



NATIONAL ASSOCIATION OF  
ELECTRICAL DISTRIBUTORS



# TECHNOLOGY FOR DIGITAL TRANSFORMATION

What Technology is Capable of Dramatically Changing the  
Electrical Distribution Industry?

BY NAED'S STRATEGIC TECHNOLOGY COMMITTEE

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## Background

**D**uring its September 14-17, 2017 meeting, NAED's Board of Directors discussed the impact of digital transformation on the electrical industry as it changes from delivering goods to delivering both goods and information.<sup>1</sup>



**The cornerstone of digital transformation is changing business models to operate simultaneously in the analog and digital world.** It will impact every electrical distributor associate, every process a distributor uses, the technology distributors use, and how distributors use technology.<sup>2</sup> Even how distributors communicate internally and with customers will change.

Yes, electrical distribution has faced disruptive threats before and survived relatively unscathed. However, the difference this time is the rate of change and the volume of new technologies being introduced simultaneously. Electrical distributors

cannot sit on the sidelines with a “wait and see” approach now.

This time, technology is changing distribution structurally—from a business of delivering goods to a business delivering both goods and information.

*Working together as an industry, digital transformation can become a competitive weapon to ensure the viability of the channel into the future!*

This position paper reflects the views of NAED's Strategic Technology Committee on currently available technology capable of dramatically changing the electrical distribution industry. The recommended definition of digital transformation for the electrical distribution industry is:

*“Digital transformation goes beyond technology to reflect a mindset of constant innovation, fast decision-making, and the integration of technology into all phases of an electrical distributor's business.”*

1. More information about the board meeting is available in Tom Naber's column in the November 2017 issue of tED Magazine. View it @ [http://www.tedmagazine-digital.com/tedmagazine/november\\_2017/MobilePagedReplica.action?pm=2&folio=6#pg8](http://www.tedmagazine-digital.com/tedmagazine/november_2017/MobilePagedReplica.action?pm=2&folio=6#pg8)

2. Often, it's not the technology itself that causes dramatic change to an industry, but rather how the technology is utilized.

# What Technology Could Dramatically Change the Electrical Distribution Industry?

**To create awareness and stimulate an industry-wide conversation, the Strategic Technology Committee developed three subjective groupings for a “typical” NAED distributor to use to think about technology:**

*Foundational technology electrical distributors should use TODAY.*

**Technology capable of dramatically changing electrical distributors TODAY.**

*Technology with the ability to dramatically change electrical distributors TOMORROW.*

Foundational technology allows electrical distributors to take care of the "basics"—*engage with customers, enable and support sales, grow market share, reduce operating*

*costs, etc.* Other technology available today automates many routine tasks. While technology expected to dramatically change electrical distribution tomorrow continues to automate tasks, it also has the potential to totally upend the supply chain as we know it. It should be watched closely for developments.

A recent Deloitte Insights' article on driving value creation with technology investments reported 57% of technology budgets were allocated to improving business operations; 26% were allocated to incremental business change; and 16% were allocated for business innovation.<sup>4</sup>

It is incumbent upon every electrical distributor to prioritize the foundational technologies required to “stay in the game” while simultaneously investing in technology to ensure the viability of their business (*and the industry*) into the future.

### Exhibit 1. Technology Available Today<sup>3</sup>

Foundational Technology Electrical Distributors Should Use TODAY	Estimated % Electrical Distributors Using*
Big Data	40%
Chatbots	20%
Cloud Computing	40%
Crowdsourcing Tools	20%
Customer Relationship Management (CRM)	80%
Decision Support Systems	20%
Digital Asset Management	40%
Ecommerce	80%
Instant Messaging for Groups (IM)	80%
Internet Conferencing	80%
Material Handling Conveyors	20%
Mobile Phones	80%
Shared Whiteboards	20%
Social Media/Platforms	100%
Software as a Service (SaaS)	40%
Unified Communications	20%

Technology Capable of Dramatically Changing Electrical Distributors TODAY	Estimated % Electrical Distributors Using*
Artificial Intelligence (AI)	TBD
Augmented Reality/Virtual Reality	TBD
Customer Journey Analytics (CJA)	TBD
Home Automation	TBD
Internet of Things (IoT)	20%
Robots for Industrial Applications	TBD
Unmanned Aerial Vehicles	20%
Virtual Assistants	TBD

Technology Capable of Dramatically Changing Electrical Distributors TOMORROW	Estimated % Electrical Distributors Using*
Autonomous Vehicles	TBD
3D Printing	TBD
LiFi	TBD

\* Estimate based on input from NAED's Strategic Technology Committee, however, 60% of respondents to the 2017 Technology Benchmarking Survey have ecommerce websites and 87% use facebook for social media. [https://www.naed.org/NAEDDpcs/Research/Benchmarking/NAED\\_benchmarking\\_survey\\_2017.pdf](https://www.naed.org/NAEDDpcs/Research/Benchmarking/NAED_benchmarking_survey_2017.pdf)

3. Recommended, non-technical definitions of each technology are on pages 4 – 6 of this document.

4. "Kark, Khalid, Anjali Shaikh, and Caroline Brown, "Technology Budgets: From Value Preservation to Value Creation." (New York: Deloitte Insights, November 28, 2017).

# How Much Value Will This Technology Provide a “Typical” Electrical Distributor?

A typical way to look at business investments is by evaluating the total cost of ownership in relation to the value provided. Therefore, the Strategic Technology Committee plotted the *relative* total cost of ownership of each technology evaluated against the *relative* value each is expected to provide a “typical” electrical distributor. The results are presented in alphabetical order in Exhibit 2 as a means to create awareness and foment industry-wide conversations.

Technology listed as a high priority for business operations is not a choice for electrical distributors—it

is a requirement, i.e., “table stakes” to stay in the game and remain profitable. Technology listed as an investment in the future of the business is expected to help electrical distributors remain viable into the future by automating many routine tasks. Technology expected to dramatically change electrical distribution tomorrow goes further in automating routine tasks, achieving the same result in an entirely new and different way. It should be watched closely for developments, especially autonomous vehicles for deliveries.



Exhibit 2. Balancing Investments in the Future of the Business with Today’s Business Operation

## Total Cost of Ownership vs. Value Provided

\* Watch for Developments



**Total Cost of Ownership**

### Investment in the Future of the Business

- Artificial Intelligence
- Augmented/Virtual Reality
- Digital Asset Management
- Ecommerce
- Home Automation
- Internet of Things
- Material Handling Conveyors
- Robots for Industrial Applications
- Unmanned Aerial Vehicles

**Value Provided**  
Highest

### HIGH PRIORITY for Business Operations

- Big Data
- Chatbots
- Cloud Computing
- Crowdsourcing Tools
- Customer Journey Analytics
- Customer Relationship Management
- Decision Support Technology
- Instant Messaging (Groups)
- Internet Conferencing
- Mobile Phones
- Shared White boards
- Social Media/Platforms
- Software as a Service (SaaS)
- Unified Communications
- Virtual Assistants

Highest

Higher

High



### Business Innovation

- Autonomous Vehicles
- 3D Printing
- LiFi

High



# The Details: What is a Foundational Technology?

Foundational technology allows electrical distributors to stay in the “game” by taking care of the ‘basics’ —*engaging with customers, enabling and supporting sales, growing market share, reducing operating costs, etc.*—while remaining profitable. Even though some foundational technologies are not yet widely adopted by all electrical distributors, they should be viewed as a requirement.<sup>5</sup>

**Exhibit 3. Foundational Technology is a Requirement**

Foundational Technology Electrical Distributors Should Use TODAY	Estimated % Electrical Distributors Using*	Description of What It Is*	When This Technology was Developed, 1st Commercially Available; and Available to the Mainstream Market									
			Pre-1960	1960	1970	1980	1990	2000	2010	2017		
<b>Big Data</b>	<b>40%</b>	Data sets so voluminous and complex traditional data processing software is inadequate. <i>Note: Big Data is expected to continue to be disruptive as it evolves and grows.</i>					1990's	2001	2010's			
<b>Chatbots</b>	<b>20%</b>	Software which simulates human interaction by conducting a conversation.		1966				2008	2016			
<b>Cloud Computing</b>	<b>40%</b>	A means to gain access to secure, shared, standard computing resources on-demand over the Internet.					1996	2000	2006			
<b>Crowdsourcing Tools</b>	<b>20%</b>	Tools for obtaining information or input into a task or project by enlisting the input of larger number of people, either paid or unpaid, typically via the Internet.					1996	1999	2001			
<b>Customer Relationship Management (CRM)</b>	<b>80%</b>	Tools for managing a company's interaction with customers by analyzing interactions and sales history.				1986	1993	2009				
<b>Decision Support Systems</b>	<b>20%</b>	Computer-based information systems assisting with analysis and decision-making.		1960's	1987	1990						
<b>Digital Asset Management</b>	<b>40%</b>	Software tools for organizing, storing, retrieving, displaying and managing the ownership and rights to electronic content— <i>licenses, emails, brochures, installation guides, Material Data Safety Sheets (MDSS), photos, technical data sheets, podcasts, videos, etc.</i>					Mid 1990's	2000's	2010's			

\*Most descriptions from Wikipedia \*\*Most dates from Wikipedia

Developed\*\*

First Commercially Available\*\*

Relevant to the Mainstream Market\*\*

5. Although some foundational technology—for example chatbots and material handling conveyors—may seem as unnecessary, all technology listed above is widely used to improve operations and reduce costs in other industries, as well as by Amazon.

Exhibit 3. Foundational Technology is a Requirement continued

Foundational Technology Electrical Distributors Should Use TODAY	Estimated % Electrical Distributors Using*	Description of What It Is*	When This Technology was Developed, 1st Commercially Available; and Available to the Mainstream Market							
			Pre-1960	1960	1970	1980	1990	2000	2010	2017
Ecommerce	80%	Buying or selling on-line.			1972	1984	1995			
Instant Messaging for Groups (IM)	80%	Real time text transmission over the Internet between specified users.		Mid 1960's	1980		Early 1990's			
Internet Conferencing	80%	Online collaborative services including on-line presentations (webinars) and on-line meetings.					1990's	1995	2003	
Material Handling Conveyors	20%	A subset of warehouse automation; transport of materials from one location to another by conveyor belts without human intervention.					1913			
Mobile Phones	80%	A portable telephone that makes and receives calls over a radio frequency, rather than a wired connection.			1973	1983	1991 or iPhone in 2007???			
Shared Whiteboards	20%	Placement of shared files on-line for viewing and editing.				1990	1991	Early 2000's		
Social Media/Platforms	100%	Computer-mediated means of creating and sharing information.					1997	Early 2000's	2006	
Software as a Service (SaaS)	40%	Internet-based, on demand software "leased" to users on a subscription basis.		1960's			1990's	2001		
Unified Communications	20%	Integration of enterprise communications services to provide a consistent user experience across voice mail, email, phone SMS, fax., etc.			1971	1986	1992			

Developed\*\*

First Commercially Available\*\*

Relevant to the Mainstream Market\*\*

\*Most descriptions from Wikipedia \*\*Most dates from Wikipedia



# The Details: What Technology is Capable of Dramatically Changing Electrical Distributors Today?

The technology capable of dramatically changing electrical distributors today has been around for years. Many customers have already experienced it as consumers. However, to date only the Internet of Things (IoT)<sup>6</sup>—as well as home automation by those distributors operating in residential markets—appears to have been embraced to any extent by electrical distributors.

Although artificial intelligence, augmented/virtual reality, and virtual customer assistants may seem as science fiction applications for electrical distributors, use of these technologies can improve service to customers, automate many routine transactions, and deliver bottom line results. Customer Journey Analytics can help electrical distributors pinpoint how customers buy so they

can be served more effectively. Likewise, Amazon justified adding 75,000 robots in its warehouses in 2017 because the robots pick and pack orders more efficiently—in an average of 13 minutes, versus 90 minutes for Amazon’s human workers.<sup>7</sup> And while we have yet to hear of an electrical distributor using Unmanned Aerial Vehicles (UAV) in their business, at least one electrical distributor has already created a new service with UAV’s.<sup>8</sup>

Staying on the sidelines and watching others gain a foothold with our customers with technology we choose not to embrace should not be an option. The technologies listed in Exhibit 4 can be a game changer for electrical distribution if used to leverage our traditional strengths and minimize our weaknesses.



6. <https://www.naed.org/NAEDDocs/Resources/Business%20Tools/Technology/IoT-ExecGuide18.pdf>

7. <https://nam01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.cnn.com%2F2017%2F12%2F04%2Fretail-jobs-decline-as-amazons-robot-army-grows.html&data=02%7C01%7C%7Cf9b5bcd92be44a4bc7a08d5514f4d60%7C84df9e7fe9f640afb435aaaaaaa%7C1%7C0%7C636504323388083070&sdata=Ez4KGusL85eJA6150ITKWZukw%2BulnbEUvgZ6l0Qq08%3D&reserved=0>

8. <https://solutions.borderstates.com/border-states-uniquely-positioned-within-silicon-valley-drones/>

Exhibit 4. Technology Capable of Dramatically Changing Electrical Distributors TODAY

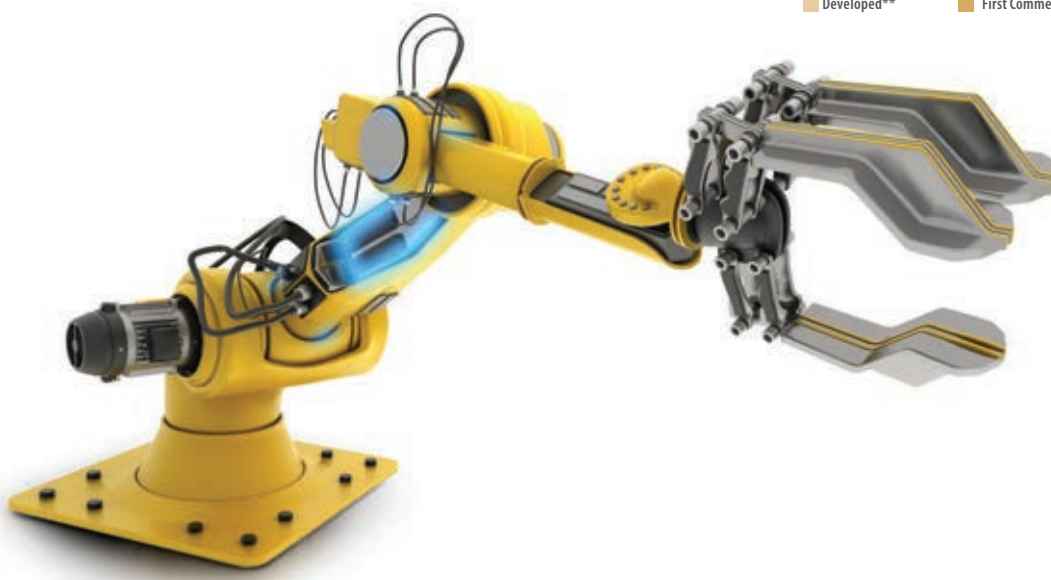
Technology Capable of Dramatically Changing Electrical Distribution TODAY	Estimated % Electrical Distributors Using*	Description of What It Is*	When This Technology was Developed, 1st Commercially Available; and Available to the Mainstream Market							
			Pre-1960	1960	1970	1980	1990	2000	2010	2017
Artificial Intelligence (AI)	TBD	Intelligence displayed by machines. May also be referred to as machine learning and/or natural language processing.		1943			Late 1990's		Mid 2010's	
Augmented Reality/Virtual Reality	TBD	Live direct or indirect view of a physical environment augmented by computer generated input.		1962			1990's		2007	
Customer Journey Analytics (CJA)	TBD	Gathering and integrating data from digital media with other customer information to determine how individual customers interact with your company over time.	Began with human interaction and continues to evolve across all customer touch points and channels.							
Home Automation	TBD	Automation for a home, often referred to as a smart home.			1975		1978		2012	
Internet of Things (IoT)	20%	Network of devices with embedded sensors—i.e., "smart devices"—with the ability to collect, exchanges, sense, and react to external and internal conditions.				1982		2004	2017	
Robots for Industrial Applications	TBD	Automated, programmable machines capable of movement on two or more axes.		1961				2003	2017	
Unmanned Aerial Vehicles	20%	Aircraft without a pilot on board, commonly know as a drone.		1935				2013		Pending FAA approval
Virtual Assistants	TBD	Site-specific software agents performing tasks or providing services for customers in order to provide information or complete a transaction.					1994	2011	2011	

Developed\*\*

First Commercially Available\*\*

Relevant to the Mainstream Market\*\*

\*Most descriptions from Wikipedia \*\*Most dates from Wikipedia



# The Details: What Technology has the Ability to Dramatically Change Electrical Distributors Tomorrow?

Although new technology is invented every day, here are 3 technologies to watch vigilantly for new developments:

**1. Autonomous Vehicles.** Once legal hurdles and insurance issues are solved, the need for delivery drivers could be lessened, and possibly eliminated.

**2. 3D Printing.** Underwriters Laboratories(UL®) has already introduced guidelines on 3D Printing & Additive Manufacturing Equipment. Imagine the reduction in warehouse square footage if it only contained a 3D printer and barrels of various printing materials—*thermoplastics, resin, nylon, wood, stainless steel, etc.*—rather than pallets of finished goods stacked to the ceiling.



**3. LiFi.** This technology may just result in a faster way to connect to the Internet than Wi-Fi or it could result in the entire world installing LED light bulbs and fixtures. There are also growing applications in automotive, solar power, and transportation. Ask your lighting manufacturers to keep you updated on the latest developments.

Exhibit 5. Technology with the Ability to Dramatically Change Electrical Distributors TOMORROW

Technology Capable of Dramatically Changing Electrical Distribution TOMORROW	Estimated % Electrical Distributors Using*	Description of What It Is*	When This Technology was Developed, 1st Commercially Available; and Available to the Mainstream Market									
			Pre-1960	1960	1970	1980	1990	2000	2010	2017		
Autonomous Vehicles	TBD	Driverless, or self-driving vehicles, capable of sensing its environment and navigating without human input.					1984	2008 (Mining applications)			Highway use pending legislation	
3D Printing (Also known as additive manufacturing)	TBD	Also known as additive manufacturing, AM, is a process to create a 3-dimensional object by printing it in layers.					1988	1992	TBD			
LiFi	TBD	A form of optical wireless communication also referred to as visible light communication (VLC), or wireless data from every light.							2011	2014	TBD	

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Developed\*\*

First Commercially Available\*\*

Relevant to the Mainstream Market\*\*

## Next Steps

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Technology is changing distribution from a business of delivering goods to a business delivering both goods and information. Think about technology in terms of how it can help your company (*and the industry*) better serve customers, be more productive, and grow sales. NAED will keep technology top of mind with education sessions at national and regional conferences, articles in tED Magazine, blogs, webinars, various research projects, etc. But we need your help to keep the conversation going.

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## What You Can Do

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Keep digital transformation top of mind in your company and with industry associates. Work together as an industry to use technology to leverage our traditional strengths with technology. Don't be left behind!

Let your voice be heard by sharing your thoughts about digital transformation by emailing [memberservices@naed.org](mailto:memberservices@naed.org), or by calling 1-888-791-2512.

**What suggestions do you have to help companies overcome the cultural and financial hurdles required for a digital transformation?**

**What can we do as an industry to encourage electrical distributors to take the first step into digital transformation?**

**How can we let everyone in the industry know if they are behind or ahead of the curve on digital transformation?**

**How can NAED's Strategic Technology Committee work with NAED's Board of Directors, Regional Councils, etc. to make digital transformation a reality in our industry?**

*The time for  
bold action  
is now!*



## Our Mission

To promote the electrical distribution channel and to provide members with the most valuable and relevant tools, solutions and information so they can thrive now and in the future.

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