remote tool monitoring. The discussion revealed that member organizations have tested multiple solutions with mixed results, and the goal of this initiative is to learn which solutions have been implemented, and of those, which had the greatest level of success.

Data gathered from this initiative will be shared with committee members, and any pain points identified will inform future discussions and initiatives.

Finally, the committee discussed the challenge of developing a solution for providing powerful, portable, easy-to-use jobsite network connectivity. Unfortunately, there have been no breakthroughs in this area, but we have had success in elevating this issue to industry partners, which now recognize the need for a solution. Part of the challenge in developing a solution is the broad range of requirements — from long-term jobsites that physically change throughout a construction project to short-term jobsites in austere locations with

little or no network coverage. Our goal is to continue to seek solutions while sharing challenges and requirements with industry partners that have expressed interest in tackling this issue.

Each of these action items are ambitious, but the availability of emerging technologies and the increasing convergence of capabilities offer the potential for creative solutions in the very near future. We will continue to seek new technologies and innovations, monitor trends, and attempt to identify potential disruptors that will affect our industry. The pace of change is accelerating. Are you ready? ■



St. Louis Union Station, site of IGI 2021

Vertical Rises, Wins IGI 2021 Startup Battle

BY TODD MUSTARD
VICE PRESIDENT, TAUC



One of the standout events of our year, TAUC's Industrial Grade Innovation Startup Battle, recently concluded after two months of hard-fought competition. This year, eight construction-technology startups competed in three rounds of head-to-head battles to see which would win the title of IGI Startup Battle Champion, vying for the eyes and ears of IGI attendees and venture capitalists as well as the \$20,000 grand prize sponsored by Barton Malow and NMAPC.

When all the pitches were heard and scoring compiled, Vertical, an innovative venture founded in 2018 dedicated to removing the chaos from construction-draw management, earned the championship and the grand prize.

Vertical Enters the Startup Battle

Vertical caught the eye of the IGI team, given its growing reputation among project participants in the construction-draw payment chain, including title companies, lenders, owners, developers, general contractors, subcontractors and suppliers. This earned it the chance to pitch the company in the IGI Startup Battle.

"The moment we entered the IGI competition, we had no idea what to expect," said Mike Fitzgerald, Chief Revenue Officer of Vertical. "Right off the bat, we couldn't believe the engagement we were receiving from not only people already following us on social media but also new interactions we were capturing. It was incredible."

The first round of competition involved an online face-off against GoContractor, where both companies created a two-minute video pitch and drove engagement



L-R: Justin Johnson and Mike Fitzgerald of Vertical.

via social media and word of mouth. Vertical won the hearts of online voters by describing how it automatically populates lien waivers, sworn statements and other documents that would normally take hours to complete. As one customer (an accountant at a large general contractor) put it, she was able to get her draw documentation to her owner an entire week earlier than she ever has in her career.

Considering how that type of efficiency improvement will multiply across all projects and all participants, it became abundantly clear to voters and judges how Vertical is disrupting construction draw. Now, having won in the round of eight, the Vertical team was headed to St. Louis to tell the story in person to potential prospects, partners and venture capitalists.

On the stage at the IGI Conference, Vertical focused on the need for a connected and standardized ecosystem. In an

industry advancing in so many ways, many finance and accounting teams are stuck in gridlock when it comes to collaboration, with delays in payments for everyone. Collecting and completing monthly paperwork, such as invoices, lien waivers and compliance documentation, is fragmented, inefficient and outdated, but with Vertical, that's no longer true. Vertical has focused on making the process as easy as possible, thanks to the open-platform approach and strategic partnerships with industry leaders such as Procore and DocuSign.

"I think our biggest challenge in terms of standing out from the competition was figuring out how to communicate the complexity of our solution in a way that made sense to everybody," explained Chief Creative Officer Justin Johnson. "While we find that our primary competition still somehow remains spreadsheets and email, we're thrilled with how quickly

Todd Mustard is Vice President of TAUC. He can be reached at tmustard@tauc.org.



The IGI Startup Battle: A Startup Within a Startup

BY TIM SPENO, PRESIDENT AND CEO, E2E SUMMIT

Several years ago, when TAUC Vice President Todd Mustard and I began developing the first Industrial Grade Innovation Conference and Expo, we searched for ways to create fresh content beyond traditional keynote speeches, breakout sessions and a trade show. At one point, one of us said, “Let’s do our version of *Shark Tank*.” (We still argue over who actually came up with the original inspiration.) Over the next several weeks, we created the format for what would eventually become known as the IGI Startup Battle, where construction-tech firms pitch their ideas live and onstage to a group of venture capitalists. And before we knew it, a “startup within a startup” was born.

Let me explain. Since the first battle in 2018, we have been continually tweaking, refining the competition’s rules and overall experience, just as new companies constantly fine-tune their own products and services. In 2020, for instance, we expanded the competition beyond the original format of four construction-tech startups to 16. (This year we went back to eight, but who knows what the future holds?) We added a bracket-style, head-to-head format with multiple rounds, each with different judging criteria. And we have had a pair of wonderful sponsors along the way: TAUC governing member Barton Malow and the National Maintenance Agreements Policy Committee, Inc. (NMAPC). Their generosity enabled us to offer a **\$20,000 grand prize to each year’s winner:**

- 2018: StructionSite
- 2019: M-Suite
- 2020: Document Crunch
- 2021: Vertical

Though not everyone can come out on top, each startup participant gets a massive amount of exposure during both the competition and the entire IGI event — and there are no entry fees. If you are (or know of) a startup in the construction space and are interested in learning more about participating in the next IGI Startup Battle — scheduled for Sept. 7-8, 2022, at the Broadmoor in Colorado Springs, Colorado — contact me at timspeno@e2esummit.com or Todd Mustard at tmustard@tauc.org.

IGI Startup Battle eligibility requirements:

- An early-stage company incorporated within the past seven years as of Jan. 1, 2022.
- Currently, Pre-series A or Series A funding received no earlier than Jan. 1, 2022.
- Past participating companies are not eligible, but previous founders at another startup are eligible.

Good luck — we are already actively searching for our next group of competitors!

organizations are coming on board and enjoying a way to manage such complicated workflows that’s collaborative, streamlined and efficient. We’ve really appreciated the opportunity to share our solution.”

When the dust settled on the Fab Four, Vertical was again victorious (this time over StructShare). It was now moving onto the final round against another impressive startup in Hyperframe, where one company would be declared the winner.

The Final Round Goes Remote

Because of rising concerns with COVID-19, the IGI 2021 Startup Battle pivoted to a remote setting for the final round. Losing the opportunity to read the room didn’t slow the team down, though. It maximized its time on a Zoom meeting, sharing with a panel of venture capitalists why Vertical is so special.

“We were heartbroken when we got word that things had to change at the last second,” Fitzgerald recalled. “We heard from the IGI representatives that they were trying to figure out how to keep moving the Startup Battle along. It was such a relief to know we still had our shot.”

Having virtually heard the pitches from Hyperframe and Vertical, the judges were ultimately so impressed with the value Vertical provides to users throughout construction-draw management that they happily awarded it the \$20,000 check and the title of 2021 IGI Startup Battle Champions.

“Having been through the competition, we’re very fortunate that we won,” Fitzgerald continued. “Even if we didn’t win, we would absolutely go through this again. We set up multiple meetings not only with venture capitalists but also customers.”

Learn more about this year’s IGI Startup Battle winner at www.verticalmade.com and view its Startup Battle video at www.industrialgradeinnovation.com. ■

Meet This Year's Startup Battle Contestants



August 17-19, 2021

INDUSTRIAL GRADE INNOVATION

ST. LOUIS, MO



www.gocontractor.com

GoContractor is focused on digitizing construction onboarding. With over 1 million site orientations occurring every day in the construction industry, collecting, copying and storing worker qualifications and information take valuable time and resources away from the real work that needs to be done. GoContractor lets workers and subcontractors upload all necessary information (and even complete orientation and training) before they set foot on your worksite. Contractors can also track the status of worker qualifications and get alerts when they're noncompliant. GoContractor also allows users to control things such as site access and credential spot checks — all from your tablet or smartphone.



LABS

www.goxlabs.com

GoX Labs has created the next generation of wearable devices to improve the performance and health of industrial workers. Its "pod," or wearable sensor kit, attaches to the neck, waist or ankle, then collects critical biomechanical data and analyzes it using cutting-edge AI and machine learning. The pod alerts the wearer when it notices a high-risk activity, and it is extremely effective in reducing overexertion, slips/trips/falls and equipment injuries, which collectively result in 84% in all workplace injuries. Injuries have been shown to be reduced 50% and costs reduced 30% for its customers.



www.hyperframe.com

Hyperframe has reimagined steel framing from the ground up, reengineering every element of the process for speed, safety and quality. Their software enables metal wall framing to be done 15 times faster than the current industry practice. How? Hyperframe transforms your BIM into a detailed manufacturing order ready for your PO. Then it builds and batches your framing into kits, which are delivered to corresponding zones on your jobsite. Each piece snaps into place with Hyperframe's pre-mounted snap connectors — no special training is required, and there's no measuring, marking or cutting, either. Workers wear Trimble's XR10 mixed-reality hard hat, which uses visual prompts and shows them where and how to install the materials.



www.imajion.com

IMAJION has developed the first videoconferencing platform specifically built for the construction industry. The IMAJION Collaboration Platform uses patented remote augmented reality technology to connect team members on a jobsite with remote team members around the world. Through secure videoconferencing, latency-proof augmented reality markup and file sharing directly from the cloud, IMAJION increases jobsite productivity, reduces costly delays and mistakes, and keeps jobsites safe. Using the platform, a field rep shares their AR view and voice with off-site conference participants. Teammates click the video to place 3D markers and text anchored to the site in real time. Recordings, snapshots and 3D scans capture annotations and automatically store in-project documentation. Callers can also securely stream files to and from Procore, BIM360, Dropbox, their desktop or the IMAJION cloud.



www.joinrivet.com

Rivet provides simple, streamlined communication for construction projects. Contractors can send messages to workers, subs, architects or vendors (or anyone else); assign tasks; store photos and files; and more, all in one easy-to-use app. Project information and updates are available on any device at all times, keeping everyone on the same page. And the "who's on-site" feature is an easy way to know who's at a jobsite to help answer a question or sign for a delivery. You can even translate messages in different languages using Rivet!



SiteScape

www.sitescape.ai

Mobile 3D scanning using the latest LiDAR scanning devices from Apple is a massive opportunity to open reality capture to a much wider market. SiteScape is leveraging this new capability to make a major impact on design coordination, project management and remote collaboration. The vast majority of construction and post-construction is still managed using 2D drawings. And even when 3D modeling is used, RFIs, submittals, specs, punch lists and site photos are often left out. SiteScape's solution allows you to capture the full context of what is happening on your jobsites in seconds, using a scanner that is always available in your pocket. It helps eliminate ambiguity to ensure stakeholders have the information they need to make the right decisions.



www.structshare.com

StructShare streamlines the purchasing of building materials by connecting field, accounting and procurement teams in a seamless cloud-based platform. Their easy-to-use and quick-to-deploy platform streamlines and automates the entire purchasing and material-management cycle — from field purchasing, office PO and invoice processing to real-time accuracy and visibility for project-management oversight. StructShare's solution allows you to harness the power of digital purchasing management to improve job-cost accuracy with seamless budget and inventory tracking. Contractors can track building-material costs by project phase and cost code and get real-time visibility on inventory and budgets at a glance with project-expense dashboards.



www.verticalmade.com

Vertical was built on a solid understanding of construction disbursement and the belief that it can be dramatically improved. Using Vertical, stakeholders ensure their funds are tracked and maximized throughout the life of the project. Draws are packaged in a format your lender and title company will love. GCs can build continuation sheets, allowing subcontractors to be assigned contracts. When ready, all waivers can be sent with a single click for easy tracking. Subcontractors and suppliers can get paid quickly because Vertical provides a workflow that speeds up the invoice and waiver process, allowing funds to be exchanged sooner. Lenders and title companies use Vertical to reduce liability and increase visibility within their portfolio.

Kaihan Krippendorff on Winning the Future of Construction

Great innovators talk about *outthinking* the competition, not *outspending* or *outmuscling*. We are looking to come up with ideas our competitors can't keep up with. We want to slow down how long it takes competitors to copy us.

There's a point at which others stop thinking. It's represented by three – great orders repeat in threes, everything is broken down into threes. It symbolizes the point at which your competitors say, we've considered all the options, let's start narrowing. **What innovators do is look beyond that for a fourth option.** I believe this pattern is the source of all breakthroughs.

You are going to generate ideas that will seem ridiculous. When people who are smarter than you and I, who are more experienced, who are experts, tell you why it won't work, that's the only sign you potentially have a fourth option.

If you play the way you've always played, we know what the outcome will be. To change the outcome, we need to change the way you play the game. They expect us to do one thing, so we do something different.

**Change separates thinkers from outthinkers.
What do we want to be?**

Today, successful companies less often define themselves by their industry—they define themselves by something else that has them behave differently.

What business are you really in, and how does that kind of company behave?

Learn more at kaihan.net



The Girl Scout Leadership Pipeline: Solution to a Looming Workforce Shortage

BY KAREN LAYNG

Editor's Note: Karen Layng is the President of M.A.I.T. & Co. and National Chair of Girl Scouts of the USA's Board of Directors. She was a featured keynote at TAUC's IGI Conference and Expo in St. Louis in August. In this article, she shares some of the major themes of her presentation.

As the engineering and construction industries face a looming talent shortage, I would like to reintroduce you to an ideal partner: Girl Scouts of the USA (GSUSA). Beyond our iconic Girl Scout Cookies program and our focus on getting girls outdoors, Girl Scouts is the world's largest leadership organization for girls. Simply put, Girl Scouts is critical to building a better world for the future — and to supplying a talent pipeline to contractors and the building trades.

As a proud Girl Scout alum, I have the honor of serving as Chair of Girl Scouts of the USA's Board of Directors. Before serving on the national board, I had the privilege of volunteering in other local roles for Girl Scouts, including as co-leader of my daughter's troop for 13 years. I witnessed how girls and communities benefit from Girl Scouting. I saw the girls discover and use their voices to create the future they wanted for themselves and others. I am proud that my own daughter earned her Gold Award, the preeminent youth leadership honor (and highest award in Girl Scouting).

They did this all through the Girl Scout Leadership Experience, a one-of-a-kind leadership-development program based on time-tested methods and research-backed programming that help girls take the lead in their own lives and in the world. With Girl Scouts, girls prepare for a lifetime of leadership, from accepting a mission on the International Space Station to lobbying the city council with her troop to holding a seat in Congress to running her own cookie business and to leading a Fortune 500 company. Girl Scouts are leaders in



Karen Layng and St. Louis Girl Scouts explore new technology at IGI 2021

their communities today, preparing to be the workforce leaders of tomorrow.

Throughout our history, girls have been introduced to the skilled trades. The founder of Girl Scouts, Juliette Gordon Low, wanted all girls to have skills that would give them meaningful employment — a somewhat radical idea for the time! The electrician badge, for example, was launched in 1913, one year after Girl Scouts was founded.

GSUSA and TAUC share many values, including an understanding of the critical importance of science, technology, engineering and mathematics (STEM) skills, and an eye on the long-term development of a sustainable, skilled workforce. In fact, STEM is one of our four program pillars — in addition to the outdoors, life skills and entrepreneurship. Accordingly, there are many possibilities for collaboration

between our organizations, and Girl Scouts ask for and need your support. GSUSA is excited about exploring partnerships with construction industry leaders and engaging and inspiring the next generation of girls to pursue careers in our field.

As one example of this kind of partnership, GSUSA and the Home Depot announced earlier this year that we are piloting a series of skilled-trades workshops. Led by female industry professionals, the workshops will provide girls hands-on experience with carpentry and other building-construction trades. They will allow girls to see themselves in these essential careers by connecting with role models who can spark their interest and show them the opportunities available to them in these fields.

You and your companies can also support Girl Scouts in their mission to develop

Karen Layng is an Adjunct Professor in the EMDC program at Northwestern and the President of M.A.I.T. Co. Learn more at www.mait-co.com



girls of courage, confidence and character, who make the world a better place. Consider holding career-exploration days or offering scholarships for Girl Scouts who demonstrate trades knowledge in their Gold Award-earning projects. Invite Girl Scouts to participate in industry events, tour your facilities and meet industry professionals, or join hands-on training to explore the skilled-trades and instrumentation and project-management work. You can partner with us to develop badge content for industry-specific activities, similar to how we have worked with major technology, automotive and aerospace companies to develop activities related to cybersecurity, mechanical engineering and space science.

Girl Scout programs help girls build 21st-century skills for 21st-century careers. We introduce them to fields and career paths with traditionally low female representation and give them opportunities to practice their skills in problem-solving, team-building, collaboration and conflict resolution. Whether she is planning a cookie booth, hosting a clothing drive or leading a project on environmental sustainability, she is building and practicing skills that set her up for long-term success: Girl Scout alums are more likely to graduate college, hold leadership roles and feel satisfied about their lives.

These results are even more significant for girls who earn their Gold Awards. These Girl Scouts create and execute projects that address a local challenge related to a national and/or global issue and have a measurable and sustainable effect. Gold Award Girl Scouts set themselves apart

from their peers through their perseverance and grit — and they build their resumes and earn scholarships in the process. They gain real-world skills and prove they are the leaders that campuses, communities and industries need. According to recent research, Gold Award Girl Scouts are more likely to fill leadership roles at work and in their personal lives than their non-Girl Scout peers. They become innovative problem-solvers, empathetic leaders, confident public speakers and focused project managers. They learn resourcefulness, tenacity and decision-making skills, giving them an edge personally and professionally. Is there an ambitious high schooler in your life? She can join Girl Scouts today to begin improving her and the nation's future tomorrow by starting work on her Gold Award.

Our industry faces an urgent need for skilled workers and visionary thinkers to carry the mantle into the future. Girl Scouts can be part of the solution. We are a leadership pipeline and a great, untapped base of go-getters and innovators who have the curiosity, motivation and tenacity to take on any challenge and shine.

Please encourage a girl you know to join Girl Scouts ... and put your hand up to introduce your work to Girl Scouts — who are already learning the skills they will need tomorrow, while making their communities and our world a better place today. And finally, buy crates of Girl Scout Cookies for all your employees to support the effort of our rising future leaders! ■



St. Louis Girl Scouts make friends with robotic dog at IGI 2021

Smaller Markets, Bigger Profits: Cracking the Contech Startup Code

BY GREGG WALLACE
PRINCIPAL, BUILDING VENTURES

Startups working in construction technology, or contech, face many daunting challenges. Two of the biggest are finding their “who” — the right customers for their products and services — and figuring out their “how” — the best way to actually sell to those customers. Unfortunately, from my perspective as a venture capitalist, many new contech companies are confused about both, even though they may not realize it. This confusion can have serious consequences. It not only hurts their chances at success but also short-changes thousands of contractors who could potentially benefit from their innovative offerings.

The “Who”: Why Bigger Isn’t Always Better

The construction sector is a tough nut to crack, with its incredibly complex workflows, regulatory issues, and contracting arrangements. A major project can have over 40 companies working on different facets of the job at one time. The sector also has a low concentration (high fragmentation of general contractors and subs) and an equally fragmented economy of distributors and value-added solutions resellers.

Looking to overcome these challenges, contech startups often resort to hiring business development representatives, who proceed to go after the “ENR Top 400”-type companies. These are the biggest, most high-profile contractors on the block. I can see exactly why this happens. After all, why not target the prospects with the most resources and the most shared

connections on LinkedIn? It seems like a logical, quick shortcut — the path of least resistance.

Many startup founders often assume that execs at these big companies would naturally be the ones most interested in innovation. But why make that assumption? Founders must ask themselves some hard questions: Are the Top 400 types *truly* the customers who most need your product? Are they realistically the easiest to reach? Does that senior vice president have as much purchasing power as you think? Do they really have the necessary influence to get the contract signed? And most important, do any of these leaders at Top 400 companies have the time and inclination to dabble with your product as an early adopter, given all their other corporate responsibilities?

I believe that instead of automatically going after the “big names,” more contech startups should target clients in the small and middle markets from day one — not necessarily to secure the best price levels or quantities of purchasing, but to help them master a new set of skills that will be necessary to survive (and thrive) over the long term.

The “How”: Going Digital—and Smaller

Contech startups gain traction when they not only solve a problem but also “productize” the solution’s rollout by developing an innovative, targeted process to get it into the hands of the right people. That often means moving beyond traditional selling methods such as going

to conferences, buying social media ads or trying to generate word of mouth. Even person-to-person sales might not be the best method for new and struggling firms because of its significant built-in costs.

Across nearly every sector, and now increasingly in B2B sales, the savviest companies are finding new and better ways to sell and deploy digitally even when their products require a lot of support. For instance, the fastest-growing used-car companies aren’t managing huge physical lots; they’re figuring out how to manage the entire process and workflow online. My recent home-improvement project was sourcing a solar roof installation, taking our home and vehicle energy carbon impact closer to net zero. The entire process end-to-end from Tesla was managed through digital interactions directly via Tesla.com and an app. I never spoke to a project manager. Configuration designs, permitting, a ten-year loan, the final cost — all were tracked, approved and signed online. Greeting my installers on deployment day was optional. Perhaps this “productized rollout” was one big reason the full Tesla system cost \$10,000 less than two other major national companies.

This is one big reason it’s important for startups to target small and midsize construction markets. These companies, by definition, don’t have dedicated IT staff. In fact, deploying their product tends to become a second, third, or fourth task for others in operations or perhaps a tech-proximity role such as virtual design and coordination. This reality forces startups to learn what deployment requires in the absence of any chief information officer or

Gregg Wallace is a principal at venture capitalist firm Business Ventures, based in San Francisco.



friendly innovation team to help field that first call and find the first candidate job-site for a proof of concept. In other words, it pushes startups into the digital realm, which is where everything is headed.

Without taking this crucial step, a startup may underinvest in building into their solution the types of self-service models we experience with Uber or Airbnb. These are consumer examples, true, but the lessons are applicable to construction and other B2B sectors. To win the market, startups need to help train the nondigital natives. In the absence of any trainer or consultant, they need to find a way to walk the first-time user step-by-step through the process of using their product. That means recognizing and building natively into their solutions the features needed to autonomously onboard, deploy, train and support users. “Autonomously” is tossed into that sentence to be provocative. Some remote or in-person assistance to consult on the client’s needs will always help. But the thought exercise is a worthwhile one for startups to undertake: what if, baked into our solution, was a step-by-step deployment process and guidance? This is easier said than done, but still, critical.

Bringing It All Together

In pursuit of this new digital paradigm, more and more startups are reaching out to national and regional construction trade associations, which act as nexus points to potentially connect them with literally hundreds of small and midsize contractors. In particular, TAUC, with its IGI event and strong overall emphasis on technology and innovation, acts as a crucial conduit linking distribution-deprived startups with IT/tech-staff-deprived smaller firms. TAUC and other groups also play an important role in helping startups figure out which solutions are the best fit for the business sectors they represent. They are important allies, and it’s well worth a startup founder’s time to build relationships with them.

In closing, there are great companies and great people in the elite Top 400. But from this VC’s perspective, cracking the code on optimal market reach and figuring out how to sell profitably into the small- and midsize markets is a far bigger prize for contech startups—and has a much more positive effect on the construction industry as a whole. ■

Contech startups gain traction when they not only solve a problem but also “productize” the solution’s rollout by developing an innovative, targeted process to get it into the hands of the right people.

Procore, Levelset and the “Connected Payment Chain”

BY KRIS LENGIEZA

I spent 15 years working in construction before joining Procore to head the Procore App Marketplace. I was motivated to integrate technology solutions to see the holistic view of where we can do better. Technology stood out to me as a way to make everyone’s jobs easier, and getting paid on time is one of the biggest challenges our industry faces.

The construction industry is the slowest industry to get paid across the globe. PricewaterhouseCoopers found that the industry has a median of 90 days sales outstanding and 74 days payable outstanding. Complex compliance workflows lead to cash stress, slow payments, disputes, project delays, cost overruns and more.

That’s why Procore recently signed a definitive agreement to acquire Levelset and add their tools and data to the Procore platform. Today, over 3,300 contractors use Levelset’s lien rights management solution to manage compliance workflows.

Levelset stood out immediately when it joined Procore’s App Marketplace as a partner in April 2018. Its vision is to connect project stakeholders to make payments faster, improve cash flow, and change the cost of risk. When the construction industry gets paid faster and the process to get paid is simple, everyone wins.

Lien rights are foundational to compliance workflows in the U.S., and there are similar payment complexities worldwide. It takes time and energy to manage lien rights, from complying with the nuances of lien law by state to upstream stakeholders procuring lien waivers at the point of

payment to ensure their projects are free and clear. Moving money between stakeholders involves risk and complexity, trapping significant sums of critical working capital each year.

When a connected payment chain empowers every stakeholder to move beyond capital constraints and red tape, bonding expenses and working capital costs decrease, and contractors get paid in less time and with less stress.

“If you think about Procore’s mission of connecting all the stakeholders on a global platform, one of the things that’s interesting about lien rights is they actually do connect the stakeholders, it connects them in risk,” Levelset CEO Scott Wolfe Jr. recently told *ENR*. “We’ve had to build our platform from the beginning, thinking about how we connect all the different stakeholders, because the only way to modernize lien rights in our view is to get all the stakeholders to be connected and exchange this information on a modern platform.”

The amount of stakeholders and processes that are involved in construction pose a challenge for creating effective products for contractors. Our goal of connecting construction technology solutions to gather insights is grounded in the ability to leverage the data these solutions provide.

We have an exciting opportunity to combine Procore and Levelset’s complementary data assets to provide better risk intelligence and more innovative financial products to our customers in the future.

Kris Lengeiza is Vice President of Global Partnerships & Alliances, Procore, and oversees an ecosystem that spans channel, ISV, public and association partnerships.

With a connected payment chain, bonding expenses and working capital costs decrease, and contractors get paid in less time and with less stress.

Leveraging artificial intelligence (AI) and machine-learning (ML) will provide us the ability to understand where risk really occurs and where it doesn’t, as well as analyze company performance across the industry. These insights will prove to be invaluable in delivery solutions to contractors of all sizes.

Levelset was founded as a way to help contractors and the industry experience a payment process with fewer surprises. Together with Procore, it’s going to get even easier for contractors to manage complex compliance workflows and assess risk ahead of time. ■



Amy Blankson on the Future of Happiness: Leveraging Mindset To Thrive in Disruption

It takes you an average of 2.2 seconds to check a text message. In that span of time, you've now *doubled* your error rates on basic tasks. It takes you 3.3 seconds to write back to that quick text message, and in that span of time, it *triples* your error rates on basic tasks. And worse yet, it takes an average of 11 minutes to get back into the flow of what you were doing before. **So you can imagine what happens each time we stop to check that "quick message" ...we are holding ourselves back from being our most innovated, creative, connected selves.**

When we use our technology, specifically our phones, more mindfully, it can help us leverage our bigger potential on a grander scale for work and for our personal lives that make them more fulfilling and ultimately leads to greater happiness.

The "technology promise" says, if I just use this next new technology, it will make me more efficient, which will make me more productive, which will give me more free time to do the things I want to do and accomplish the goals I want to, which, of course, will make me happy, right? But the truth is that there are many points along that path that can break down.

We are buying into this technology promise and we're starting to get a little bit disillusioned with it. If we can optimize our expectations and use and temper them with realism, not with rose-colored glasses, then we can lean toward technologies that continue to move us a little bit closer and closer to being more efficient, with an awareness that that's not what makes us happy, but it does make us more efficient.

One of the studies that I saw in the pandemic said that 55% of American workers feel like they have to check their email after 11 p.m. at night. What that says to me is that there is this pressure of "I don't want to miss something, I don't want to be nonresponsive, I want to get ahead and think of this opportunity." So now we are changing our circadian rhythms to match the opportunity that we think we're going to miss out on. **When we feel this "digital overwhelm," it also interrupts our ability to be as creative and innovative as possible.**

What we want to lean toward instead of disillusionment and distraction is the idea of digital agility. It's about being able to see all the different technologies that are out there and quickly assess which ones we need, when we're ready to part with the old ones and be nimble enough to move forward. The way we get there is training our brains to look at the world in a slightly different way.

Learn more at amyblankson.com



What Is Data in Construction?

BY HUGH SEATON

We've heard a lot about data in construction recently, and like many ideas in technology, it isn't always clear what people are talking about. This article is an attempt to clarify a few things: what we mean by data, how data can be used, and how to introduce a new wave of data-producing technologies.

Let's start with what data *does* as a way to understand it.

Data is evidence of something. Thought of that way, you can start to categorize data as facts, numbers, text, reports, machine-supplied performance information and many other types of content that can help you track progress, make decisions and understand the world. Maybe a current dataset doesn't help you today, but the fact that it *could* help you or another team helps to understand it as data.

Data can be structured or unstructured. Some data comes in labeled rows and columns, like a financial spreadsheet, and lots of other data doesn't come so clearly organized. By structuring data into these columns and rows, we can do the transformations needed to learn things about the world.

This idea of "transformations" itself is important — we almost always do things to data so we can tease out its lessons. We average data, we correlate two or more sets of data, we plot data on a line to see progress, and so on. We often convert words into numbers so that we can do these math operations — for example, we might convert the familiar five-point "agreement" scale (very much agree, agree, neutral, don't agree, very much don't agree) into a one-to-five scale.

Data gets more powerful when combined. There are more and more data sources out there. Often they can be combined to better understand a given process, project or set of projects. For example, combining supply chain delay data with schedule data with weather data might teach us something about sensitivity to rain in the Northwest — that we need to build inventories in September.

Using Data

Data has to live somewhere, usually in software, whether that's Excel, Procore, StructionSite or some other system. The software you use will determine how much you're going to do with data, but you can choose to use data as much as you think it'll help you at three time scales: now, tomorrow and five years from now.

Using data right now. This implies minimal process changes, training or really much in the way of setup. Start with summaries of what you have, usually as a dashboard, or just a set of graphs if you're using only Excel. It is important to realize that graphs are usually the most powerful way to use data — the visual cortex is a huge portion of the brain for a reason. We just get it faster when its graphic.

Using data tomorrow. Setting up data practices for tomorrow should again start with "why." What understanding would move the business forward? What delays, unused resources, inefficiencies, safety concerns or even bid-winning percentages would be good to improve? Knowing what you want to improve usually shines a light on what data could help. From that

understanding, you choose the software needed to collect, analyze and act on this data.

Using data in five years. Five years out implies bigger questions about competition, operations and the growth of the business. This needs to start with talent — whom do you need to hire to create a data strategy. Before hiring anyone, first bring in cloud consultants so senior, non-technical leaders can learn what is even possible. Then the next step is usually an expansion of the IT function, making data and software an operational issue, not just "classic" IT ops.

A New Wave of Data

Thinking about what data is and how to integrate data operations is increasingly important, not least because the amount of data that can be leveraged is growing exponentially. What used to be a few data points on a piece of paper is now a flood of integrated, structured data that can be used immediately to answer operational questions, combined with other data to learn about process changes, and used to train AI models that can change how projects are planned, executed and protected.

An example of this is jobsite photos. Where there used to be a handful of photos taken during the course of the job, usually in support of a written report, we now have systems such as StructionSite, OpenSpace, Newmetrix and others that generate hundreds of thousands of photos per job. And unlike the somewhat random photos that might or might not have a clear indication of where they were taken,

Hugh Seaton has followed his passion for the built environment for well over a decade, from BIM technology collaboration in China to launching an AI field technology product in 2019 to his current role as head of CSI Crosswalk. In addition to The Construction Technology Handbook, Hugh is also the author of the Construction Technology Quarterly, and host of the Constructed Futures Podcast. Learn more at www.hughseaton.com.



the new wave of jobsite-documentation systems tie every photo to an exact point in the job, and more important, they are increasingly tied to computer vision algorithms that can further extract data from those photos — for example, percent completion.

This is a big deal. The ability to continually extract data from other data artifacts, to combine datasets and find new meaning — all of this represents the next step in construction data, and it will be a critical area for competition. In fact, for many companies it already is, starting with

bidding and estimating, where companies look at a detailed analysis of what they bid on, how profitable jobs really are and what sorts of jobs they actually win. The outcome of this is higher win ratios among jobs that they actually make money doing. A related set of analysis includes a deeper look into a company's manpower and skill sets, matching those to planned new-job pursuit to ensure highest use of resources.

This current phase of "data density" is only another step on the path from data as paper to data as a core commodity and fuel for construction operations. The

possibilities we are only just discovering provide the perfect opportunity for contractors to up their data game, compete more effectively, understand risks and ultimately drive margins higher. ■

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Not Your Father's Hard Hat: High-Tech Trends in Head Protection

BY ZACH RICHMAN, GROUP PROJECT MANAGER, MILWAUKEE TOOL



When you think of the construction industry, most people picture the iconic hard hat. Traditional hard hats are typically made of polyethylene, and they've been the go-to choice for head protection on the jobsite for decades. But a "helmet revolution" is underway, and many safety managers are looking at a new option: the safety helmet.

Construction safety helmets look a lot different from hard hats. Their design is based on headgear used in extreme sports, such as rock climbing and whitewater rafting. They attach more closely on the head and have built-in chin straps. PPE manufacturers produce safety helmets in a variety of configurations to withstand various hazards on construction sites.

Regular hard hats do a good job of protecting the top of the head from falling objects. But jobsite hazards can come from any direction, not just up. A worker could be knocked off a ladder and fall at an awkward angle or get struck in the side by a piece of material being transported across the site. Unlike a hard hat, a Type II-rated safety helmet can offer increased protection from side and off-center impacts to the head.

Though it may seem like a small detail, the safety helmet's built-in chin strap is another important feature. Hard hats without chin straps are prone to falling off, leading to over 80,000 head injuries per year, according to RMI. Because safety helmets always have chin straps, it makes them more likely to be used — and less likely to come off during a fall.

The increase in the adoption of safety helmets on jobsites has some manufacturers of head protection and other forms of PPE designing their helmets with safety, comfort and user efficiency in mind. For instance, Milwaukee Tool offers helmets that include padded suspension with an adjustable swinging ratchet for quick adjustment, or comfortably fitting, adjustable-buckle chin straps. Other features include anti-microbial sweatbands and helmet liners that prevent odor and bacteria buildup and can even be removed to be machine-washed. These new advancements mean crews don't need to trade off safety for comfort. And like its hard-hat counterpart, safety helmets include add-on options such as attachable visors and ear protection.

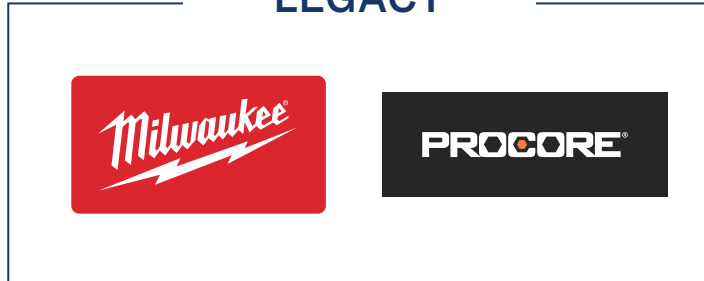
Preventing head injuries requires a sustained effort from everyone on the construction site. Thanks to the advent of safety helmets, manufacturers, safety managers and contractors now have a new tool in their toolbox to keep workers safe. ■



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TAUC, Stanley Black & Decker Announce New Industry Partnership

The Association of Union Constructors (TAUC), which represents more than 1,800 contractor firms in the union construction and maintenance industry, is pleased to announce a new Industry Partner Agreement with Stanley Black & Decker, a diversified industrial with 56,000 employees in more than 60 countries around the world.

The TAUC Industry Partner Program is designed to give trusted manufacturers and service providers an opportunity to build relationships with TAUC members and the tripartite community (contractors, labor, and owner-clients). Industry Partners are also committed to supporting TAUC's overarching goal of strengthening the union construction and maintenance industry by focusing on four strategic pillars: Safety, Innovation and Technology, Government Relations, and Industrial Relations.

Based in New Britain, Connecticut, Stanley Black & Decker is the world's leading provider of tools and equipment designed specifically for the professional contractor, maintenance industry and tradesperson. Their portfolio of iconic brands includes DEWALT, CRAFTSMAN, PORTER-CABLE, PROTO, LENOX, IRWIN, Mac Tools, STANLEY, BLACK+DECKER, Paladin, Pengo, LISTA, Vidmar and more.

Stanley Black & Decker is focused on creating innovative, meaningful products and services that empower people to do better, safer and more significant work. Ingenuity and customer excellence have powered Stanley Black & Decker's success since 1843. The company continues to drive breakthrough innovation and digital prowess, striving for outperformance while increasing its focus on social responsibility. For years, the company has

been moving to a "make where they sell" strategy, where more products are being manufactured in local markets, improving customer responsiveness and reduced costs. Stanley Black & Decker is proud to employ 19,000 people across 49 manufacturing facilities in the U.S. and will soon be opening a hand tool manufacturing facility in Fort Worth, Texas, that will create 500 jobs.

TAUC and Stanley Black & Decker both define success as delivering value to our customers, colleagues, and communities. Stanley Black & Decker's commitment to quality, safety and sustainability makes it the perfect fit to join the association as an Industry Partner.

"We are thrilled to continue our partnership with TAUC and their members. We are eager to make meaningful connections with contractors and professionals around the country and continue to provide them solutions for their construction and maintenance needs," said Maria Ford, President of Commercial Construction at Stanley Black & Decker. "The company is also investing in workforce development initiatives that help improve the competitiveness of U.S. manufacturing and address the skilled trades gap, particularly in the construction industry. We look forward to working with the members of TAUC to further this mission and provide skills for the next generation of professionals."

"There are a new set of keys to success in today's union construction and maintenance world," said TAUC CEO Daniel Hogan. "Connecting with service providers, sharing knowledge, and collaborating on creating the next generation of tools and services is exciting—but it's also crucial to the long-term success of our member contractors, their labor partners

and our owner-clients. We are proud to partner with Stanley Black & Decker, Inc. and look forward to working with their team of professionals to move the entire industry forward."

To learn more about TAUC's Partnership Programs, contact TAUC Vice President Todd Mustard at (703) 524-3336 x112 or tmustard@tauc.org. ■

TAUC, NMAPC Launch Electronic Invoicing System

As a way to streamline payments for membership dues and administrative fees, both TAUC and NMAPC have implemented a new electronic invoicing system.

This means that instead of mailing you hard copies of your invoices as we have done in the past, we will instead be emailing your 2022 invoices directly to your inbox. Below are links to more information about how the new system will work (hint: it's very simple!).

TAUC: www.tauc.org/invoices

NMAPC: www.tauc.org/invoices

We look forward to serving you more quickly and efficiently in 2022 and beyond with this new system in place! ■



In Memoriam: **Richard Scheck, 1942-2021**



Richard Scheck, founder of TAUC Governing Member Scheck Industries, passed away on Sept. 26 at the age of 78.

Richard began training as a pipefitter apprentice in 1962; his father had also been a union pipefitter. He started his career in 1967 as a journeyman with Pipefitters Local 597 in Chicago. In 1984 he started Scheck Mechanical Corporation, "where his goal was to create a small, reputable piping business in the Chicago area," according to the company website. "Little did he realize that in 26 years his company would grow to becoming one of the most reputable and diversified specialty contractors in the United States."

In addition to his "day job," Richard also served five terms as mayor of North Riverside, Illinois.

TAUC sends our sincerest condolences to his wife, Judith, three sons, two daughters and 11 grandchildren.

Donations are appreciated to UCP Seguin of Greater Chicago, a charitable not-for-profit agency serving individuals with disabilities in metropolitan Chicago and beyond. Send to UCP Seguin, 3100 S. Central Ave., Cicero, Illinois 60804. Please make it "In Memory of Richard Scheck." ■

Join TAUC and NMAPC On Social Media!

Follow us on Twitter, Facebook and LinkedIn to stay connected to TAUC and NMAPC, get the latest union construction news and updates, learn about upcoming events and more!



www.tauc.org/social



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TAUC Announces New Group 401(k) Program for Members

At The Association of Union Constructors (TAUC), our mission is to deliver real value to our member contractors — and that includes offering select benefits and resources that can better position them for success. That's why we're excited to announce the new TAUC Group 401(k) Program exclusively for TAUC members.

The TAUC Group 401(k) Program — also known as a Multiple Employer Aggregation Program, or MEAP — helps contractors manage the complicated administrative tasks involved with operating their companies' retirement plans. When a contractor joins the Program — typically at a competitive group rate — many of the day-to-day tasks involved in running a retirement plan are handed over to third parties, such as administrative and investment fiduciaries.

In other words, contractors get the benefit of offering a 401(k) to employees without having to own all the work, responsibility and liability. And if you're a TAUC Local Employer Organization (LEO) member, we have great news: you can offer the TAUC Group 401(k) Program to your members as well — even if they aren't a member of TAUC!

Who Runs the Program?

The Merrill Lynch Wealth Management Team, led by Roger Feldman and Chris Hicks, has extensive experience working with union contractors and has partnered with a network of diverse and committed third-party providers to offer competitive record-keeping and plan administrative services to best serve your retirement plan needs.

Together, Merrill Lynch, Lincoln and The Retirement Advantage (TRA) are here from initial consultation, implementation and through post-conversion support to assist

TAUC members and plan participants with running a customized and efficient retirement plan.

Why Is Now a Good Time To Consider a Group 401(k) Program?

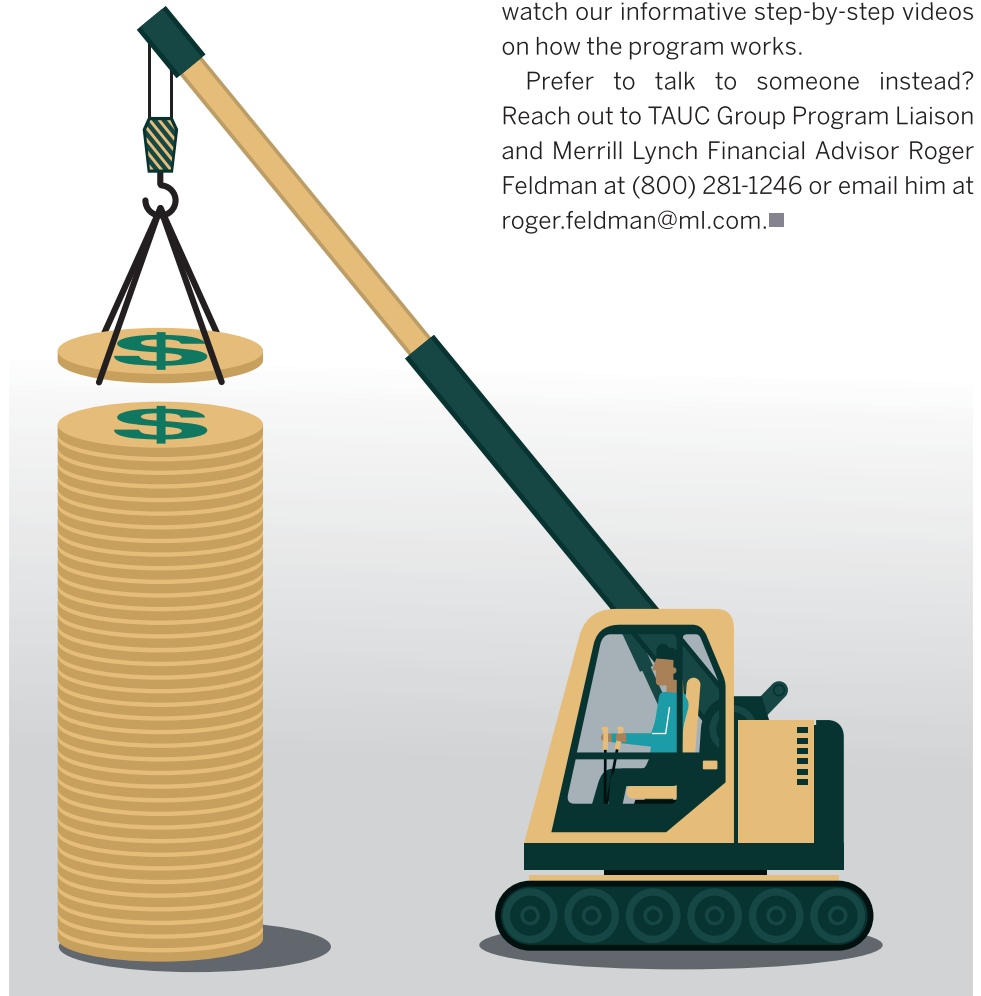
As you may already know, the IRS and DOL require retirement plan sponsors to "restate" their plans every six years. This involves amending your plan document in its entirety and incorporating any legal or procedural changes that have been adopted since the last restatement. The deadline for the next restatement is July 31, 2022.

Restatement is a complex and time-consuming process—the paperwork alone can be overwhelming. The good news is that if you join the TAUC Group 401(k) Program, TRA will conduct a thorough review of your plan, offer suggestions on how to strengthen it and take care of the entire restatement process free of charge.

Is It the Right Fit for Your Company?

We understand that moving to a new 401(k) program is a big decision and you have many important questions that need to be answered. We've created two informative sites — one for TAUC Member Contractors and one for TAUC LEOs. Go to www.tauc.org/401k to get started—and watch our informative step-by-step videos on how the program works.

Prefer to talk to someone instead? Reach out to TAUC Group Program Liaison and Merrill Lynch Financial Advisor Roger Feldman at (800) 281-1246 or email him at roger.feldman@ml.com. ■





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