



BY DR. PERRY DANESHGARI, DR. HEATHER MOORE & JAMES SULLIVAN

WHAT WORKFORCE SHORTAGE?

The Problem Is in the Planning



Prior to, and exaggerated by, COVID-19, the problem among the construction workforce has been described as a “shortage.” However, the construction industry has not changed how its skilled tradespeople perform the work that does not explicitly require their skill, knowledge, or experience, resulting in a stagnant \$0.38 of labor cost for every \$1 spent on construction while industrialized industries (farming, automotive, manufacturing, banking, etc.) experience \$0.09 to \$0.15 on the \$1.

If skilled tradespeople continue to be the only option for the installation of work, then the perception of workforce “scarcity” will not change.

To change the perception of a skilled labor “shortage” in construction, skilled workers must start planning, scheduling, and managing work that is to be performed by alternative sources, including nonskilled workers and technology.

This article will lay out the transformation required at the industry, company, and project levels. A case study from Staff Electric is included and shows how such a transformation multiplied the company’s net worth over the course of five years and how Staff Electric transformed from a traditional operational model to transitional and, ultimately, to a professional model.

CHANGING THE PERCEPTION

Industries are rooted in specialized skills born out of the desire to meet basic human needs; that is, the more a skill is available, the more humanity prospers. However, to get “more skill” requires transitioning from a controller/worker approach — passing on the specialization tacitly — to an industrialized approach, which protects and expands on the skilled tradespeople’s knowledge and experience more than it does on their work.

In turn, this allows for more consumption of the skill; transformed industries expand on their workforce of individual skilled tradespeople to a spectrum of non-specialty skilled workforce.



As you can see in the case study at the end of the article, Staff Electric has achieved the shift at the project and company levels. However, the change in perception at the industry level starts with a comparison to other industries that have experienced industrialization¹ and requires a data-based method to distinguish between an industrialization-ready supply chain company and one that is not.

The approach to selecting qualified subcontractors is traditionally driven by price and relationship. Relying on price only and equating subcontractors as labor and commodity providers has underserved the industry and its customers. In an industrialized environment, the relationship must be based on time, cost, and quality, which must rely on planning and work management over price. The more complex a subcontractor's responsibility is, the more planning and use of its skilled trade in work management is required.

Industry Perception Change: An Abundance of Resources

For five decades, construction labor productivity has continued to stagnate (Exhibit 1). Now, with fewer labor "inputs" (workers), this will result in less construction put in place (CPIP). If skilled tradespeople are the only option for installation, then the perception of workforce "scarcity" will not change.

So, how does the industry get there? Through the steps of industrialization:²

- Management of Labor
- Management of Work
- Lean Operations
- Modeling and Simulation
- Feedback From the Source

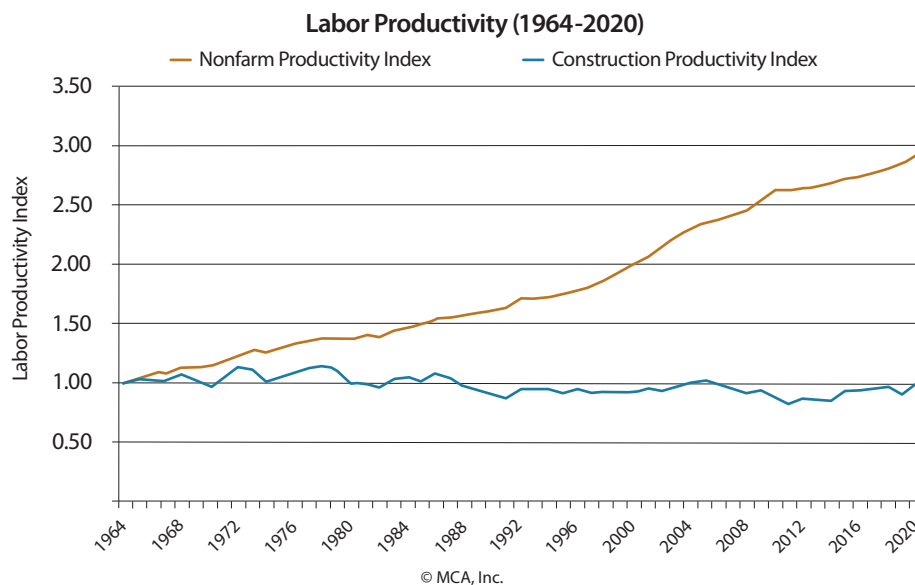
Although some steps may be able to run parallel, the Management of Labor and Management of Work must be performed sequentially. This process starts by understanding the work performed by the skilled trade that does not require their skill (Exhibit 2).

As companies embrace the concept of industrialization, they will begin to see the new ways in which human resources in construction are — and will be — used. In transferring from being content with the *know-how* of skilled tradespeople to the *know-why* of resource management, companies will begin to experience a change in how efficiently work gets completed.

Company Perception Change: Your Ability Is Your Security

The hierarchy in the skilled trades is held together with tacit knowledge; advancement comes with more pay and more people working for you, not a requirement to manage work and labor. Jamie Sullivan, President of Staff Electric, established an annual focus for the company that connects productivity, risk reduction, and company profitability and is rooted in

Exhibit 1: Productivity of Construction vs. Other Industries



Agile Construction®. An electrician himself, he explains that he went from apprentice to journeyman overnight, and that he switched from being *told* what to do to being *asked* what to do. However, Jamie and the Staff Electric Steering Committee changed that mentality within the company by emphasizing that “your ability is your security.”

The traditional mindset of “more manpower means more work done” couldn’t be further from the truth. When Staff Electric’s business grew more than \$120 million in annual revenue, it had 460 electricians and profitability suffered. Over the past two years, with an average of 25% fewer electricians, it has experienced the same revenue and stable/predictable projects.

However, arbitrarily reducing the labor and supervision on projects is also not the answer. What supervision uses to manage the work can be replicated in the form of digitalization, commonization, and interconnectivity (DCI™) applications. DCI replaces the eyes, ears, and spreadsheets of each project and project manager (PM) with a consistent set of applications that build a corporate memory for the optimized processes and information to be used during each project’s planning, procurement, installation, and closure phases.

Job Perception Change: Skilled Workers Plan, Not Do, the Work

As noted in “Jobsite to Garage: Changing the Mindset of Prefab & Modular Construction,”³ only 36% of the work on

a jobsite requires skilled trade *presence* to install. In other words, 64% of the work on a jobsite can be done by a workforce other than the tradespeople, which is where the *ability* and *abundance* can thrive. The caveat is that 100% of the work should be *planned* by the skilled tradespeople because they have the knowledge and experience to do so; however, when they are using their hands and bodies to *do* the work, they aren’t able to *plan* the work.

In fact, there is no formal training for why, how, and what to plan for a technician. In terms of contractors’ labor codes, planning and layout are often coded as *nonproductive time*; this sends a strong message to skilled workers that planning is not part of their work and is not productive. However, it’s quite the opposite; if thinking and planning were considered the most important work that a field foreperson does, then production and productivity would thrive.

Exhibit 3 shows the results of MCA, Inc.’s industry-wide Industrialization Litmus Test, depicting that 81% of project-related decisions are left to the responsibility of technicians, which indicates a lack of planning.

With 89% of their decisions not visible to anyone, there is no chance for the right-hand side of Exhibit 3 to support, learn, or improve.⁴ The skilled tradespeople of the current workforce must be taught how to plan, given time and information to plan, and provided a means of tracking and giving feedback on that plan.

Exhibit 2: Non-Installation Work			
Planning	Pre-Install/Prep	Material Movement	Clean Up
<ul style="list-style-type: none"> • Obtaining permits • Mobilization • Demobilization • Getting tools 	<ul style="list-style-type: none"> • Coordination with vendors • Coordination with other trades • Coordination with GC • Coordination with change orders 	<ul style="list-style-type: none"> • Permits • Returns • Cleaning up • Moving material 	<ul style="list-style-type: none"> • Testing • Labeling • Troubleshooting • Programming as-builts
<ul style="list-style-type: none"> • Ordering material • Manpower planning • Layout 	<ul style="list-style-type: none"> • Owners • Coordination with manufacturers • Scheduling install 	<ul style="list-style-type: none"> • Receiving material 	<ul style="list-style-type: none"> • Tagging
<ul style="list-style-type: none"> • Safety plans 	<ul style="list-style-type: none"> • Studying cut sheets 		
<ul style="list-style-type: none"> • Preparing workspace 	<ul style="list-style-type: none"> • Training explaining 		
<ul style="list-style-type: none"> • Drawing review • RFIs 			

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CONCLUSION

If more decisions were made by those in positions on the right-hand side of the Litmus Test and if the skilled trades were to produce at the same rate as the automotive and agriculture industries achieved through the process of industrialization, then 38% more CPlP could be done with the current workforce. In other words, only about 70% of the current workforce is needed to do the current volume of construction, and therefore, *the workforce shortage is a matter of perception.* ■

Endnotes

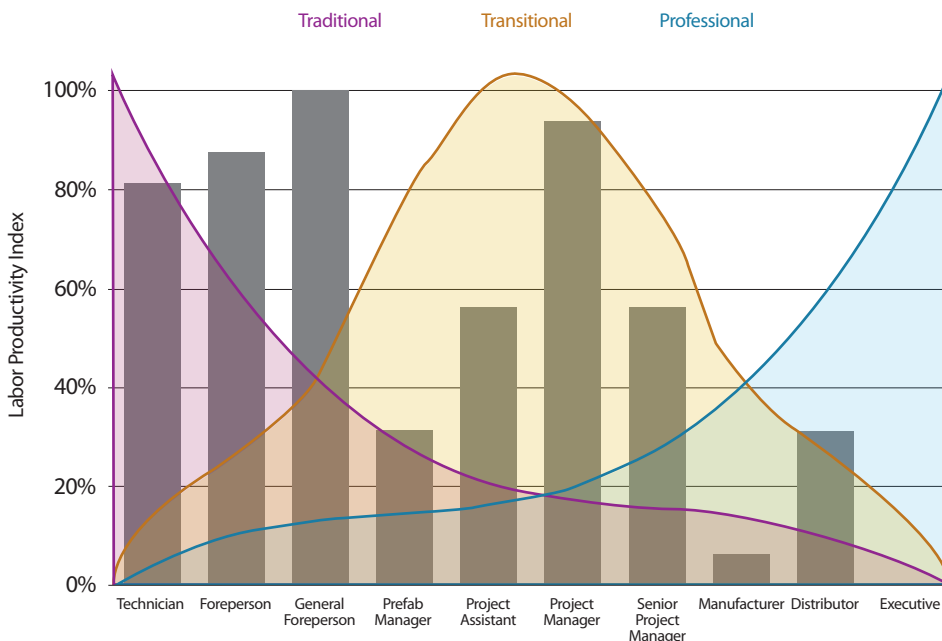
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DR. PERRY DANESHGARI is President and CEO of MCA, Inc. (www.mca.net) in Grand Blanc, MI. MCA focuses on implementing process and product development, waste reduction, and productivity improvement of labor, project management, estimating, and accounting. He has been previously published in *CFMA Building Profits* and teaches courses at the University of Michigan on project and program management as well as mechanical engineering. He can be reached at 810-232-9797 and perry@mca.net.

DR. HEATHER MOORE is the Vice President of Operations at MCA, Inc. (www.mca.net) in Grand Blanc, MI. Her focus is on measuring and improving productivity. A previous author for *CFMA Building Profits*, she holds an Industrial Engineering degree from the University of Michigan and a PhD in Construction Management from Michigan State University. She is also the Co-Chair for the American Society for Testing and Materials Subcommittee on Building Economics (E06.81). Dr. Heather can be reached at 810-232-9797 and hmoore@mca.net.

JAMES SULLIVAN is the President of Staff Electric (www.staffelectric.com) in Menomonee Falls, WI. Staff Electric has been in the industry for 101 years and provides quality, integrity, and experience. Jamie can be reached at 262-781-8230 and jssullivan@staffelectric.com.

Exhibit 3: Industrialization of Construction® Litmus Test Results



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Staff Electric Case Study: Doing It Right Helps You Grow & Increase Profits

Every journey begins with the first step. For Staff Electric, this was on October 27, 2016, with an initial off-site seed-planting meeting that has led to abundance years later. The message for the initial off-site meeting was “working together as one team.” As easy as that seems on paper, it is a constant challenge to achieve.

Jamie Sullivan, President of Staff Electric, wrote down some bullet points shortly after the meeting to describe what this transformation would mean for the company:

- Build structure for the future
- Reorganize
- Streamline uniform processes
- Grow the company
- Control the environment
- Reduce composite rate
- Does not eliminate the need for the field
- Industrialize the company to make it more effective going forward, ensuring work in the future
- Job plan
- Provide tools to reduce stress
- Help the company get organized
- Help the company get better at what it does
- Move the company into the future
- Create opportunity for work outside of the normal jurisdiction
- Make everyone work in the same direction
- Work smarter, not harder
- Create a franchise model that operates as a business that “happens to do electrical work”
- Create more teamwork
- Move the ball in the same direction

Over the years, he and his executives led the company with the mindset that “You can’t build today like you did five years ago. And you can’t build five years from now the way you build today.”

Knowing that there must be a direction and strategic vision to move forward, Jamie and Staff Electric’s Steering

Committee provided it and worked to execute it. This simple dedication to continuous learning and improvement has carried them through challenges and led to a vibrant and healthy company. The following are some examples of the annual focus.

The Cookie Sandwich

Imagine that profit filling is being sandwiched between the cookies of the field and the office. If they work on composite rate, prefabrication, budget, and overhead appropriately, the profits (filling) can increase. This helped them focus on key items, set a net profit target, and know which items needed to be addressed to achieve the targets. The team worked on the budget and making the plan visible, which allowed them to recognize other issues.

Year of the Work-in-Progress

The company needed to educate its PMs about transforming from builders into businesspeople. The PMs would come into the monthly work-in-progress (WIP) reviews guessing at revenue and profit projections, not recognizing the business impact. By making the size of the negative WIP relatable (e.g., a Ford Raptor sitting in the parking lot, which is worth the same amount as one month of profit write-downs), the team could recognize that this issue is real and address it by shoring up the core principles.

GROUP DEVELOPMENT

The Staff Electric journey followed psychologist Bruce Tuckman’s definitions of group development — forming, storming, norming, and performing.¹

Forming

The initial off-site meeting in October 2016 followed a company-wide assessment performed by MCA, Inc., which evaluated the company’s history, current state, and gap and analyzed the direction that Jamie and his Board wanted to take the company.

The meeting included 29 employees from functions and roles across the company, which eventually formed the process design teams to learn how to design/redesign, test, implement, and maintain company processes to support the transformation in the areas of office support, project management, and the field. Simultaneously, Staff



Staff Electric Case Study: Doing It Right Helps You Grow & Increase Profits

Electric set up Agile Construction processes and tools (Job Productivity Assurance and Control[®], Short Interval Scheduling[®], Prefab, and Vendor-Managed Inventory)² on four pilot projects — one of which was the challenging Fiserv Forum (the home of the Milwaukee Bucks). These processes brought visibility and early detection of risk, allowing a company-wide hands-on approach to managing the jobs.

The momentum from the initial learning and success that 29 people in the company were leading carried on through about a year. Then the very normal “Hawthorne Effect” (when individuals modify their behavior in response to being observed) took place, a transformation stage from which many companies don’t recover. However, the Steering Committee’s commitment to transformation and the original goals Jamie laid out carried them through, both financially and structurally.

Storming

Despite some tough jobs and coping with the results of the large Fiserv Forum job, Staff Electric set a few things in place for the first time in their century of existence:

- Quarterly forepersons meetings
- Project management training
- Organization structure
- Company budget

This was a lot of change in the business; not all were prepared or able to pledge to these types of transformational commitments. The company lost some leaders due to their inability to change and embrace the new tools and principles, while others left due to not wanting their work or methods visible. This type of transformation embraces the change from heroes to preventers.³

Staff Electric set a structure in place that allowed their people to lead, grow, and learn. Meanwhile, they started managing the company and the projects with data and leading indicators, which reduced the unknowns and increased stability.

Norming

As the design team members, alongside new Staff Electric team members, grew roots in the system they were building, what used to be a watering hole of PMs each running their own crews and jobs was transitioning into

a professional business. Jamie set themes and direction annually and worked with the Steering Committee to manage the results with data. Internal leaders stepped up, began leading the teams, and embraced the journey. The results culminated in the company’s ownership transition, announced December 2021, to become employee owned (employee stock ownership plan).⁴

Performing

With five years into the journey to transformation, Staff Electric is now preparing to truly perform using their lead indicators to manage their projects with data. MCA, Inc. and Staff Electric have worked collaboratively on the process of DCI™ to take the company’s processes and automate them in a way that allows their systems to talk to each other but, more importantly, that the data and structure behind those systems is based on what has brought them success. It’s not just “building software;” it’s translating the tacit know-how in the company to digitalized and interconnected systems.

THE FUTURE

Staff Electric’s theme for 2022 is “building a foundation for the future,” with plans to revisit some basics that the company started this transformation with in 2016 now that the team has ingrained and hand-built the processes and tools. Each process in the company will have a maintenance plan, and the folks that were just learning to work with the Agile Construction processes and tools five years ago will be able to teach it, getting the maximum benefit for themselves, their jobs, and the company now that they own it.

Endnotes

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