



State of the Industry

Observations, trends and information for the construction industry

July 2016

Volume 4 Issue 2

Welcome to our *Second State of the Industry report of 2016*. Please let us know what you think by sending us a quick email—click [HERE](#).

Winds of Change:

“The perfect storm” is hitting the construction industry, with three colliding forces:

1. Industrialization of Construction
2. Market shifts
3. Disruption

Market shifts started over the past several decades, when the construction

market shifted from industrial work to commercial/residential work, as we have publicized in prior **SOTI Reports**. This shift led to what seems like gradual change, but what now means construction consumers are more demanding than ever for time, cost, and quality of their investments. **Industrialization** has also been approaching in this past decade, following in the same pattern as other industries have seen, particularly textiles, manufacturing, and agriculture. Disruption can happen at any time, and occurs when the needs of unserved or underserved customers are met by alternative providers, unbeknownst to the current providers and often with new business models. The alternative providers, over time, begin to penetrate the larger and “stronghold” markets where current competition is strong, but are able to literally infiltrate because of their new business model, which is often more profitable or has a significant competitive advantage by learning from the initial servicing of the “underserved.” Disruption causes the entire market landscape to change. **Figure I** shows a schematic of this process, with examples of companies that have disrupted their industries.

Starting with this SOTI, we will highlight each of these “winds of change”, beginning with a potential disruptor in construction: robotics and automation.

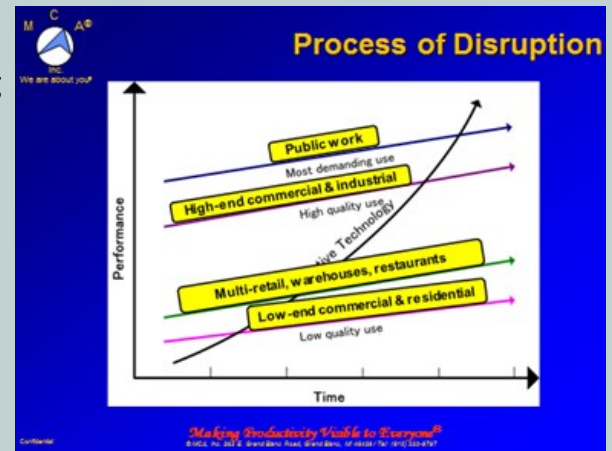
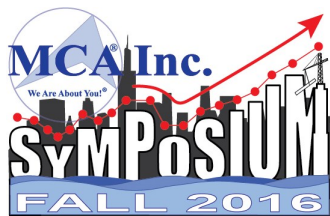


Figure I



MCA Fall Symposium

See sidebar on Page 2, 4, 6, 8, 10, 12

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Register for the Fall 2016 Symposium

**Designing Lean
Operations based on
Agile Construction®.**
(The third in a series of
five Symposiums focus-
ing on training the work-
force for Industrializa-
tion of Construction™)

This Symposium will consist of train in various stakeholders, including but not limited to: project managers, estimators, pre-fab shop managers, field supervision, field technicians, vendor and supplier points of interface, project support such as drafting/detailing, coordinators, administrators, owners, executives, Vice Presidents, etc.

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and REGISTER NOW!**

September 20—22 in
Rockford, Illinois, with
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Industrialization of Construction® Step 3 (Simulation & Modeling):

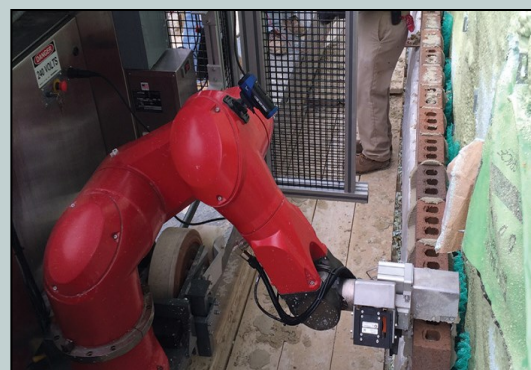
Robotics in the construction industry at one time may have seemed like something from a sci-fi movie. However with advances in technology, techniques and building materials having robots performing final assembly on a job site is not so far off.

Currently robots are mainly being used in the manufacture of materials for the

construction industry, with limited use in the field. Masonry and exterior brick are the first area engineers are developing toward. Adapting from their current use in the manufacturing environment of material handling and applying adhesives makes this application a natural transition. Other applications include demolition and site prep, or working in areas that are too dangerous for humans. [Click here](#) for link.

Overseas with the demand for bigger, taller and faster building construction has been driving prefabrication to near perfection, has fueled the demand for more automation in material handling and manipulation. In prefabrication robots are being used for welding, cutting, drilling, applying adhesives and insulation allowing for greater precision and accuracy. By breaking down the work to a cellular level, and then fabricating the project at a cellular level, has allowed competition from overseas to prefabricate almost completely offsite and only perform final assembly onsite.

Back in the U.S. robots are beginning to be used on the job site in masonry applications and 3 dimensional printing with a masonry medium. You can check out



SAM the Brick Laying Robot [here](#), while other robots are being used for demolition and site prep working with concrete and rebar. Emerging economies dealing with impoverished neighborhoods and overcrowding of the poorest of the poor are waiting for the economies of scale to

use this technology as a means to bring suitable housing to their masses. [Click here](#) for link. The next phase in the evolution of construction robotics will be robots directly involved in the final assembly on the job site .





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How does this apply to you today? In the second step of Industrialization ([click here](#)), work is managed by segregating and externalizing it from the jobsite. This can be done using applications of prefabrication, or working with vendors and manufacturers to integrate with the jobsite's Work Breakdown Structure for removing material handling and logistics to get raw goods as close as possible to final installation. Robots can eventually aid in this process as well; for instance, current research is actively investigating the usage of drones for flying material into jobsites. For now, start simple with WBS and externalizing work®. In other industries, the companies who have successfully used automation are not the ones who have tried to “replace the labor with faster robots.” Simulation and modeling is most successful when it is used to learn and improve on the work processes that still require the knowledge of the skilled tradespeople to do.



Articles Volume I

Dr. Perry Daneshgari
Dr. Heather Moore
& Contributors

Making Productivity Visible to Everyone®

FREE EBOOK!

This ebook is packed full of Agile Construction® related articles on...

- Transformation
- Productivity
- Profitability
- Process
- Procedures
- Tools
- Measurements

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to download.

Read online [here](#).

2016 MCA Spring Symposium:



On April 20th through the 22nd MCA visited Carrollton, Georgia for their 2nd installment in the series of 5 on the **Industrialization of Construction®** with this session's focus on Corporate Infrastructure Design for Workforce Training to Manager Work. The tell-tale signs indicate that Industrialization of Construction® is in fact in full swing and the better we prepare the better the chance for survival. Competition is already here utilizing disruptive strategies and moving into Steps 3 and 4 of Industrialization of Construction® completing construction projects at an amazing pace and profitability forcing today's contractors to find new ways of doing business just to stay afloat. And, if that's not bad enough contractors now face a NEW battle and it begins with Disruption.

Disruption of the Industry starts in areas underserved by the current market. In these areas alternative providers provide services yet to be approached. Over time, these alternate providers begin to make their way into the inner circle whittling away at the larger markets, giving them ample opportunity to build relationships with new clients offering new products and services that one day may become a norm and expected by all.



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Register for the Fall 2016 Symposium

Designing Lean Operations based on Agile Construction®.
(The third in a series of five Symposiums focusing on training the workforce for Industrialization of Construction™)

This Symposium will consist of train in various stakeholders, including but not limited to: project managers, estimators, pre-fab shop managers, field supervision, field technicians, vendor and supplier points of interface, project support such as drafting/detailing, coordinators, administrators, owners, executives, Vice Presidents, etc.

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For more information
[Click here!](#)

How to stop Disruption:

To fight this battle, you must fundamentally change the infrastructure of the company. Your business model must change and processes have to be designed and put into place. To do this, you must first see the work from every angle before you can begin to break it down, manage and distribute it. When you design a process you have to create a commonality so that when the work is handed off the errors are reduced and/or eliminated. Error proofing can't be done unless you know every step of getting there. Once you define the work, you then can start breaking the work down making your handoffs easier.

Externalizing Work® with Agile Procurement™ (VMI):

In Contractor's search for alternative ways to pick up their productivity and reduce waste, they find that at times it can't be done alone. This is the case when Agile Procurement™, is implemented into your organization. Trust between the vendor and the contractor can prove, mutually beneficial and profitable for both sides when utilized correctly. The services that vendors, such as Graybar, Southwire®, Greenlee® and Mayer Electric Supply can provide for contractors can save the contractor time and money, let alone make their job safer and easier to do. Most contractors are more than willing to pay a little extra for the valuable services that vendors can provide. With material handling eating upwards of 40% of one's time on the jobsite MCA encourages contractors to seek out these opportunities and are happy to help make such transitions if needed. Agile Procurement™ is just one of many classes that MCA has to offer.

During this 2016 Spring Symposium MCA and their guests had the privilege and pleasure to tour Southwire® and Mayer Electrical Supply and experienced firsthand some of these services and tools that they provide. MCA would like to thank them for their hospitality and for opening their doors to our Symposium guests.

In September, the team at MCA will join others at the MCA Symposium on "Designing Lean Operations based on Agile Construction®", which will be held Thursday, September 20th through the 22nd 2016 in Rockford, Illinois in conjunction with a training and users forum focusing on the tools of Agile Construction® (taking place Tuesday and Wednesday, September 20th and 21st). This is the third in a series of five Symposiums focusing on training the workforce on the five steps of Industrialization:



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1. Management of Labor,
2. Management of Work,
3. Lean Operations,
4. Simulation and Modeling,
5. Feedback from the Source.

The focus of the topic this fall will be: **Designing Lean Operations based on Agile Construction®**. The Symposium will consist of training various stakeholders, including but not limited to: project managers, estimators, prefab shop managers, field supervision, field technicians, vendor and supplier points of interface, project support such as drafting/detailing, coordinators, administrators, etc.

Your Portal to MCA's Products and Services:

In order to better serve our customers MCA has designed an easier way for you to purchase books, schedule classes, register for symposiums and subscribe to MCA's productivity software packages. The new graphics and intuitive layout, make navigating simple and easy, be sure to stop by and check it out. www.mca-soft.com

Agile Construction® Across the Country:

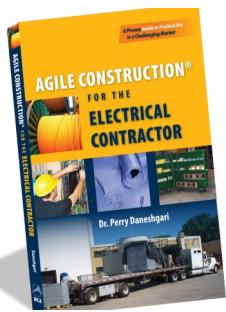
Agile Construction® is coming to a town near you! MCA is conducting Agile Construction® classes at various locations across the United States and Canada. This is a great opportunity to see first-hand on what Agile Construction® can do for you and your company. For more information and to register [click here](#), or contact Dan Waltz at dwaltz@mca.net

Web Based Training:

MCA is proud to announce that we have web based training available to all our clients. This offers participants the benefit of reduced training costs, greater flexibility in training schedules, and a greater variety of courses to choose from:

- JPAC® & SIS® mini classes
- Agile Classes
- Design Teams
- Project Management courses

Let us know what we can do for you. We're happy to tailor a class to fit your needs [Click here](#).



Agile Construction® For The Electrical Contractor

by
Dr. Perry
Daneshgari

\$55.95

**Get your
copy today!**

For more
information
[click here](#).



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Hardt Electric's Agile Transformation:



Almost 3 years ago Hardt Electric began their journey of transformation on becoming an Agile contractor.

After 43 years of success David Hardt wanted to begin to transition the 3rd generation to the helm during his presidency at NECA. In order to successfully make this transition and ensure Hardt Electric's vitality and growth potential, David enlisted MCA to help guide and them during this phase revitalization for the company. They began with an assessment to establish the gap between the current operation and the required future state for Agile Construction® transformation, in preparation for their journey of organizational change. Upon reviewing the assessment, established baselines, and what they wanted the company to look like in 10 years, David and Peter worked with MCA to establish Design Teams within the company to develop processes to help close the gap. Each team focuses on a different area within the company to identify and select improvements beneficial to the long term goals of the company. Using Strategic Breakthrough Process Improvement (SBPI®) to Identify, Characterize, Optimize, and Utilize key processes, the team worked to bring about the changes necessary to develop and provide the structure to support their long term goals.

In addition to the design teams, MCA, Inc. worked with Peter to implement the Agile Operational structure for making projects visible, using JPAC® and SIS®. Hardt began conducting weekly reviews from the project level with the men in the field to high level reviews with key individuals within the company. The reviews began to make visible to everyone not only the need to change existing processes, and create new ones, but in what areas the changes needed to happen first. As the design teams progressed, dashboards were created to visually monitor the results. Realizing that in order to manage the work, you have to manage the labor; and that the labor costs on a project can have the biggest effect on your bottom line, Hardt then undertook development of a prefabrication operation as well as full partnership with three vendors to reduce the risk on the jobsite. Today, Hardt is seeing results in their company performance, but as important, in the strength and support of the great team of people who have designed their way into how Hardt operates today. As many of you know the journey transitioning to an Agile contractor can be a long and arduous process, however with commitment and determination the results are undeniable. [Click here](#) for an excerpt from Hardt Electric's newsletter.



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Agile Response To Daily Work Changes on the Jobsite.

**Now available for
iPhone, iPad and
Android devices**

“Know your obstacles
before they get
the best of you.”

For more
information
[click here.](#)

Watch video!

Mobile app video: [here](#)
Web app video: [here](#)

Client News

Graybar – is expanding their efforts both inward and outward, focusing in the Chicago District to design and improve processes to support today’s operation as well as get ahead of the “Winds of Change”. As one of the original electrical distributors that practiced “vendor partnership”, Graybar is now exploring what partnership will mean in the next generations, and preparing to support the future of the industry.

Taylor Electric - after review of their Operational Assessment from MCA, decided to begin the process of transformation.

ConneXion – cross functional design teams are moving forward mapping their processes, and seeing true bottom line results through David’s and Steve’s leadership, by developing the internal structure and operations to most efficiently connect the customer behavior and needs to the operations.

LiveWire Electrical Systems Inc. is continuing to learn the usage of the Agile Construction® tools and principles, through JPAC®, SIS®, Work Breakdown Structure, and Process Design Teams.

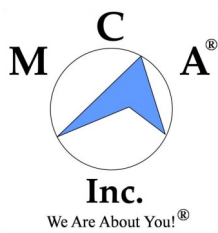
Bronco Electric – is moving forward with tracking more of their projects in JPAC®, with excellent examples and results from detailed Work Breakdown Structure, used for JPAC® as well as planning their work.

Aldridge – is expanding their usage of Agile Construction®, by continuing to rollout the usage of Agile Tools (JPAC®, SIS®, Prefab) across divisions and now over 70 projects; plus, continuing to work on the internal infrastructure needed for process design and transformation.

Hardt Electric- just completed a 13-week course on the Process of Project Management, certifying that they can understand and use the principles of Project Management science, and apply them to the job-specific circumstances and models.

Symtech – is continuing their pilot project in JPAC® .

Thanks for the Feedback!



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Calendar of Events:

Upcoming MCA, Inc. events can always be found on our website www.mca.net

Tuesday's- SIS® Mini-Classes @ 10 & 10:15am

Wednesday's- SIS® Mini-Classes @ 9 & 11am, SIS®

Thursday's- JPAC® Mini-Classes @ 3pm

July 26 - Externalizing Work® using Prefabrication—Casper WY

July 28 - 29- Agile Construction® – Seattle, WA

August 11 - 12 - Agile Construction® - NJ

August 25– 26 - Agile Construction® - Toronto, Canada

September 15- NECA – Avoid Killer Jobs Improve Estimating – King of Prussia, PA

September 20 - 21- Agile Construction® – Rockford, IL

September 22 – 2016 Fall Project Management Symposium – Rockford, IL

October 7 – 10 – Training Future Leaders in the Industrialized Construction - NECA Boston, MA

October 13 – 14 – Agile Construction® - TBD, IN

October 28 – Work Breakdown Structure and Safety - IEC CON 2016, TX

November 16 – Winds of Change - Orlando, FL

November 10 - 11 – Agile Construction® - Chicago, IL

December 8 – 9- Agile Construction® – TBD, TX

Recent Publications:

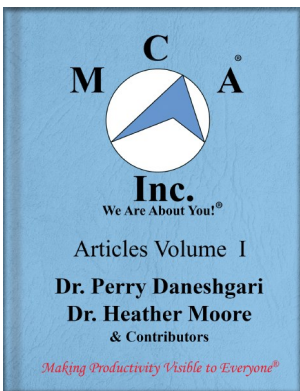
Industrialization of Construction: A Compilation to Lead the Way—Book 2 – Book Two explores ways to maximize the transfer of tacit knowledge to explicit knowledge and develop a full-scale operational model for an electrical contracting firm to compete in the industrialized environment. Industrialized construction is truly a different business model than the traditional electrical contracting business model of “bid the work”, “do the work”, and “collect”, in which the better the workers, the better the job turns out. [Click here.](#)

Avoiding Killer Jobs with Better Accuracy - “Killer jobs,” we’ve all heard of them, or maybe even been unfortunate enough to have been involved in one. It’s these jobs that can single-handedly make the difference in a year-end profit or detrimental loss. And most result in tarnished relationships with employees, customers, and vendors. Sometimes bringing companies to their knees. [Click here.](#)

Partnering with Electrical Distributors for Improved Efficiency - Industrialization begins with management of labor and work, including identifying who should do what, when, and where. In other words, it doesn’t all have to be done on site as the schedule suggests. Using vendors to support the work — not just sell material — is one way to accomplish this. [Click here.](#)



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FREE EBOOK!

This ebook is packed full of Agile Construction® related articles on...

- Transformation
- Productivity
- Profitability
- Process
- Procedures
- Tools
- Measurements

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Read online [here](#).

Organizational Transformation Through Improved Employee Engagement – The purpose of this paper is to help businesses understand that as markets change, the way a company does business also must change to stay competitive in their industry. [Click here.](#)

MCA Articles Vol I Ebook - Agile Construction® related articles on Transformation, Productivity, Profitability, Process, Procedures and Tools, and Measurements. [Click here.](#)

Impact of Prefabrication on Industrial Construction Work - Prefabrication is no longer a standalone approach to construction decided only by the “shop foreman” or “our prefab catalog.” [Click here.](#)

Agile Construction® for the Electrical Contractor - Agile Construction for the Electrical Contractor provides the tools and guidance needed to transform a traditional, reactive project management style to a new, proactive, profitable, and productive business management model - one that can quickly respond to changing industry needs and remain a profitable enterprise, even during the toughest of times. [Click here.](#)

Prefabrication Increases Productivity - Prefabrication is really a misnomer for what is happening in the industry. It's not prefabrication that is happening, but rather separation of production from installation. Most find there's no longer a choice to participate in productivity improving activities to improve time, cost and quality of the construction project delivery. [Click here.](#)

Principles of Job Productivity Assurance and Control (JPAC®) - Job productivity has historically been measured from the accounting perspective. This method of measurement has alienated the labor; as a result the outcome is data that is not useful. [Click here.](#)

Is Prefabrication Making You Money? - Like many other industries, construction is going through constant change to keep up with market demands. Industrialization and globalization of the construction design, procurement, and build process has forced more and more contractors to adopt prefabrication and vendor managed inventory processes and programs. [Click here.](#)

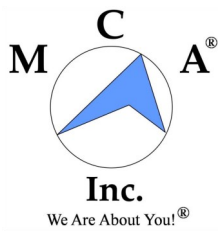
All publications can be found on MCA's website. [Click here.](#)

Testimonials & Customer Results:

Holmes Electric

"...very valuable information to show areas of possible productivity and revenue loss and specific areas for improvement, which makes every trade more efficient and productive."

Ed Hillman – Field Superintendent,



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Testimonials & Customer Results: (cont'd)

Aldridge Electric

“It presented a new way of thinking and approach to all that I do.”

“Coming from a Lean Manufacturing background, it was great to see our company breaking these barriers before it is too late.”

“It reiterated the importance of willingness to change and to continue thinking of new and better ways to do the work.”

Aldridge Electric, Agile Construction® Training Series

Bronco Electric

“I think the process went very well and the 30 min max that it took us to sit down and go over all of this will end up saving Bronco so much money and productivity on the job site. 1st procedure change, in my opinion is a VERY BIG/GOOD change and should only look to put us more in the GREEN at the end of the projects.”

Robbie Judd, Estimator/Project Manager, Bronco Electric Inc.

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Robbie Judd, Estimator/Project Manager, Bronco Electric Inc.

Hardt Electric

“Today I had a Bank Field Auditor in my office asking me to substantiate billing on several large projects we are currently working on. The Auditor was concerned with over billing of projects and I was able to provide him with JPAC® reporting which validated our billing percentage. The auditor was very impressed with our (Agile Construction®) process and said it was one of the best systems he has reviewed.”

Steven Thackston, Controller, Hardt Electric

Aldridge Electric

“I could not help to notice today (MCA 2015 Spring Symposium) the culture that each speaker and their company now have after partnering with MCA. Each of these companies have built a tremendous team minded culture that I am sure was not present before their transformation. ”

Jayson Lange, Foreman Aldridge Electric