



Mega-Trends Transforming Electrical Contracting

ELECTRI **INTERNATIONAL**

Research and Education for the Electrical Construction Industry

Josh Bone
Executive Director,
ELECTRI International
josh.bone@electri.org

Mega-Trends

Transforming Electrical Contracting

1. Supply Chain Chaos / Price Escalations
2. Electrification
3. Work Life Balance
4. The Rise of Industrialized Construction
5. The Evolution of Systems Integration
6. The Value of Leveraging Data



The Impact of Electrification on Electrical Contracting



Electrical work is a growing trade. According to the [U.S. Bureau of Labor Statistics](#), electrician jobs are expected to grow by 11.4% from 2019 to 2029. This is more than triple the 3.7% growth rate **projected** for all occupations.

Another factor to prove this point is the rise of residential electrical permits, currently up 31.6% from pre-pandemic times, with an average permit approval taking up to 30 days.

This is not taking into account the increase in residential and light commercial EV charging, battery storage and solar integration proliferation.



DEMAND FOR CONSTRUCTION AND MAINTENANCE ELECTRICIANS

Construction and maintenance electricians plan, install, and maintain the electrical systems in houses, condos, offices, stores, schools, hospitals, and other types of buildings.

They can be involved in new builds, repairs, or renovations.

Estimated employment growth between 2021 and 2025: 14-15% (source: [Ontario government](#))

Projected job openings from 2021 to 2025: 9,000 to 10,000

DEMAND FOR INDUSTRIAL ELECTRICIANS

Industrial electricians install and fix electrical equipment and controls in plants, factories, mines, and shipyards.

They work with equipment like alternators, generators, instrumentation, reactors, motors, and energy storage systems.

Estimated employment growth between 2021 and 2025: 11-12% (source: [Ontario government](#))

Projected job openings from 2021 to 2025: 2,000 to 3,000



DEMAND FOR POWER SYSTEM ELECTRICIANS

Power system electricians focus on the equipment that generates, transmits, and distributes electricity. That includes components like transformers, circuit breakers, voltage regulators, capacitors, and inductors.

Estimated employment growth between 2021 and 2025: 9-10% (source: [Ontario government](#))

Projected job openings from 2021 to 2025: 400 to 500

DEMAND FOR LINEWORKERS

Lineworkers set up and maintain the high-voltage lines that carry electricity from power plants to individual buildings. They work both underground and at heights.

These professionals erect poles and towers, install lines and cables, and connect and insulate conductors.

Estimated employment growth between 2021 and 2025: 9-10%

Projected job openings from 2021 to 2025: 800 to 900



US Crosses the Electric-Car Tipping Point for Mass Adoption

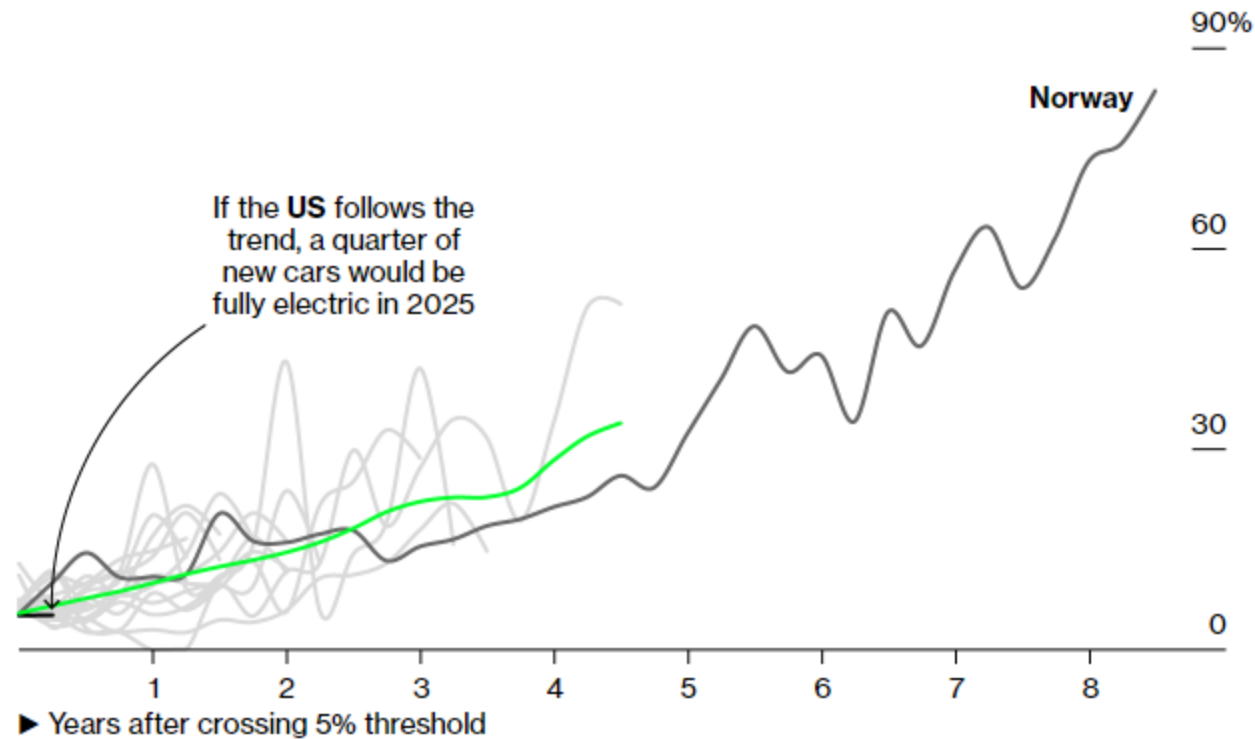
Once 5% of new-car sales go fully electric, everything changes — according to a Bloomberg analysis of the 19 countries that have made the EV pivot.

How Fast Is the Switch to Electric Cars?

19 countries have reached the 5% tipping point—then everything changes

12-month moving average

EV share of new vehicles (BEV) ▼



Sources: BloombergNEF; Bloomberg Intelligence; ACEA; CATARC; OFV; New Zealand Ministry of Transport



EVs could drive 38% rise in US electricity demand, DOE lab finds

Rising electricity demand could lead to sustained absolute growth of 80 terawatt-hours per year, according to the U.S. Department of Energy's National Renewable Energy Laboratory.

On avg, one US electric vehicle uses as much electricity per year as a US household. Much more efficient than ICEs, but nevertheless, we're going to need a whole lot of clean electricity.

1 car, driving 24,000 miles each year @ 3 miles/kWh consume 8,000 kWh in a year, or about 22 kWh/day. According to the Energy information Administration, the average house consumes 28 kWh/day, so they are indeed comparable.



London-based consultancy IHS Markit's year-end 2021 Automotive Insights report shows electric vehicle adoption in Canada is gathering steam, with electric vehicles – battery electric vehicles (BEVs), plus plug-in hybrid electric vehicles (PHEVs), hybrid electric vehicles (HEVs) and hydrogen fuel cell (FCEVs) – making up 11.8 per cent of all vehicle registrations in 2021, an impressive leap from 7.6 per cent in 2020.

When it comes to zero-emission vehicles (all of the above less HEVs), the total was 5.6 per cent, or slightly more than one in 20 new cars registered. That's an increase from 3.8 per cent in 2020 and slightly more than 3 per cent in 2019.

In real numbers, this means some 73,600 new EVs hit the road in Canada in 2021.

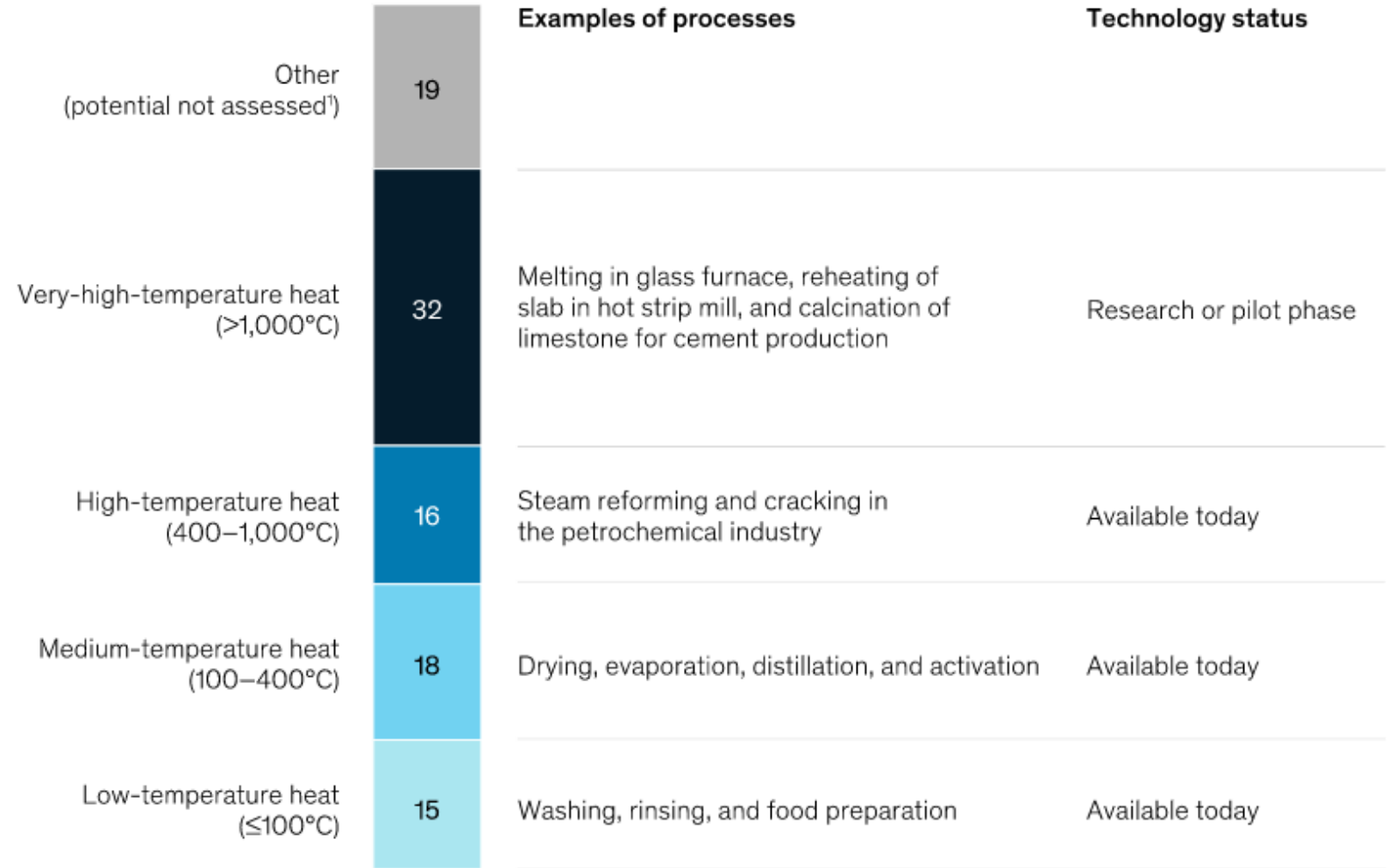


The Impact of Electrification on Electrical Contracting

- Of all the fuel that industrial companies use for energy, we estimate that almost 50 percent could be replaced with electricity, using technologies available today
- Electrification of the fuel that industrial companies use for energy has several benefits. Generally, electrically driven equipment is only slightly more energy efficient than the conventional option, but it has lower maintenance costs, and, in the case of the industrial boiler, the investment cost of the electrical equipment is lower. And, if zero-carbon electricity is consumed, the greenhouse-gas emissions of the industrial site lower significantly.

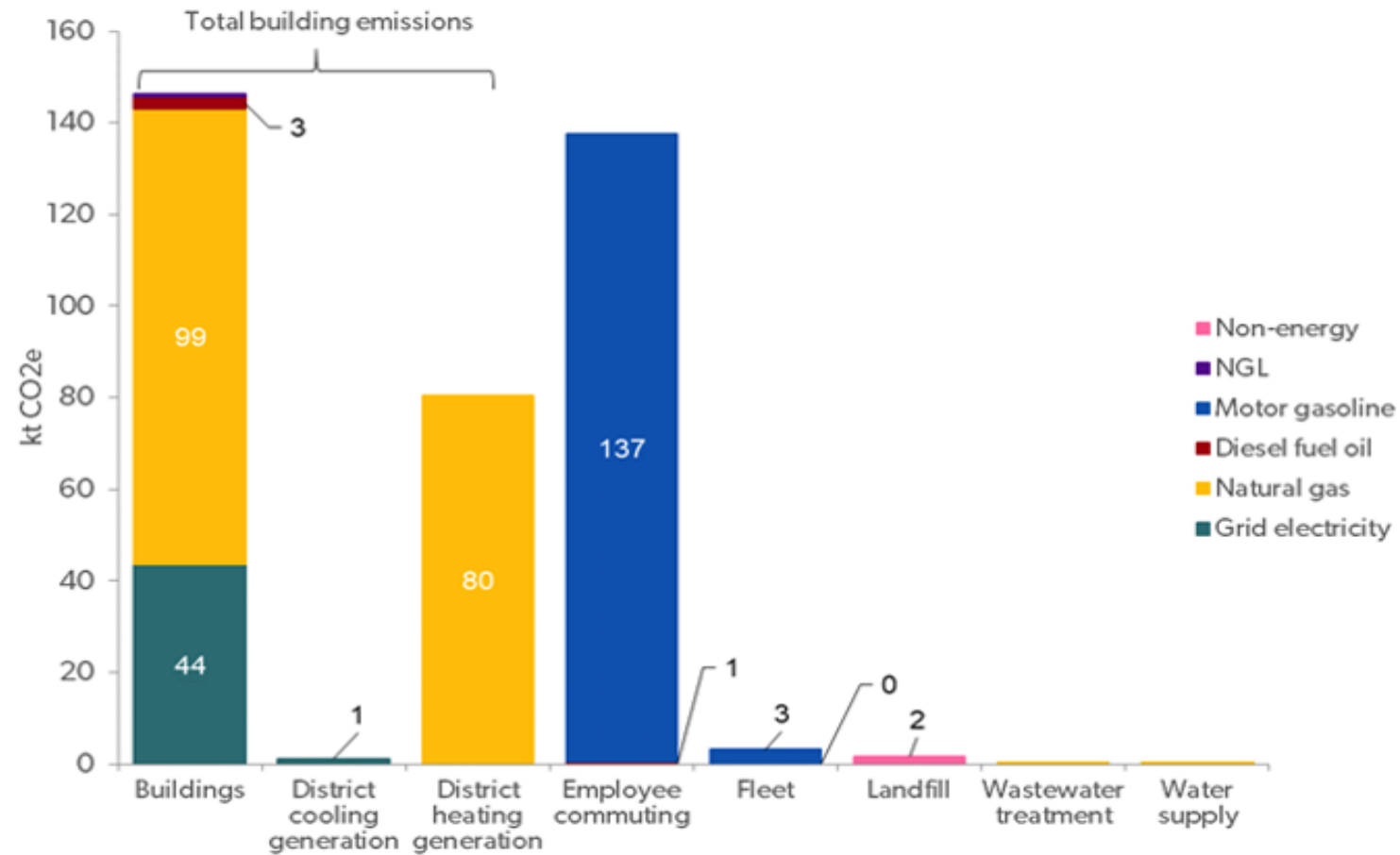
Almost half of fuel consumed for energy can be electrified with technology available today.

Share of total estimated fuel consumption for energy, 2017, %



Why the Canadian Government Needs to Fuel Switch

In order to decarbonize, the Government of Canada needs to switch away from natural gas for heating buildings. In 2016, the federal government's operations in the National Capital Region (NCR) emitted 370 kilotons of CO₂e (carbon dioxide equivalent). More than 60 percent of emissions from the federal government's operations came from buildings, most of it from burning natural gas for heating.



Emissions by fuel from federal operations in the NCR, 2016.



EC Opportunities Surrounding Sustainability

This modeling demonstrated that decarbonizing the federal government building portfolio in the NCR is technically and economically feasible over the next three decades. If combined with deep energy efficiency retrofits like building envelope upgrades, heating electrification of nearly all of the building stock would cost CA\$850 million more than planned building upgrades between 2020 and 2050, while saving about CA\$700 million in energy costs and nearly eliminating emissions. The net cost of CA\$150 million is a drop in the bucket compared with how much the government already spends on building operations. The Canadian National Capital Region has a pivotal opportunity to transform its federal buildings portfolio while minimizing the impact of demand growth on the electric grid.



EC Opportunities Surrounding Sustainability

The following are the top five projects slated to come online this year: Buffalo Plains Wind Farm, generating 514.6 MW; Travers Solar, 465 MW; Forty Mile BHE, 389.5 MW; Kirkcaldy Solar, 350 MW; and Forty Mile Wind, 200 MW. According to Hebertson, these projects and others will push Alberta's wind and solar capacity to almost 10 GW before next year. That total is expected to double by 2025 to almost 21 GW.

That 21 GWs will represent nearly 50 per cent of the Canada's total renewable capacity.

“This rapid growth will see Alberta race ahead of Canada's other provinces and take the top spot in the country's green table, outpacing Ontario — the current leader — with almost double the power generation capacity,” the Rystad report said.



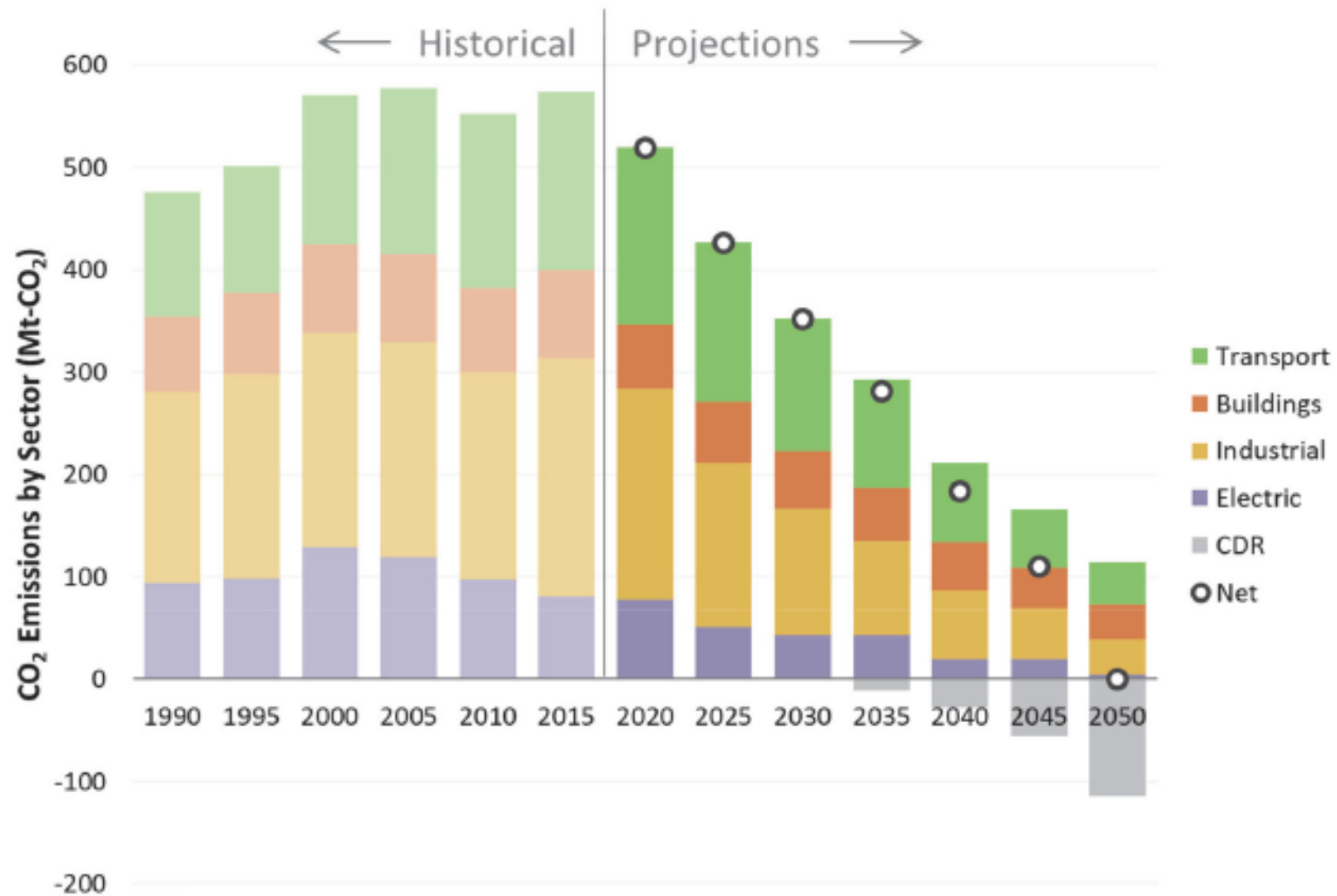


Figure 2. Canadian CO₂ emissions by sector over time for the Net Zero scenario. Net energy system emissions are the sum of gross emissions less total negative emissions from carbon dioxide removal (CDR). The "Industrial" category includes emissions from oil and gas production. Historical emissions data come from Environment and Climate Change Canada (2021).



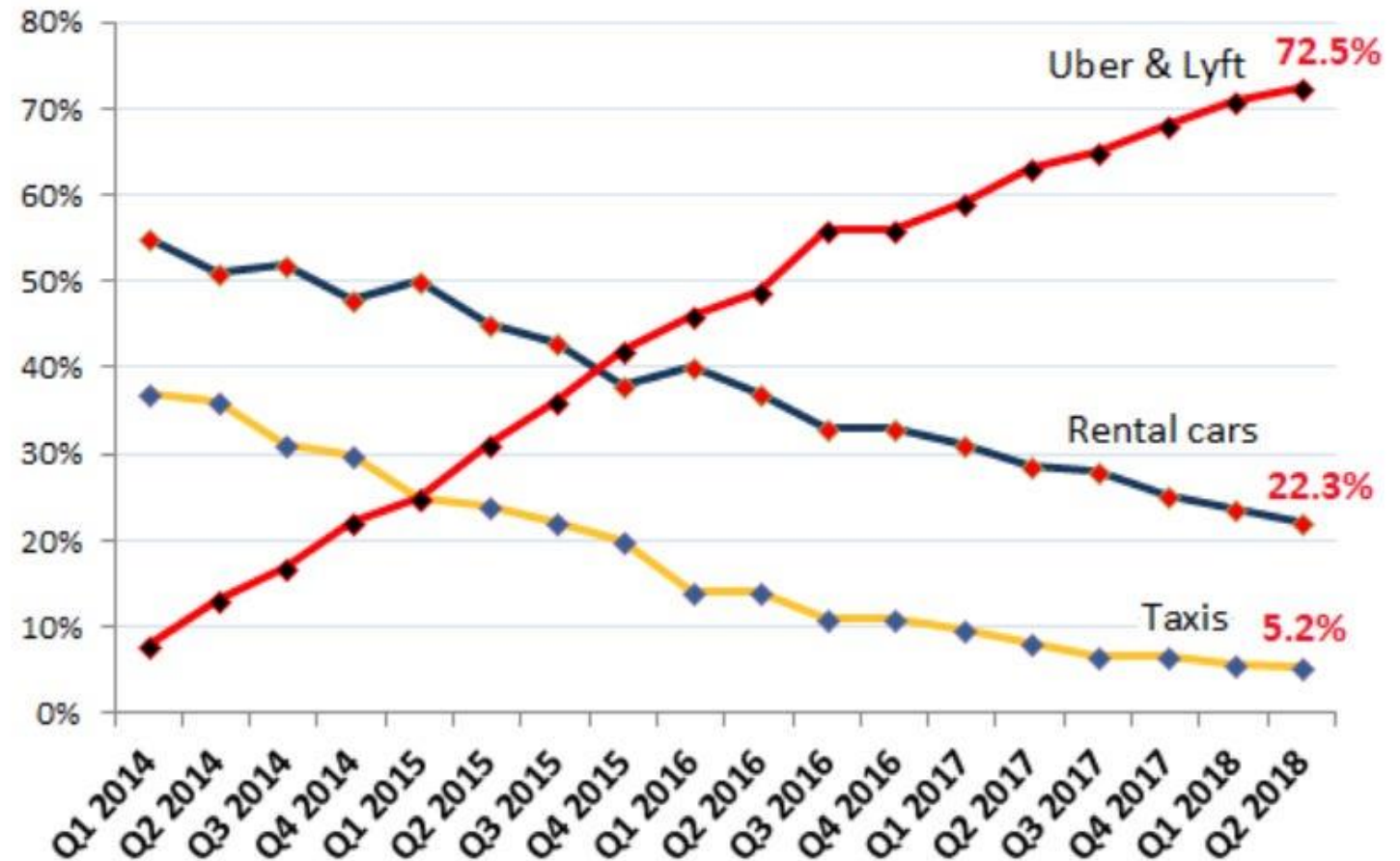
The Evolution of Systems Integration



Disruption or Transformation

Disruption:
The Rise of
Rideshare Apps

Uber & Lyft Crush Taxis and Rental Cars
% of Ground Transportation Travel Reimbursements



Source of data: Certify

WOLFSTREET.com

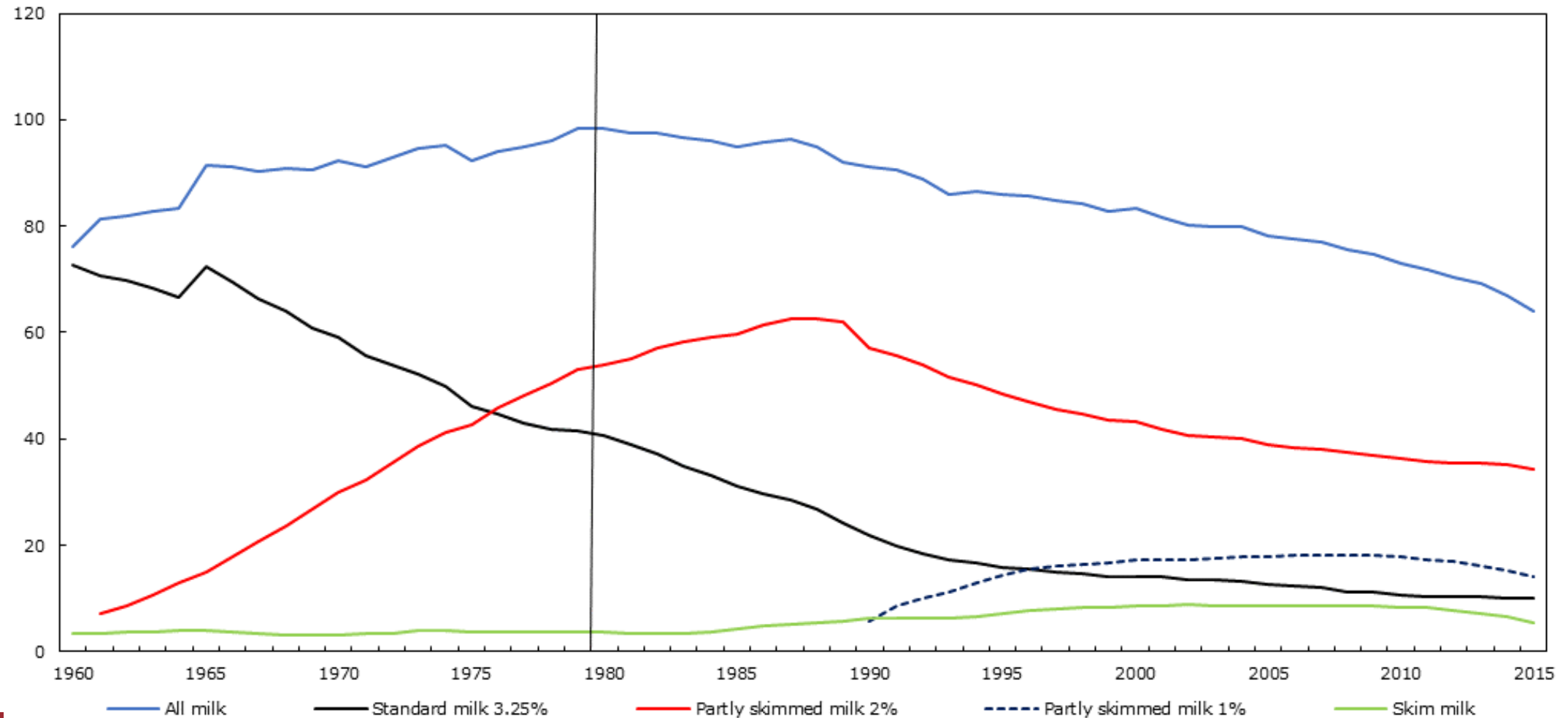


Industry that are Transforming

Chart 2

Per capita milk available for consumption, Canada, 1960 to 2015

litres per person per year

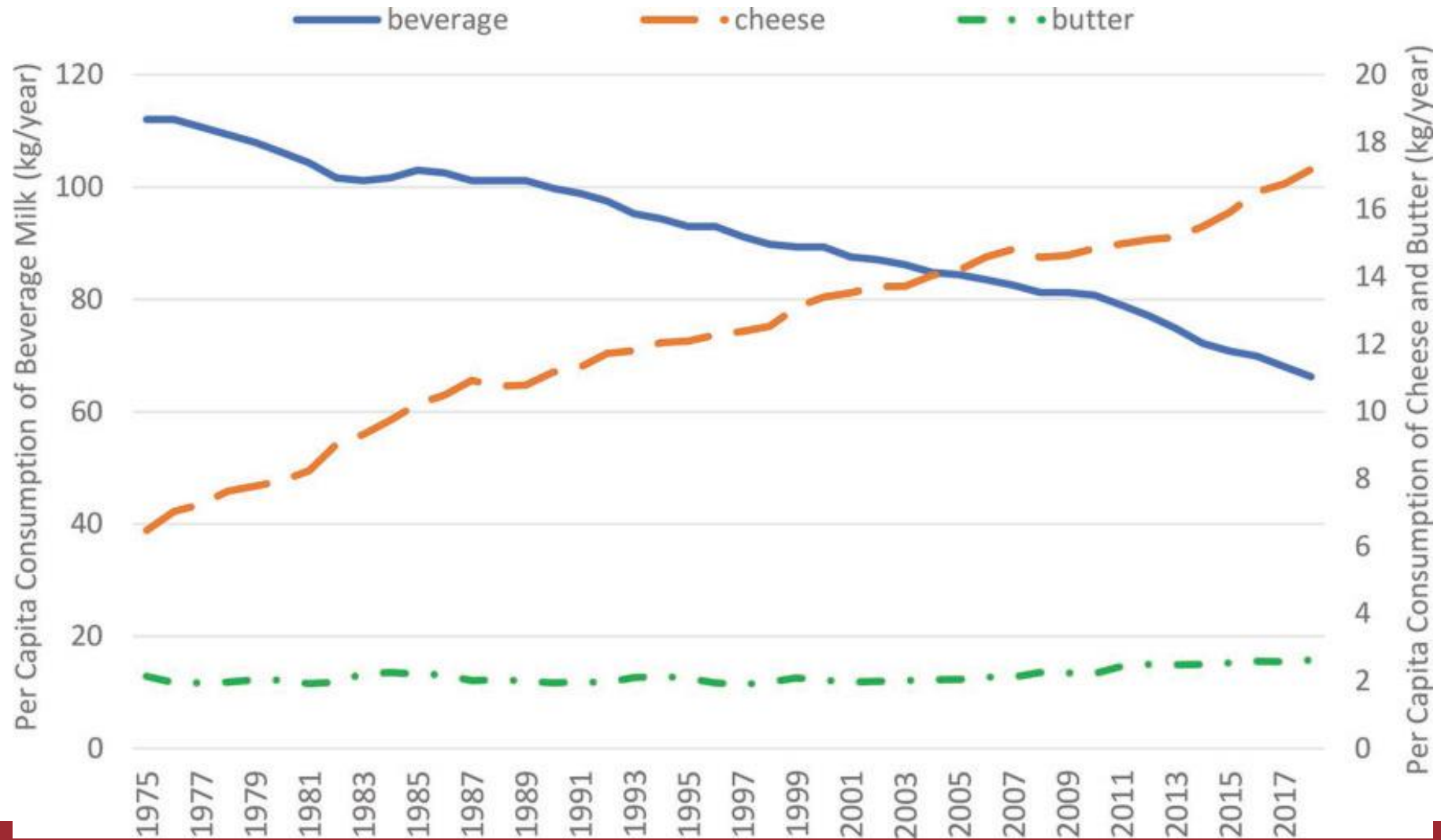


Note: Does not adjust for losses (e.g. waste or spoilage) in stores, households, private institutions or restaurants, or losses during preparation.

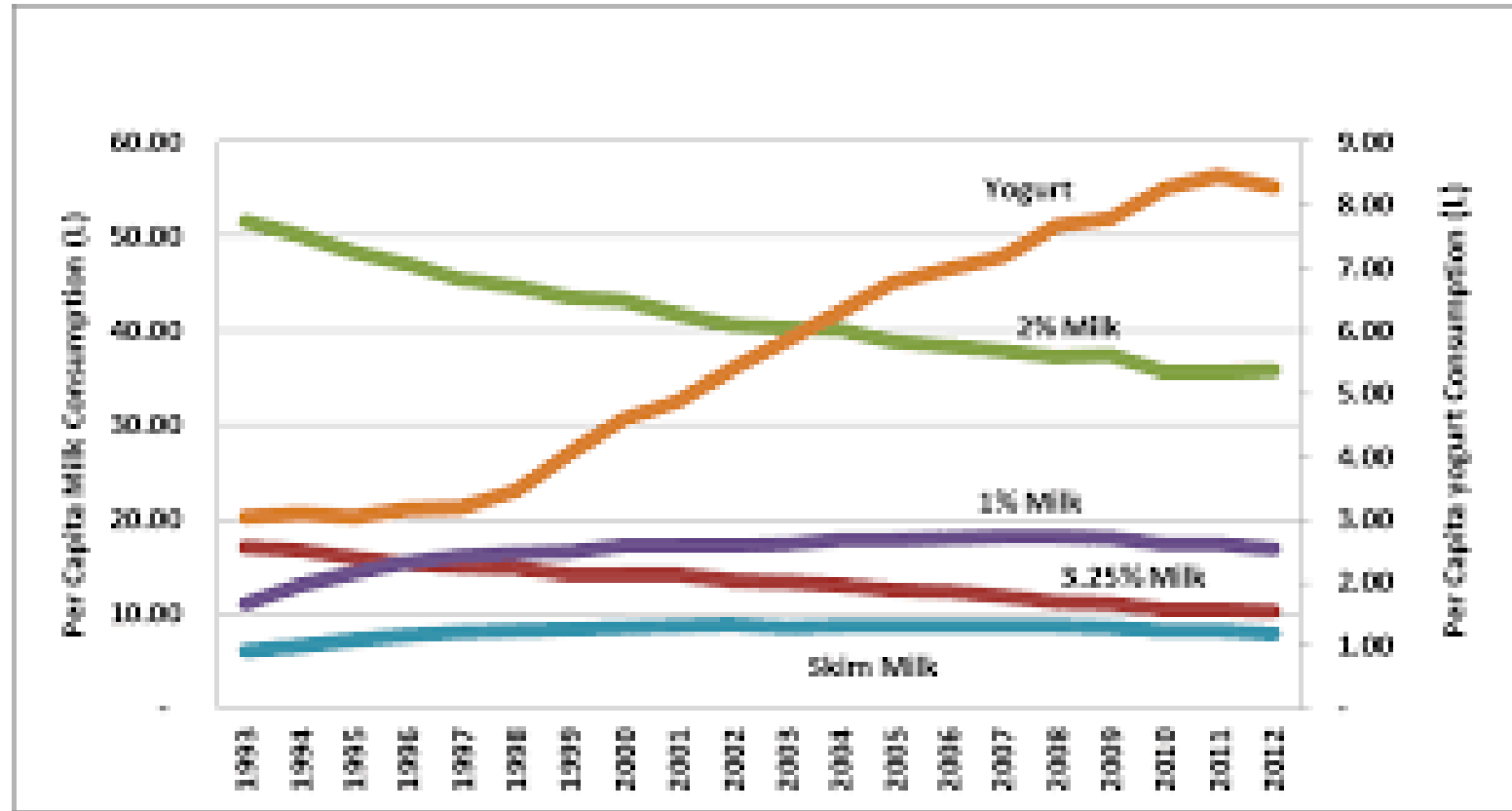
Source: Statistics Canada, Food available in Canada, annual, CANSIM table 002-0011.



Industry that are Transforming

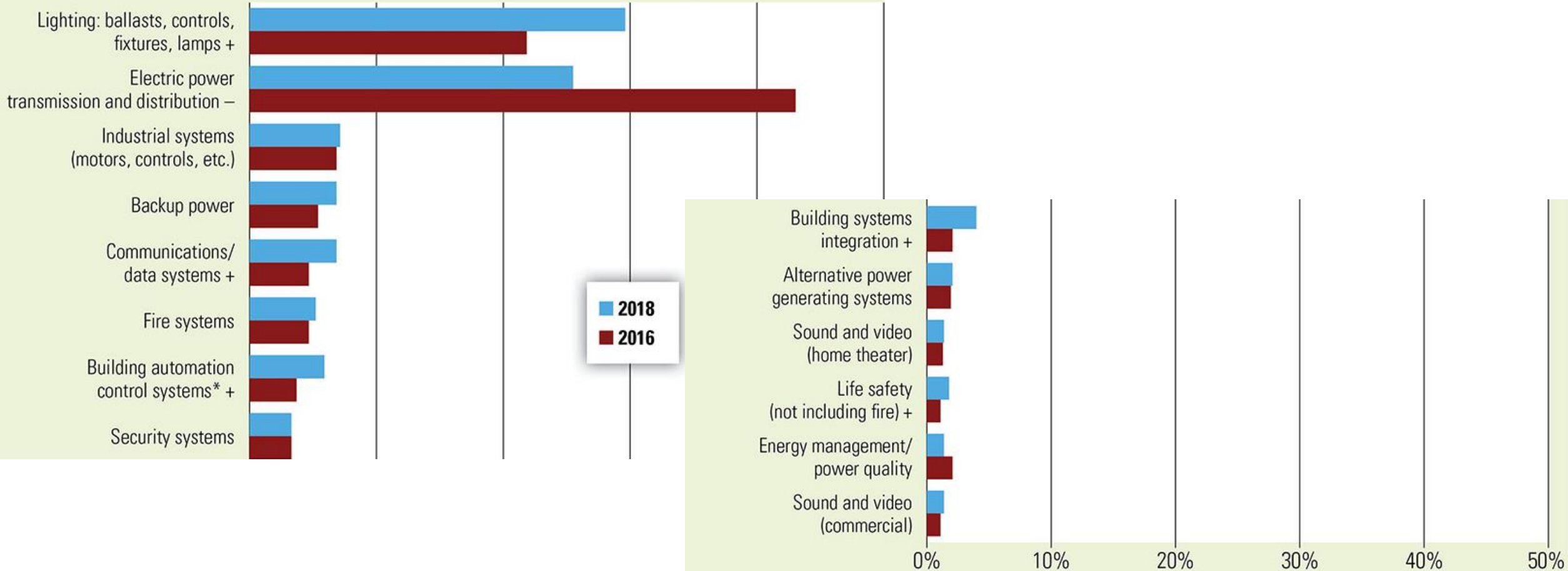


Industry that are Transforming



Diversification of Work

FIGURE 8 Sources of Revenue—Trended (2018 vs. 2016)



The symbols + and - indicate significant changes at the 90 percent level of confidence versus the 2016 Profile study.

* indicates wording change versus 2016 Profile study.



Smart Buildings and Smart Infrastructure

13% of the cost of a building is in design/construction phase

Vs.

87% of the cost of a building is operating and maintaining the building over life span.



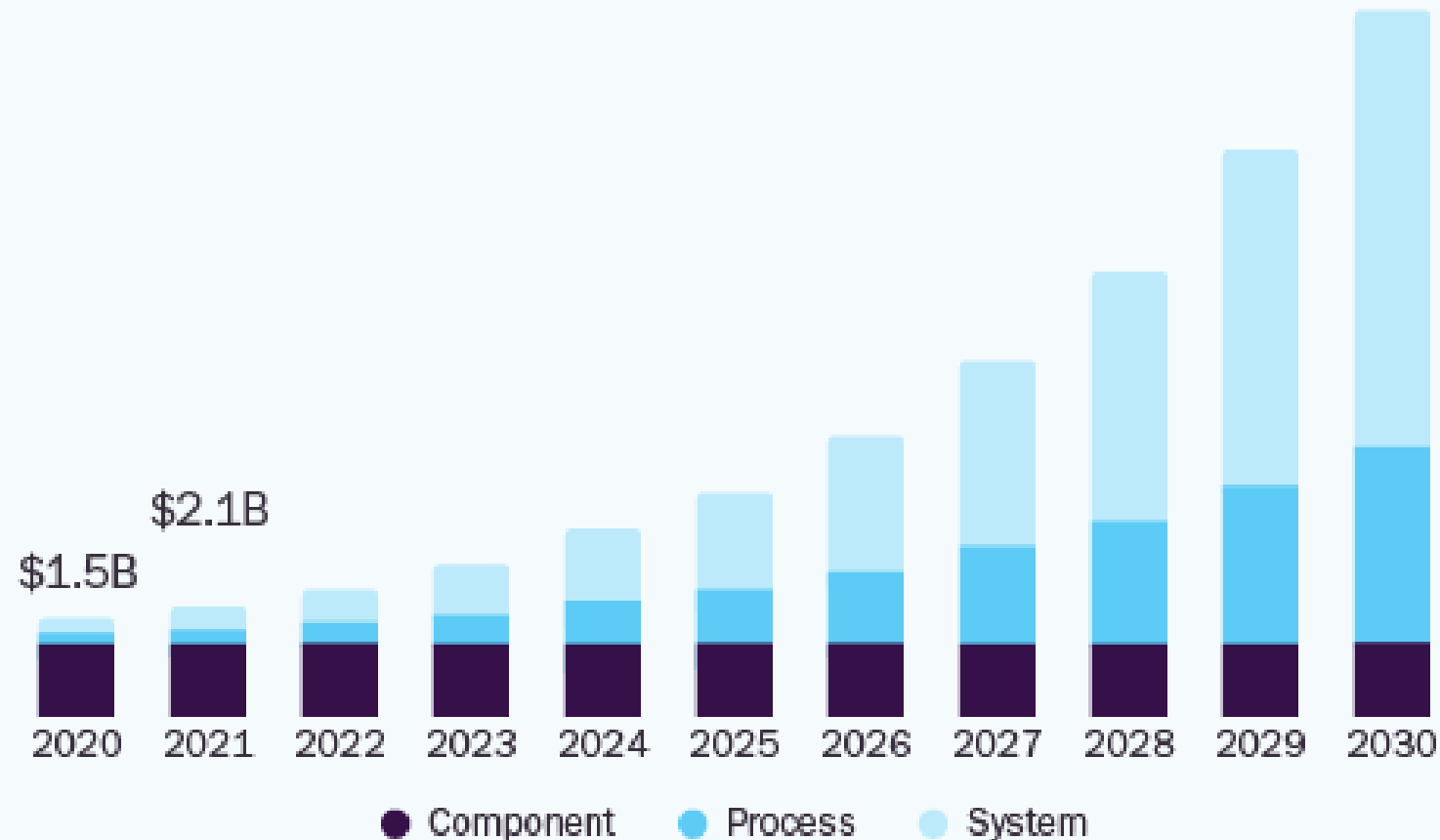


Opportunity for Growth

- The global smart building market is projected to grow from \$67.60 billion in 2021 to \$265.37 billion in 2028 at a compound annual growth rate of 21.6%. What's more, these smart buildings are more than just a temporary aberration. They are the present and future of facilities management as new innovations continually advance what's possible. These interconnected solutions represent brand new market opportunities for electrical contractors.

U.S. Digital Twin Market

size, by solution, 2020 - 2030 (USD Billion)



35.1%

U.S. Market CAGR,
2022 - 2030

Source:
www.grandviewresearch.com



Building Lifecycle Opportunities

Go digital to boost productivity and grow your business

Despite a wide variety of different jobs electrical contractors perform, their businesses face remarkably similar challenges in the face of accelerating technological change

Recent events have shown us that relentless, even turbulent change, is now the new normal.

Embracing emerging trends, building a relationship of mutual trust, and benefit with clients are ways to boost competitiveness, gain recurring revenue, and grow your company.



Mastering digital tools **establishes you as a service provider** instead of simply their installer



Digital adoption helps overcome construction industry hurdles, without compromising safety



Taking steps to digitize your manual processes can result in **efficiency gains between 14-15%**



A single solution for all your asset and energy management needs

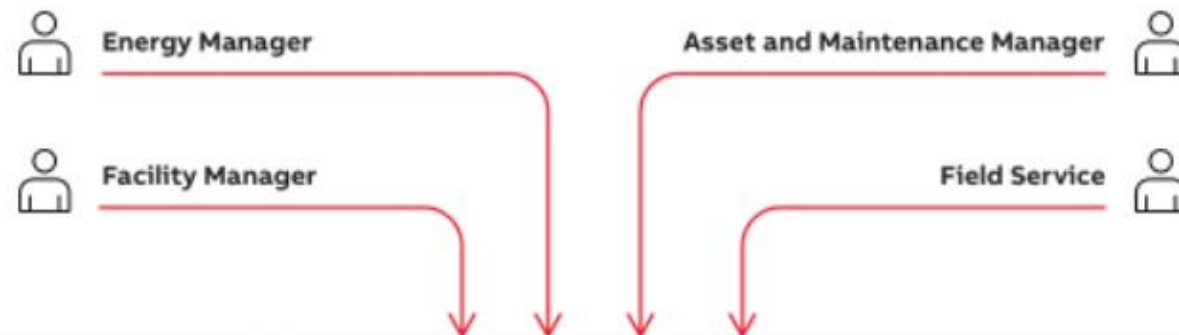


ABB Ability Energy & Asset Manager integrates energy and asset management in a single dashboard. Providing remote visibility of asset and electrical-system behavior. Providing insights that help minimize cost and risk and maximize performance and safety across your operations.

ABB Ability™ Energy and Asset Manager



Energy Manager

- Optimize energy bill
- Avoid energy waste
- Cost allocation



Asset Manager

- Reduce total cost of ownership
- Maximize uptime
- Improve safety



Edge or Cloud - Your choice now or in the future

Sm@rtGear™ IE allows you to analyze data at the machine or pre-process it quickly for uploading to cloud or another system. Control and configuration can be exclusively local while monitoring and enhanced analytics, regional performance comparisons, fleet management, and more can be cloud based.

Features and benefits:



Safety



Reliability



Connectivity



Flexibility



GE Digital

What is industrial Data Diagnostics?

Industrial Data Diagnostics (IDD) is a premier cloud diagnostic application that provides process and asset data quality analysis, performance benchmarking, and delivers actionable recommendations to continuously optimize O&M program data that are easily scaled throughout the enterprise. Industrial Data Diagnostics seamlessly integrates with GE Digital's Asset Performance Management (APM) software for a streamlined navigation, intuitive user experience, and better business continuity.

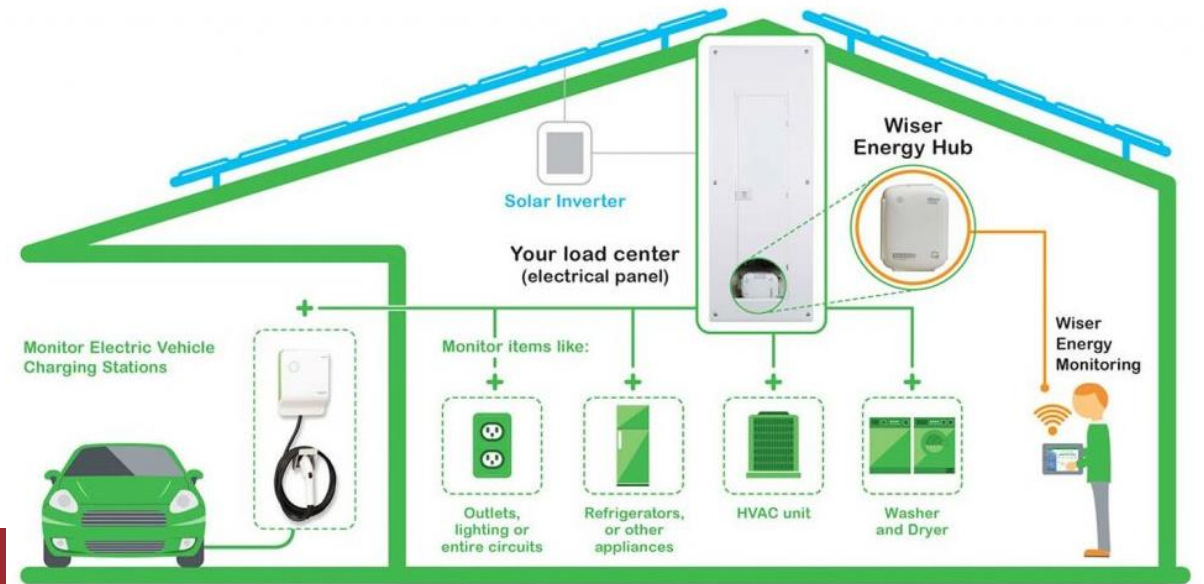
Data quality is half the battle – download our guide to diagnose, cure, and sustain your operations and maintenance program

[DOWNLOAD THE INDUSTRIAL DATA WHITE PAPER](#)



Wiser

Schneider
Electric

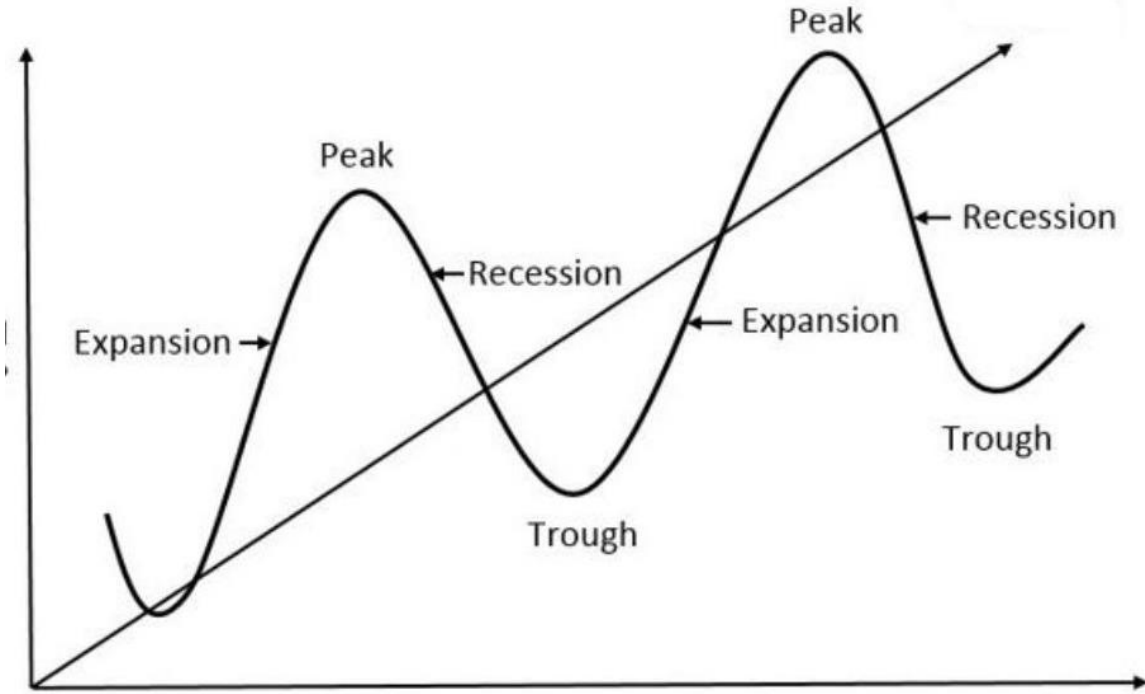


Monitor up to 18 devices/circuits, all from your mobile application or web browser



Why Change from Installer to Integrator?

Installing is Cyclical



Integrator Growth



Smart Building – Systems Integrations



Nursing informatics specialist

Nursing informatics specialists—also known as nurse informaticists—**bring medical knowledge into the IT realm**. It's a type of nurse skilled in both the delivery of healthcare and the development and utilization of healthcare technology.



Smart Building – Systems Integrations

Primary System's prides itself on its Consultative Services, staffed with Registered Nurses (RN's) with over 30 years of combined bedside workflow design and management experience. Our staff is experienced in adapting with you as you adapt to the impacts of the everchanging healthcare arena. By optimizing and leveraging your clinical technology and data, we create solutions to support communication and workflows in a patient centric environment.

Expertise:

Primary Systems will provide your facility with an on-going support model that ensures quarter-over-quarter and year-over-year sustained results after the implementation is complete. We structure our team of Registered Nurses (RNs) with real world bedside experience to analyze your clinical operations workflow and evaluate current performance through data, time, and motion studies. This allows us our team to make recommendations based on years of clinical experience to boost productivity and increase staff satisfaction resulting in increased staff retention and better patient care.



Smart Building – Systems Integrations

CVE IoT Solutions Capabilities



- > IoT device installation and management
- > Smart exit signs
- > Web-connected devices
- > Location tracking
- > Integration and storage
- > Managed services

CONNECT WITH CVE IOT
SOLUTIONS



Managed Cloud

Gain access to a team of cloud experts when you need them.

We understand that finding and retaining cloud talent can be difficult, which is why we've put together a team of dedicated experts for you. With our managed cloud, you get access to an entire team of specialists in Engineering, Architecture and Security. With eight hours of professional services included in each month (discounted hourly rates after that) and quarterly architecture reviews, you will be sure that you are getting the most out of your cloud while keeping costs to a minimum.

- Cost Control
- Best Practices
- Security & Compliance
- Professional Services

Smart Exit Signs

Increase Workplace Safety & Compliance Solution All in One with the Willard Smart Exit™



Willard Smart Exit™ meets NFPA regulations, as well as regulations established and overseen by the Joint Commission on Accreditation of Healthcare Organizations. Our Smart Exit Sign is powered by the IBM Cloud. Additional value is provided by utilizing device omnipresence and known location.

CVE Managed Services and Help Desk

We can design, build, implement, and manage a custom managed services or help desk solution so you can focus on delivering value to your business.

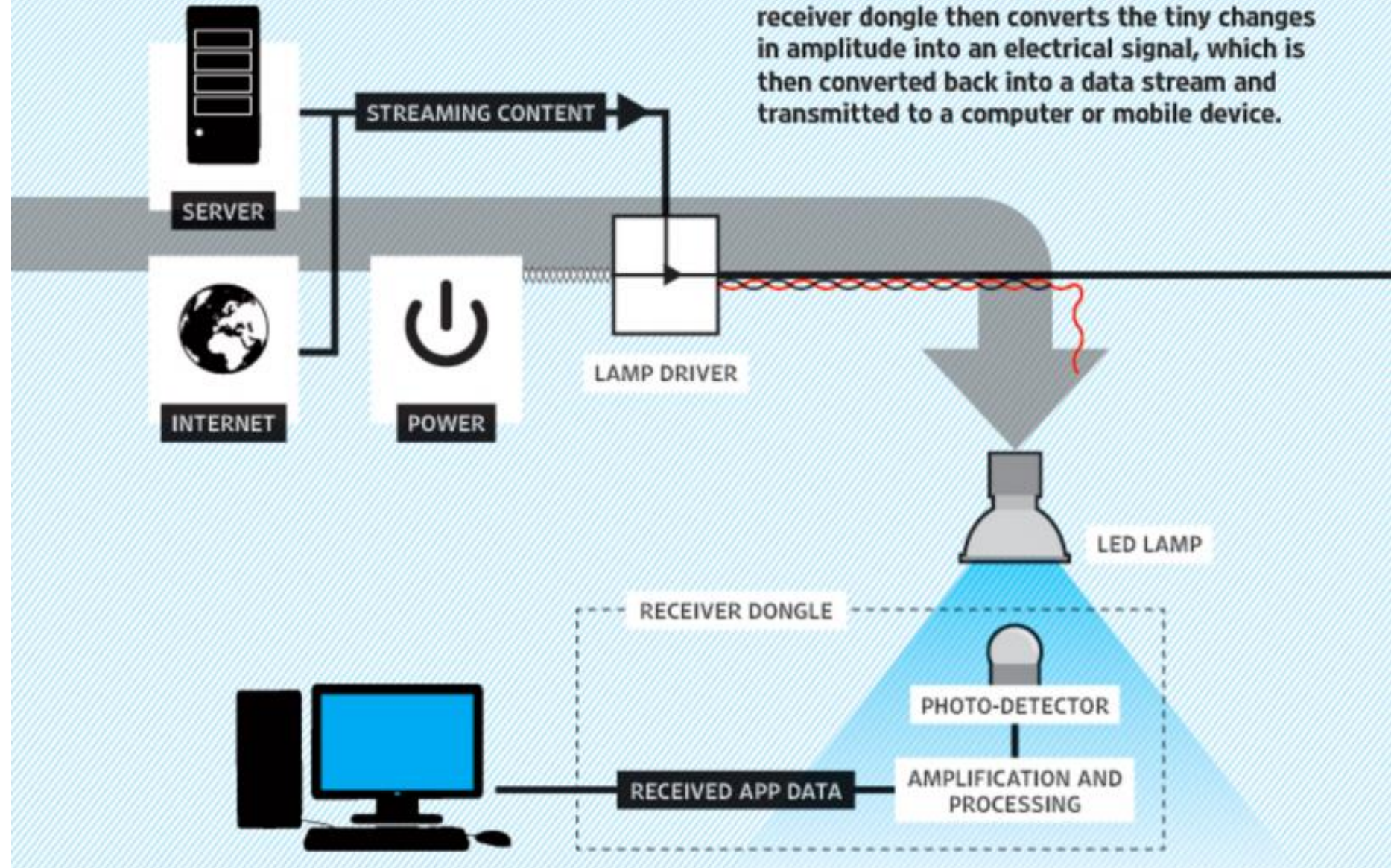
Cache Valley Electric has the resources, expertise, and experience to provide turnkey managed services and help desk solutions for businesses of any size. As a managed services provider (MSP), CVE provides ongoing monitoring, support, and active administration through our network operations center.





HOW IT WORKS

An overhead lamp fitted with an LED with signal-processing technology (*below*) streams data embedded in its beam at ultra-high speeds to the photo-detector. A receiver dongle then converts the tiny changes in amplitude into an electrical signal, which is then converted back into a data stream and transmitted to a computer or mobile device.



DATA



Most Companies Do Not Use Information & Data for Decisions

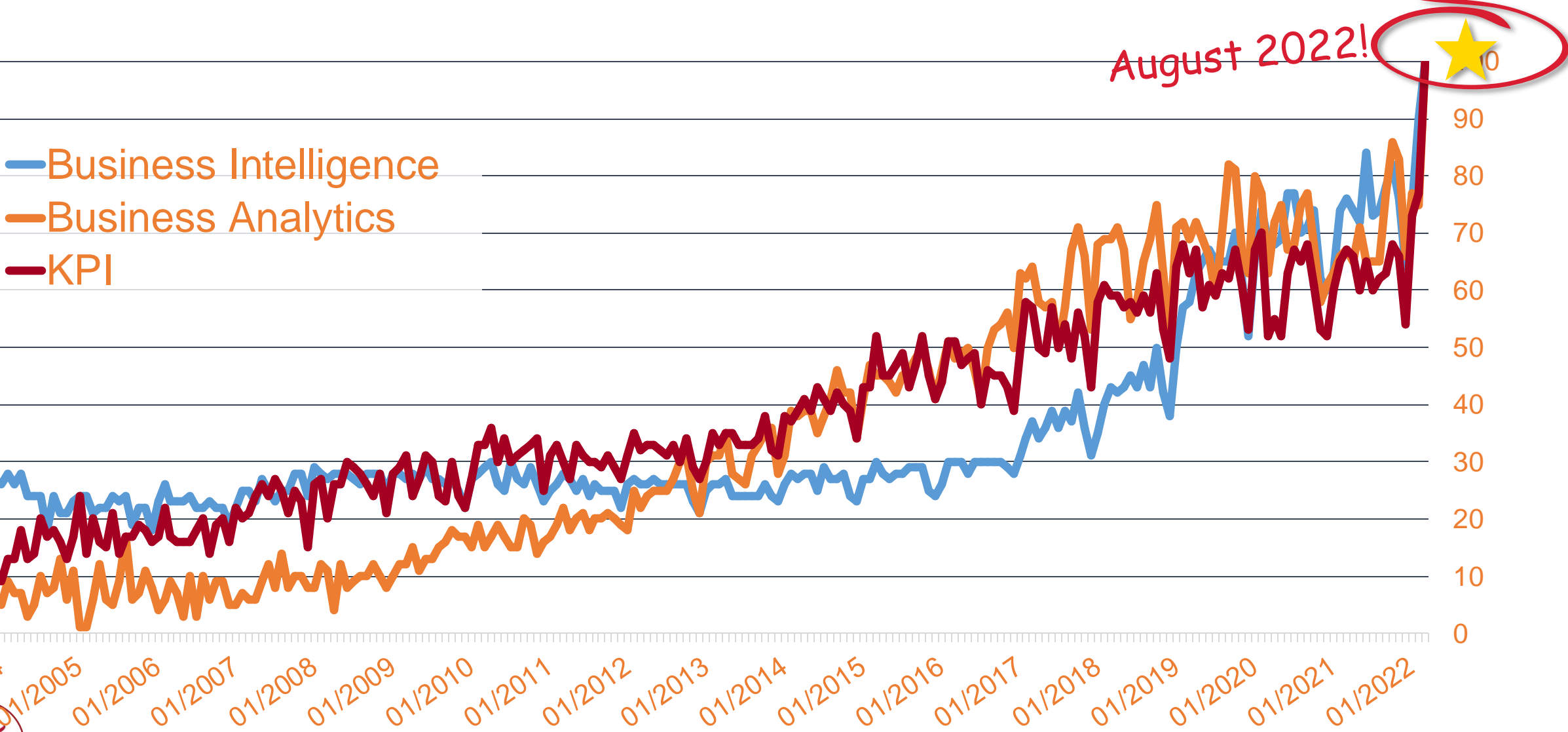
- A recent survey of companies said that they base at least half of their regular business decisions on gut feel or experience.



- Companies use only 50% of the information available when it came to decision-making.



Business Intelligence Search Terms on Google



What is a Key Performance Indicator?

- The critical (key) indicators of progress toward an intended result
- Managing with the use of KPIs includes setting targets (the desired level of performance) and tracking progress against that target

“What gets measured gets done.”

Peter Drucker



Leading vs. Lagging Indicators

- Managing with KPIs often means working to improve leading indicators that will later drive lagging (after it is done) benefits.

Leading Indicators
Predict the Future



Lagging Indicators
Show What Actually
Happened in the Past



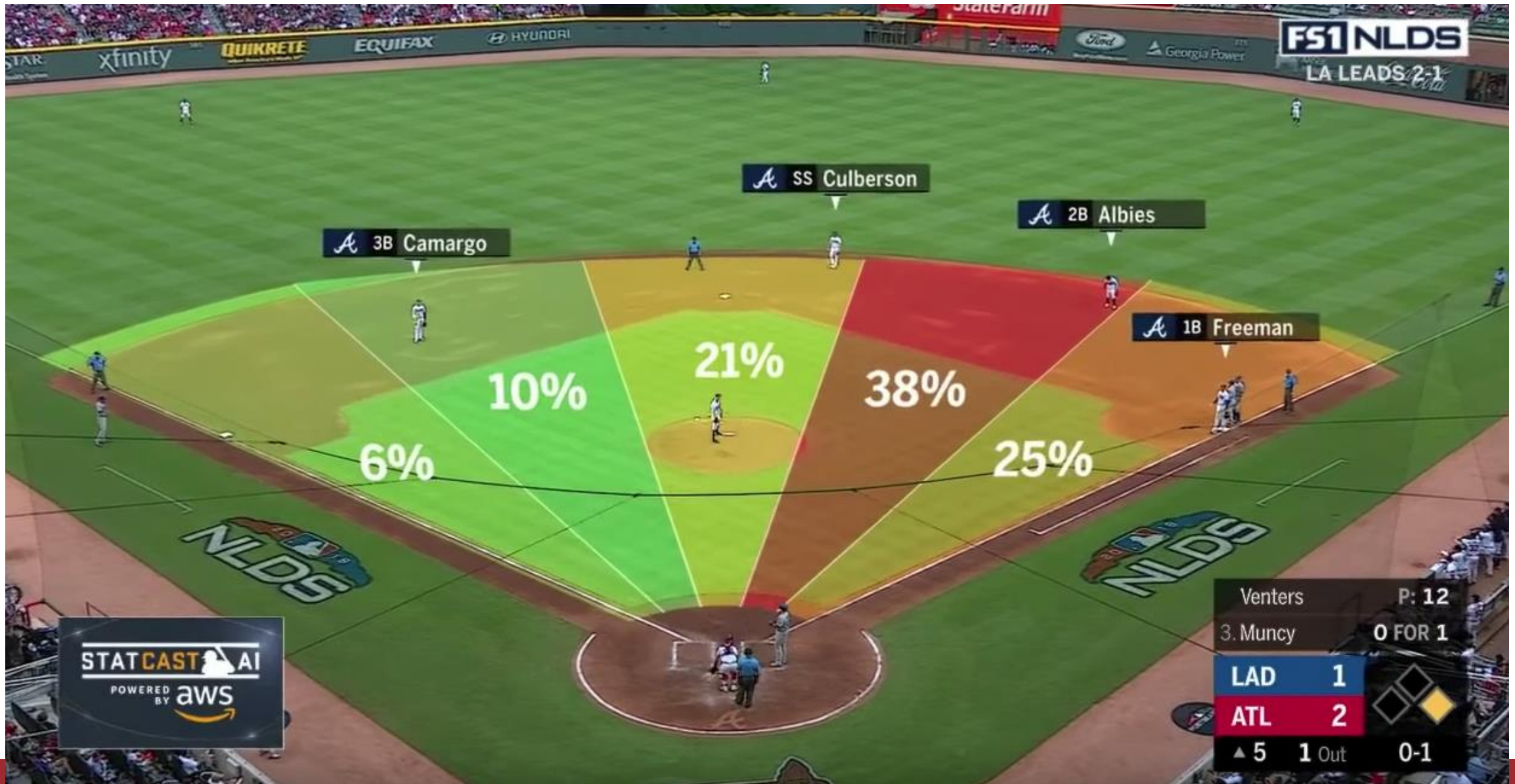
What is the importance of Benchmarking?

- Benchmarking is a process of measuring the performance of a company's processes against those of another business considered to be the best in the industry, aka "best in class."

"If you're not benchmarking your performance against your competitors, you're just playing with yourself. To me, business is the ultimate sport. It's always on. There is always someone trying to beat me."



It's all about the Data



It's all about the Data

Shooter Name	Player Posit..	Shooter Left Rig..
Alex Ovechkin	L	R

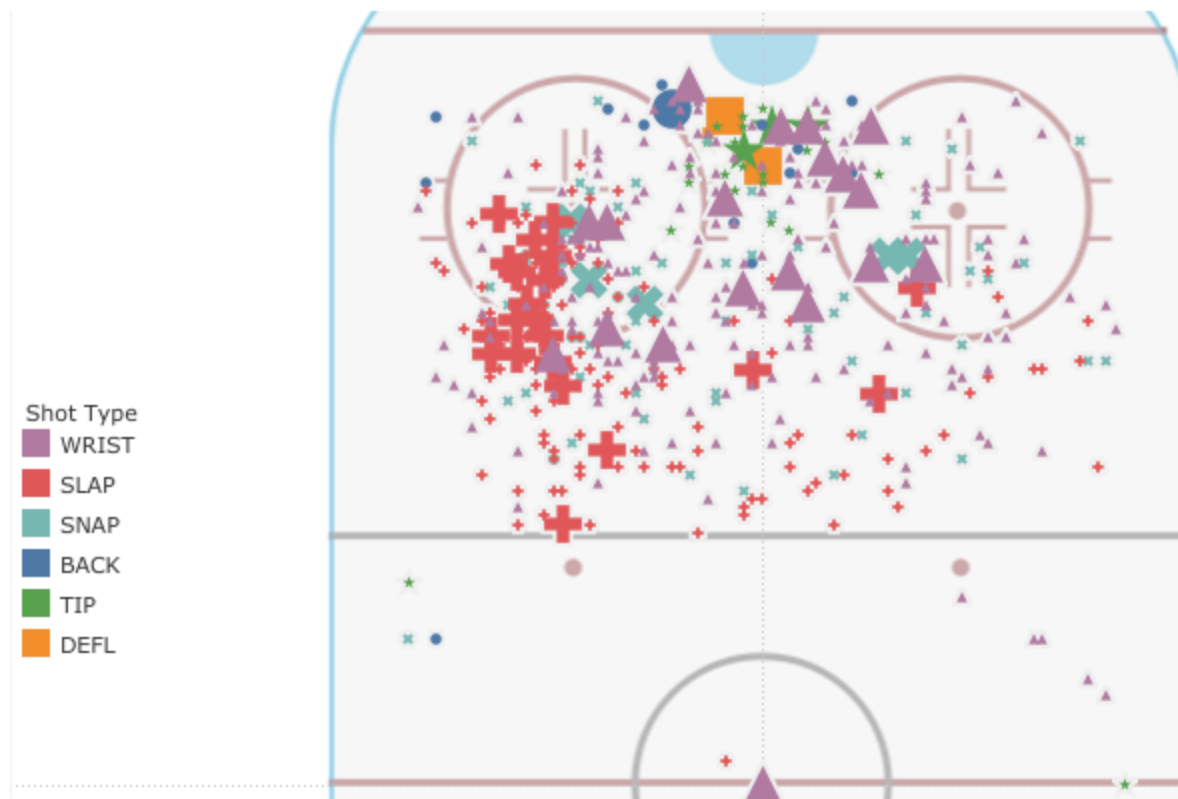


Shooter

Alex Ovechkin

Choose a game

All



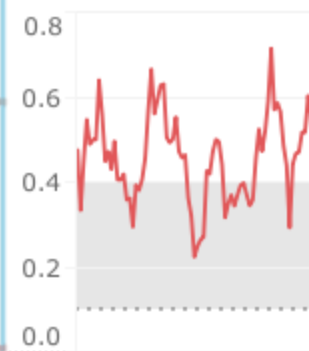
Shot Type

- WRIST
- SLAP
- SNAP
- BACK
- TIP
- DEFL

Alex Ovechkin's Totals

Shots: **502**
 Goals: **51**
 xG: **36.47**
 Sh%: **10.16**
 Avg shot distance: **37.37**
 On target %: **67.33**
 Rebound created: **18**
 Shot was a rebound: **14**
 xG per shot: **0.07**

xG rolling avg



Team Totals

Shots: **3,568**
 Goals: **274**
 xG: **233.7**
 Rebounds created: **163**
 Sh%: **7.7**



Chart by Sean Tierney (@ChartingHockey), data by @moneypuckdotcom.



Becoming a Moneyball Contractor

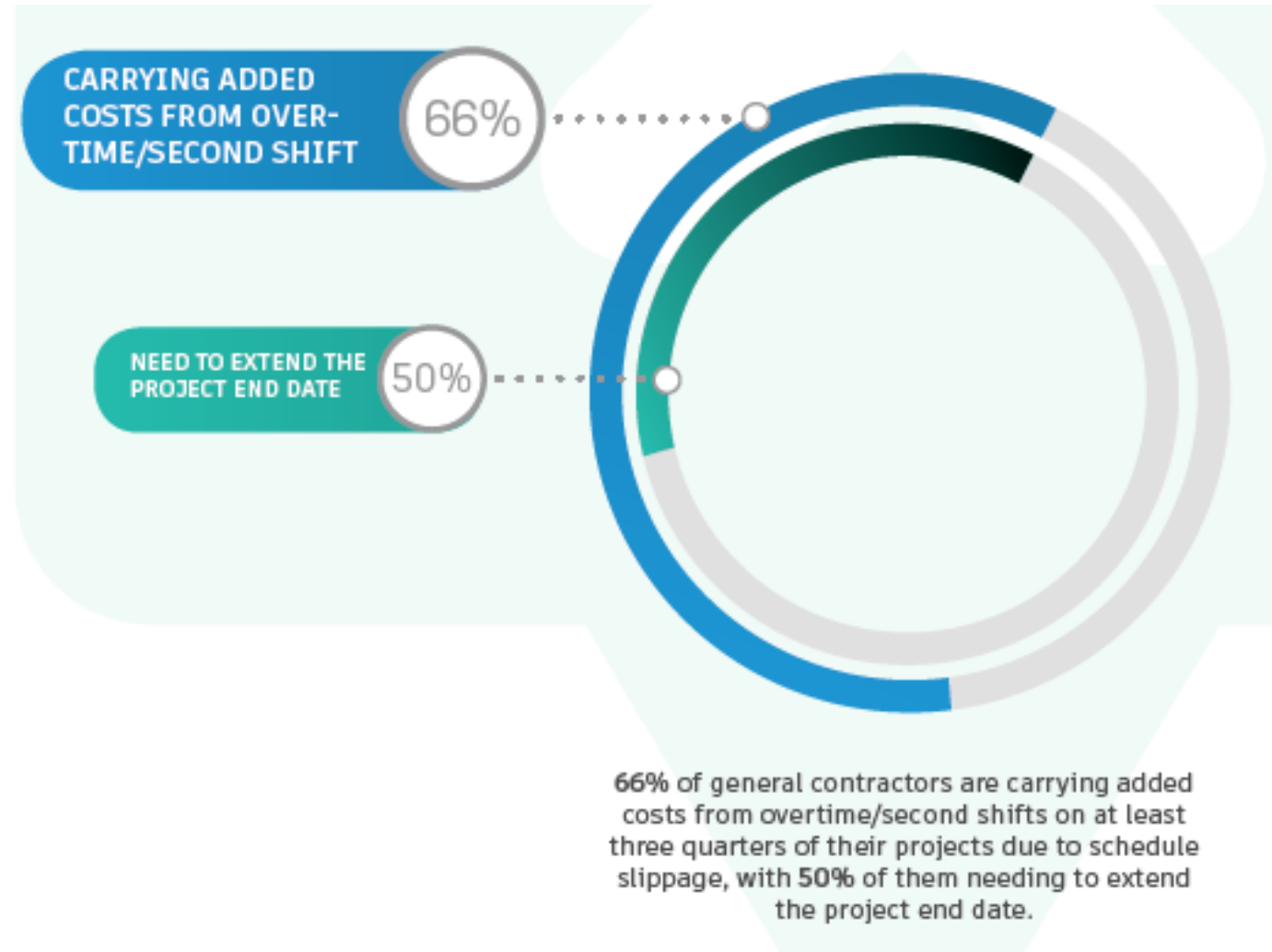
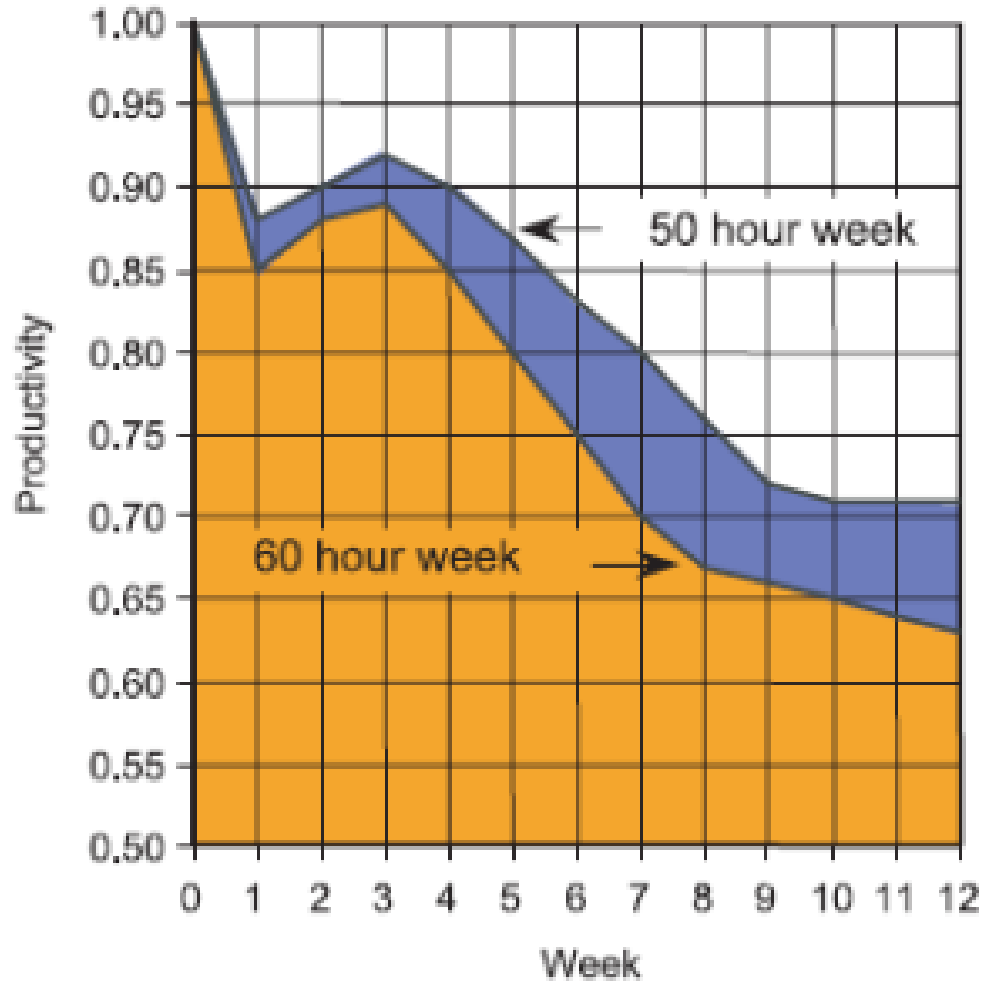
What can data do for us in Construction?

- Lower Project Risk
- Accurate Budget Estimates
- Make the Right Choice
- Keep Track & Better Manage

Shift from a Commodity to a Consultant – Opportunity in Building Lifecycle

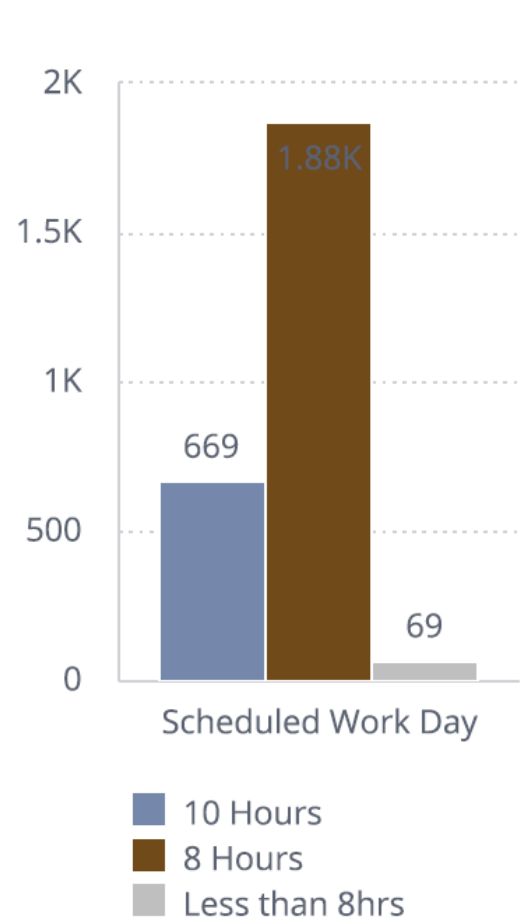


They say the devil is in the details. I believe the margins are in the data.

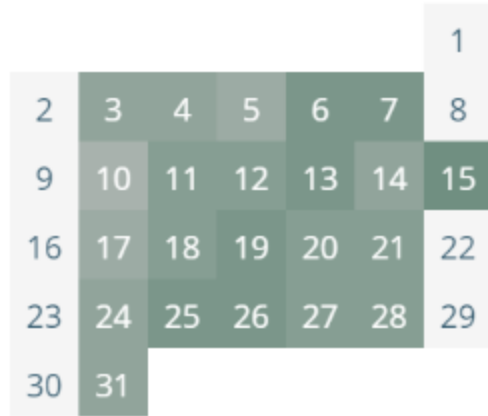


Dashboards & Analytics

Absenteeism by Scheduled Work Day



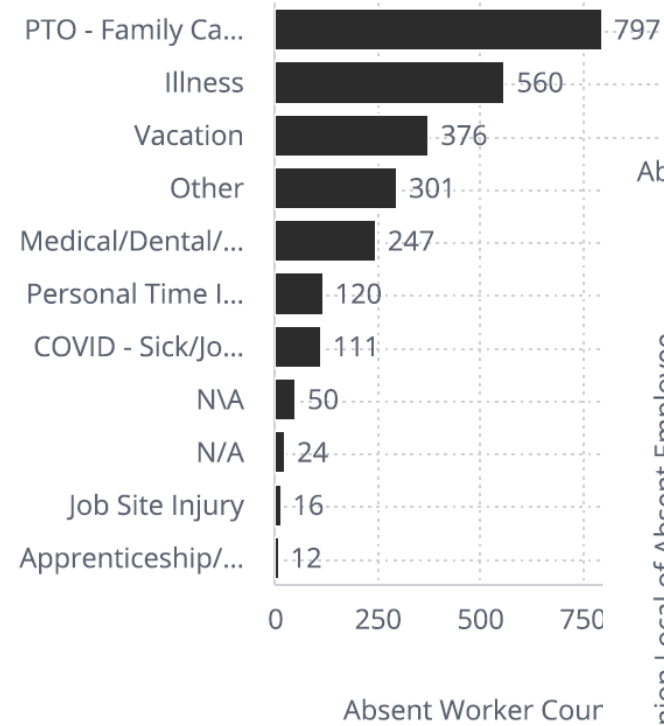
S M T W T F S



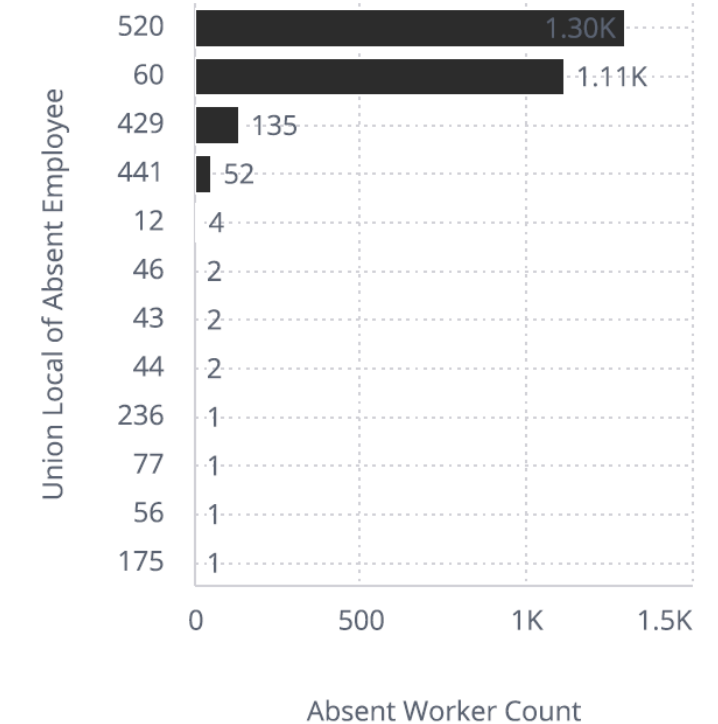
Day of Week Statistics

Day of Week	Attendance Rate
friday	97.71%
monday	96.61%
saturday	100%
thursday	98.37%
tuesday	98.05%
wednesday	98.28%

Absent Worker Count by Reason

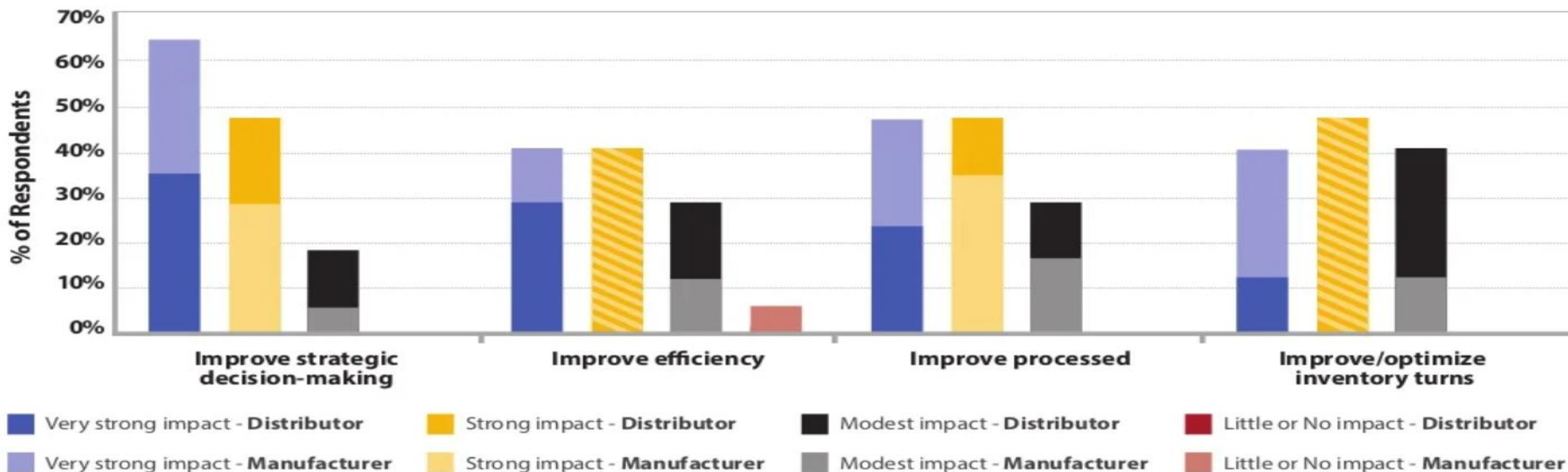


Absent Worker Count by Local



Distributors/Mfgs Level of Impact

Over the next five years, what level of impact do you think Data Analytics/big data will have on your company's ability to achieve the following objectives?



Source: NAED, Frank Lynn & Associates, 2016

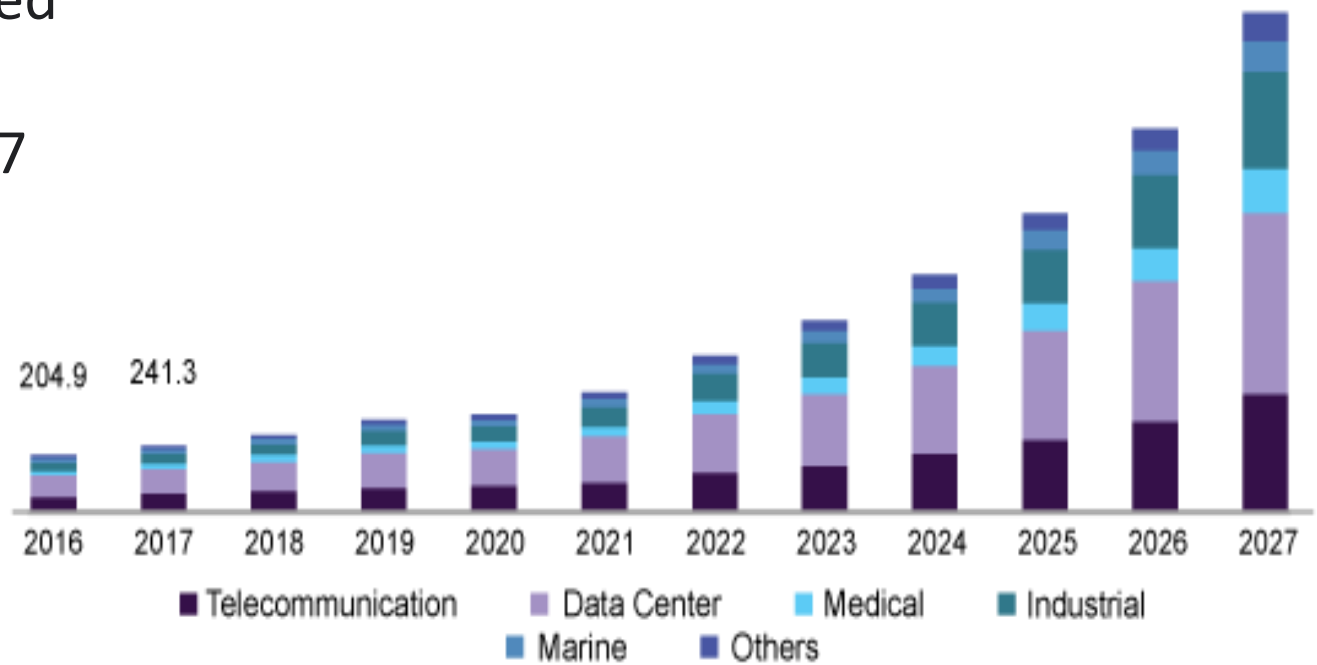
Energy Storage

U.S. Battery Energy Storage Systems Market revenue
by application, 2016 - 2027 (USD Million)

The market for energy storage is expected to grow at a CAGR of approximately 27% during the forecast period of 2020 – 2027

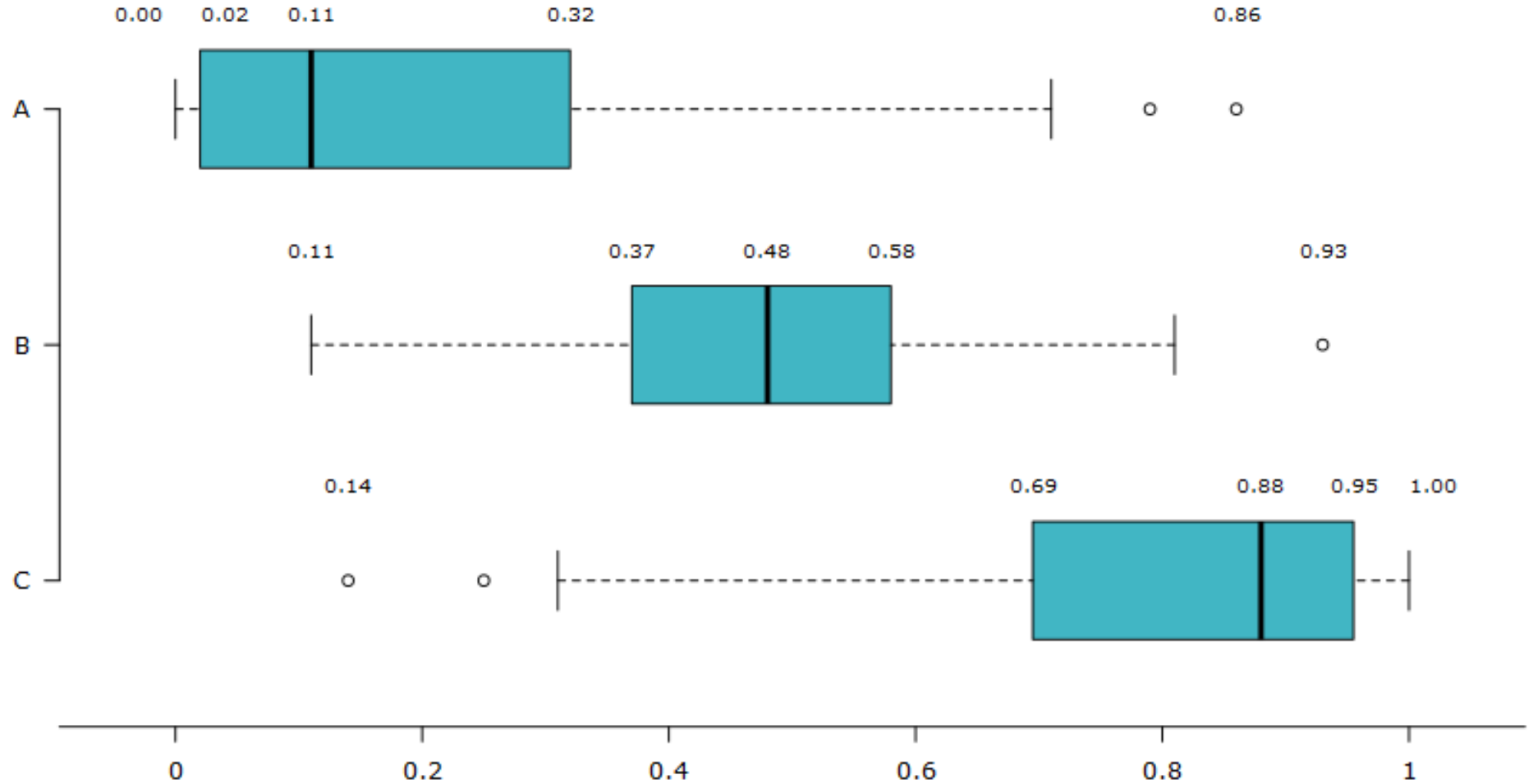
2020 market size of USD 3.7 Billion

2027 revenue forecast USD 23.4 Billion





ELECTRI KPIs Research





ELECTRI KPIs Research

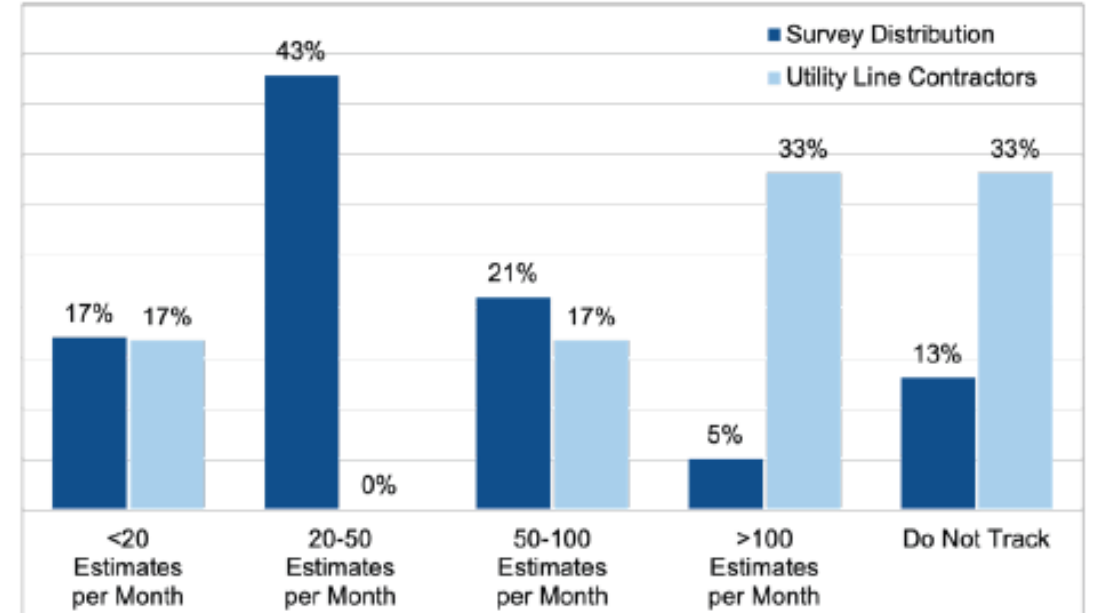
KPI: Estimate Bid Velocity

Functional Area: Estimating/Detailing/CAD/BIM

KPI Complexity

MEDIUM

Definition	Total number of estimates produced relative to the number of working days for the last 12 months
Calculation	$(\text{Number of Estimates for the last 12 months}) \div (\text{Working days in last 12 months})$
Impact	Tracks Bids Completed per Day – Drives Revenue Growth
Target	Create a historical monthly basis and validate the performance is equal to or higher than historical performance.



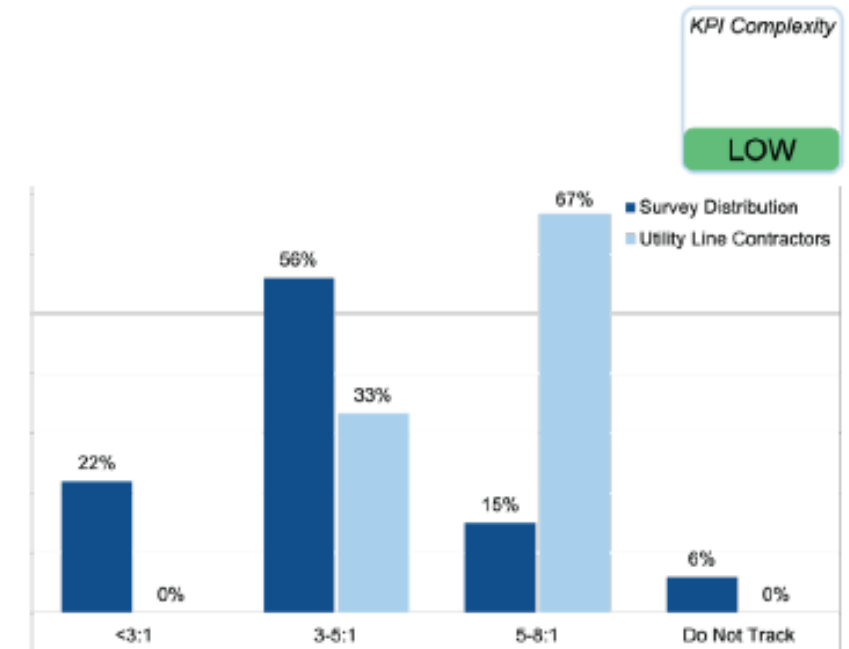


ELECTRI KPIs Research

KPI: Field to Office Ratio

Functional Area: Finance

Definition	How many field employees to supporting office employees
Calculation	Number of Field Employees ÷ Number of Supporting Office Employees
Impact	Cost Reduction/Control
Target	5.5:1 – 8:1



We can't weaponize the Data!



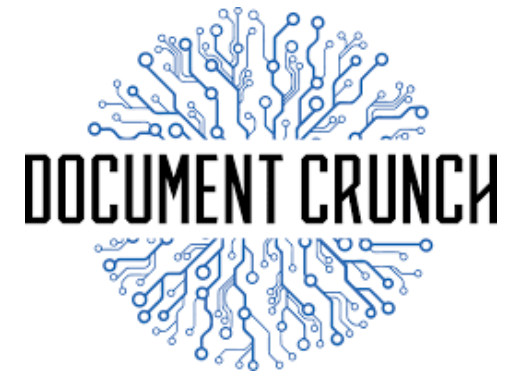
Contract Review

Fast • Easy • Cost Effective

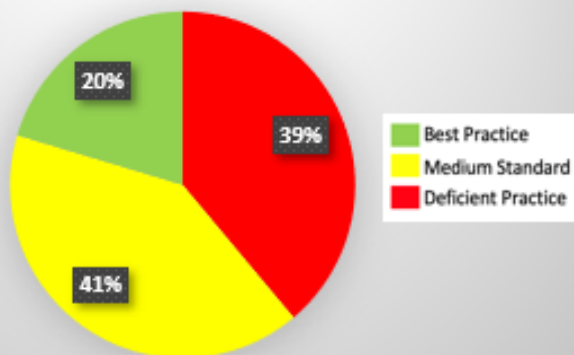
ARTIFICIAL INTELLIGENCE CONTRACT
& DOCUMENT REVIEWS



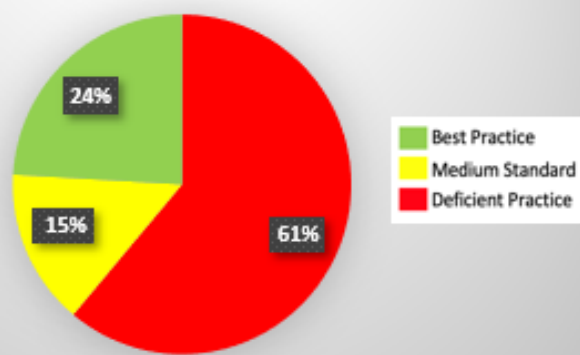
- Partnering with Document Crunch
- Creating a Platform to measure fairness of contract
- Provide Contractors with supplemental language
- Goal is to ultimately measure fairness of contract language



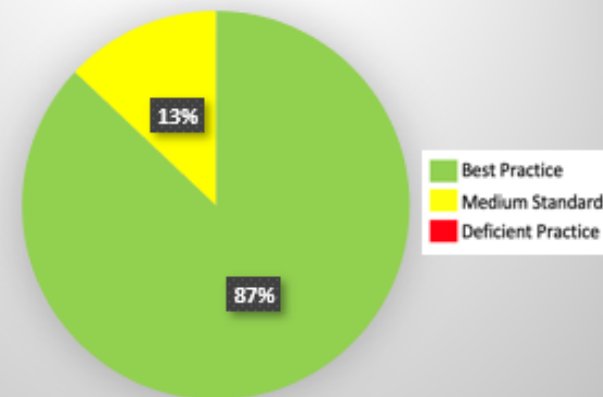
Indemnification - General Obligations



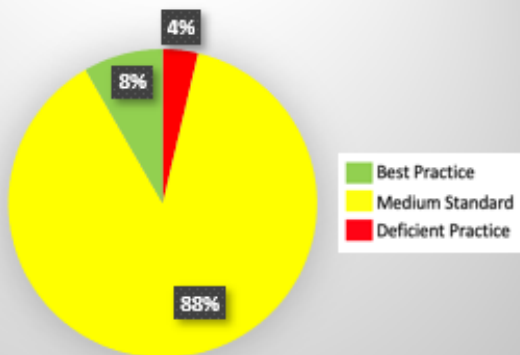
Pay If/When Paid



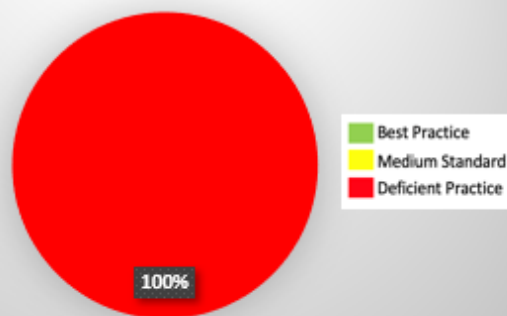
Contractor Right to Stop Work



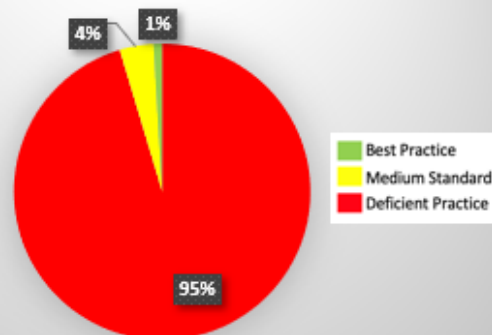
Subsurface Conditions



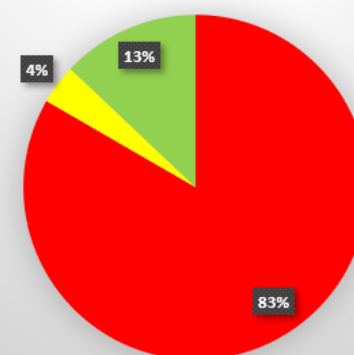
Overall/Aggregate Caps on Liability



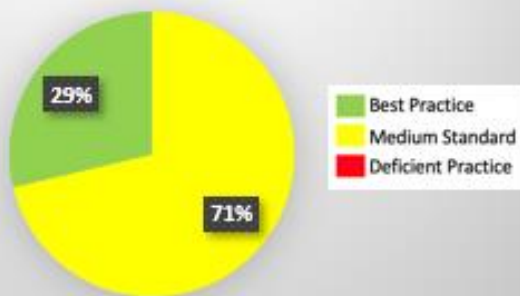
Liquidated Damages



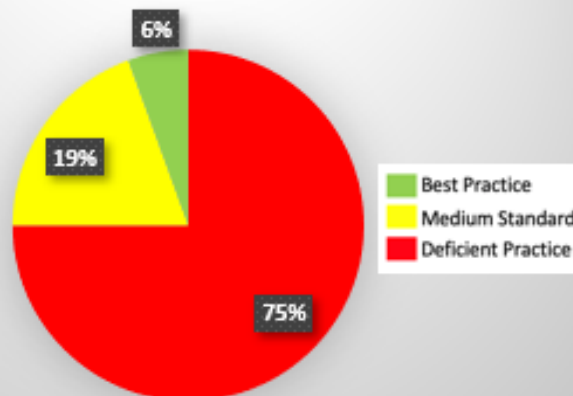
Waivers/Limits of Consequential Damages



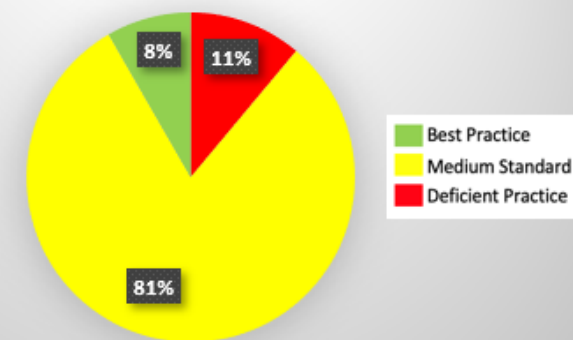
Delays: Compensation, Remedies and/or Limitations



Hazardous Materials - Responsibilities



Design Responsibility



1. Pay if Paid

- a. Best Practice: There is no requirement or condition whereby payment to the Contractor by the Owner must occur before payment to the Subcontractor. In other words, there is no condition of payment to the Subcontractor.
- b. Medium Practice: There is a condition whereby the Contractor is to be paid by the Owner before being required to pay the Subcontractor, however this falls short of a strict pay if paid clause (i.e., a strict condition precedent does not exist within this framework, or there exists a clause providing that if the Owner doesn't pay within a reasonable time, through no fault of the Subcontractor, then Contractor must pay).
- c. Deficient Practice: A strict pay-if-paid clause exists in that there is an absolute condition precedent to the Subcontractor's right to be paid if and until the Contractor is paid by the Owner.



Shared Market Metrics

Monthly KPI Report (Employer)

Local Union No.: [REDACTED] Email: josh.bone@necanet.org Date: 05/31/2022
 Employer: [REDACTED]

Requisitions

(To be completed by Employer)

	Filled	Unfilled	Total Calls
Journeyman			0
Apprentice			0
CW/CE			0

Ratios

Employee Type	Total Labor-Hours	Total Number of Employees
General Foreman		
Foreman		
Journeyman Wireman		
Apprentice		
CW/CE		
Totals	0	0

Attendance (hrs. missed due to absenteeism)

Employee Type	Total Labor-Hours Missed
JW, Foreman, General Foreman	
Apprentices, CW, CE	
Total	0

Turnover

Reason for End of Employment	Total Number of Employees
Quits	
Layoff	
Terminations	
Total	0

Monthly KPI Report (Local)

Local Union No.: [REDACTED] Email: josh.bone@necanet.org Date: 05/31/2022

Labor Pool

Total Journeyman:

Total # of Journeyman	
Total Licensed Journeyman	

Total Laborers By Position and Step:

	1st	2nd	3rd	4th	5th	6th
Apprentices						
CW's						
CE's						

Total Available for Employment:

Total # of Journeyman	
Total Licensed Journeyman	

	1st	2nd	3rd	4th	5th	6th
Apprentices						
CW's						
CE's						

Attrition & Acquisitions

(To be completed by the Local Union, JATC and/or Employer)

	Total
Retirement	
Left trade or bargaining unit work	
New bargaining employees	



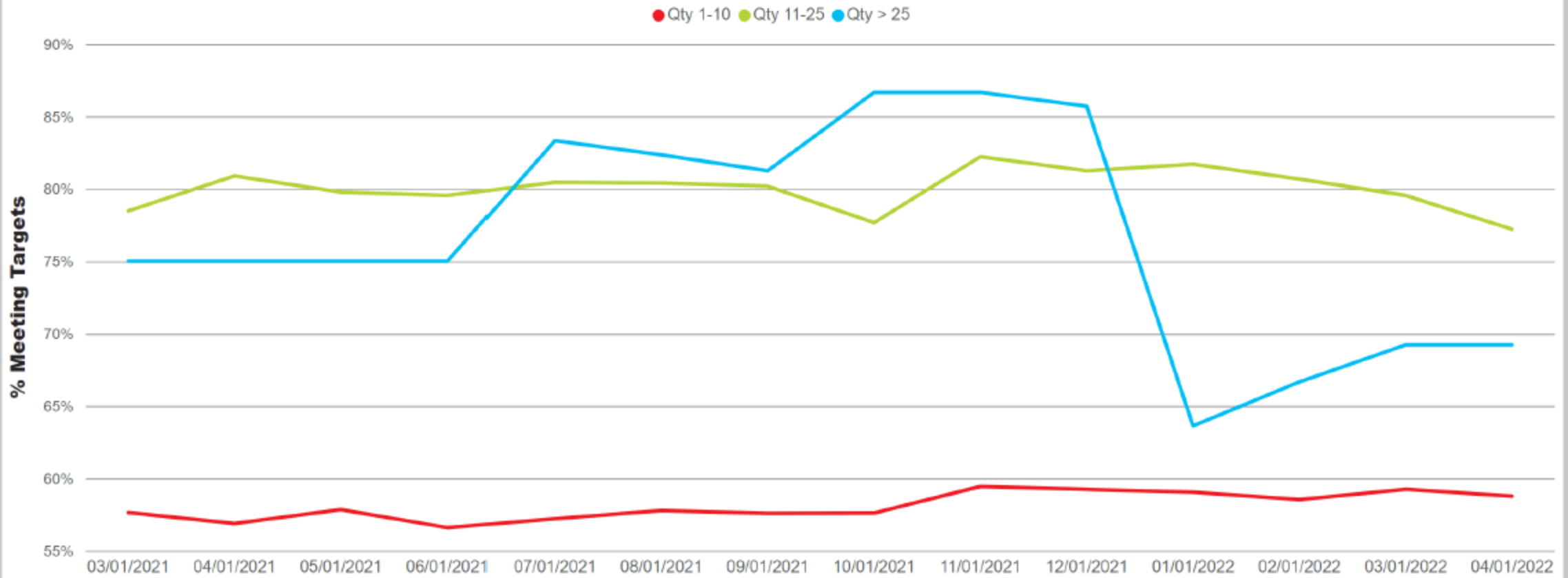
Local/Chapter Bid Tracking

- Project Name
- Bid Close Date / Project Start Date
- Market Sector – Commercial, Multifamily, Hospitality, Healthcare, Institutional, Industrial, Mission Critical, Manufacturing, Warehousing, Retail
- Location
- Public or Private
- Client
- Project Value
- Project Type – DBB, DB, CM at Risk, IPD
- Pre-Qual?
- Market Recovery Project
- Successful Bidder – Signatory, Non-Union
- Did a NECA Contractor submit bid? If not, why?



Contractor Requisitions Reported by Unions

Contractor Requisitions (Adequate Notice)
12 Month Rolling Average



Targets (Business days of notice)

1-10 people: 3+ days 11-25 people: 5+ days >25 people: 10+ days



Timeliness of Completing Requisitions Reported by Contractors

Apr

Union-Local	Requests	Per Request
Boilermakers Local 26	1	22
Bricklayers Local 8	2	3
Carpenters Local 1846	1	3
Carpenters Local 318	12	2
Electricians Local 136	2	1
Electricians Local 613	1	1

Union-Local	Requests	Per Request
Insulators Local 114	1	1
Insulators Local 55	1	1
Insulators Local 78	1	5
Ironworkers Local 92	3	7
Laborers Local 515	2	2
Millwrights Local 1263	1	1
Operating Engineers Local 312	8	2
Operating Engineers Local 624	1	1

Union-Local	Requests	Per Request
Painters Local 57	1	1
Painters Local 779	4	1
Pipefitters Local 52	1	5
Pipefitters Local 619	1	1
Pipefitters Local 72	2	2
Pipefitters Local 91	10	2
Sheet Metal Workers Local 48	1	3

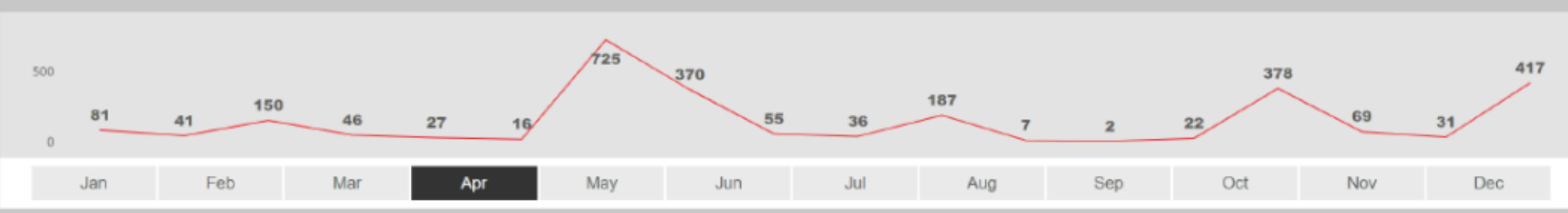
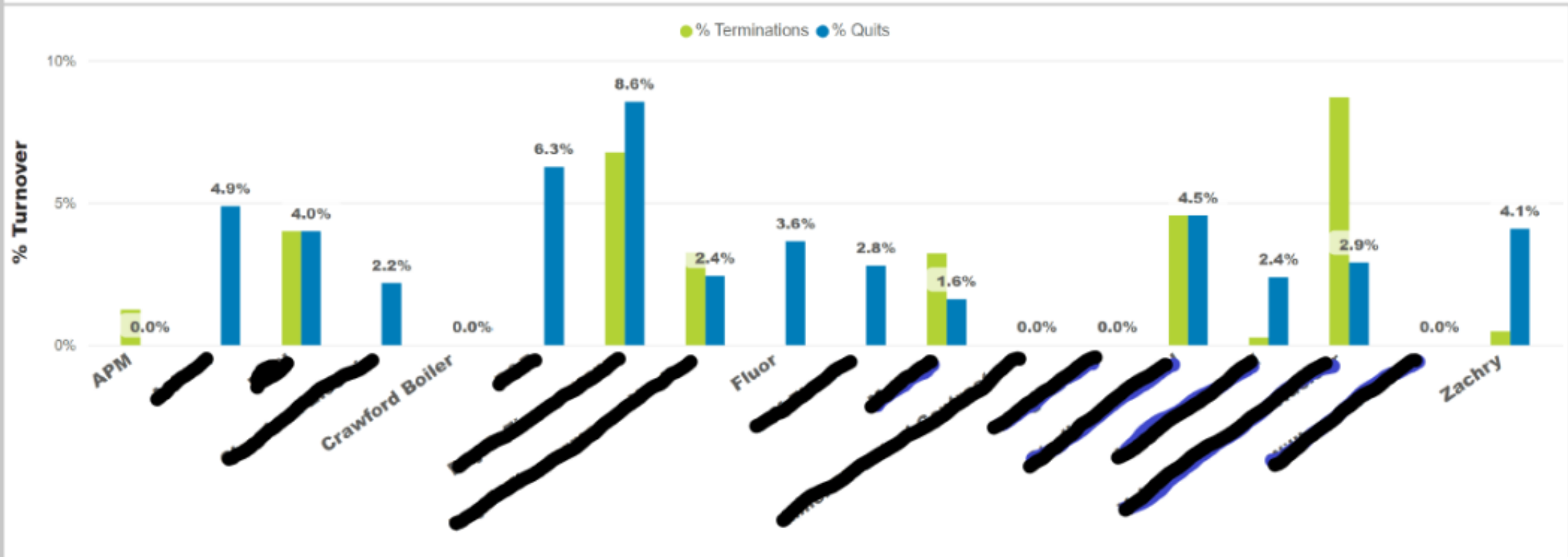
Union Halls Meeting Contractor Needs in a Timely Manner (100%)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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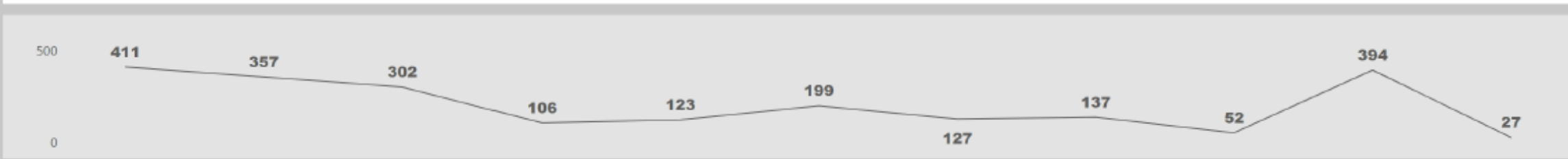
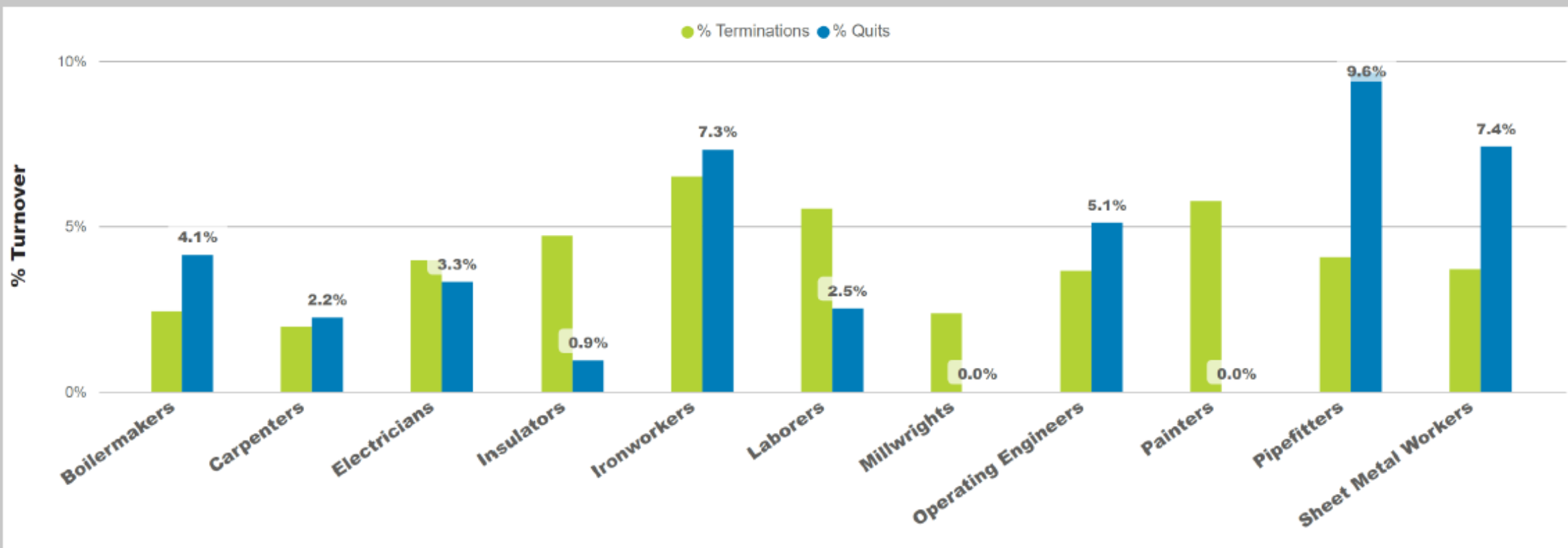
Turnover by Contractor (Average Headcount for Month) Reported by Contractors

Apr



Turnover by Craft (Union) (Average Headcount for Month) Reported by Contractors

Apr

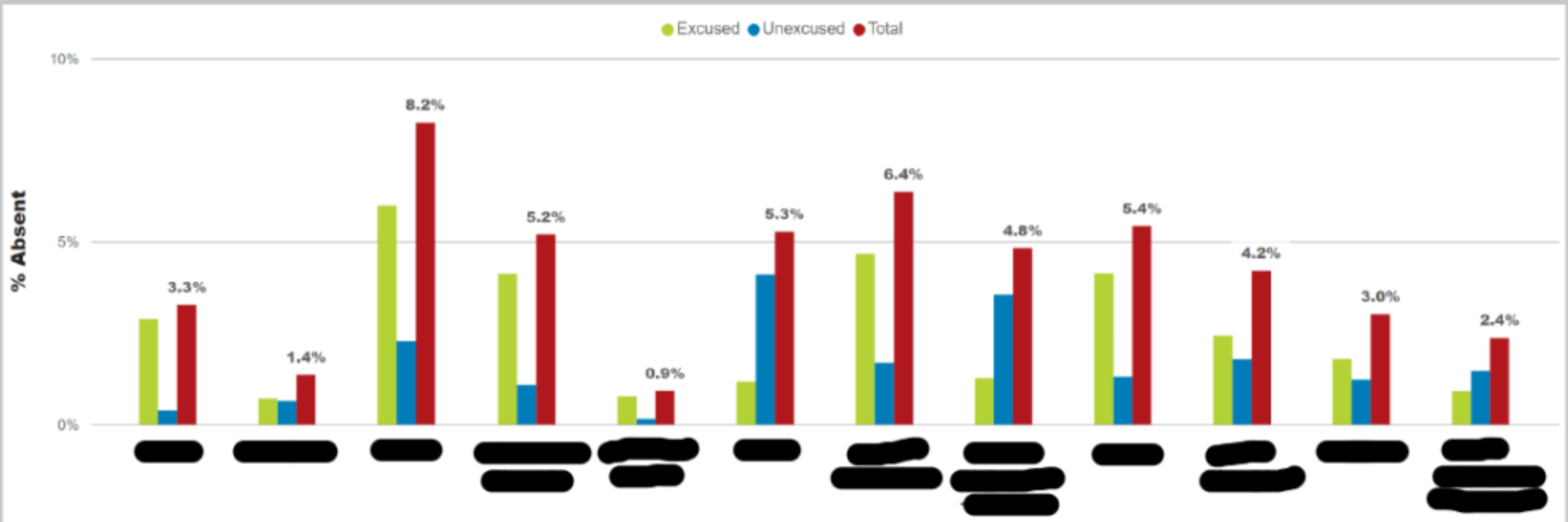


Jan Feb Mar **Apr** May Jun Jul Aug Sep Oct Nov Dec



Absenteeism by Contractor (Total Labor Hours) Reported by Contractors

Apr

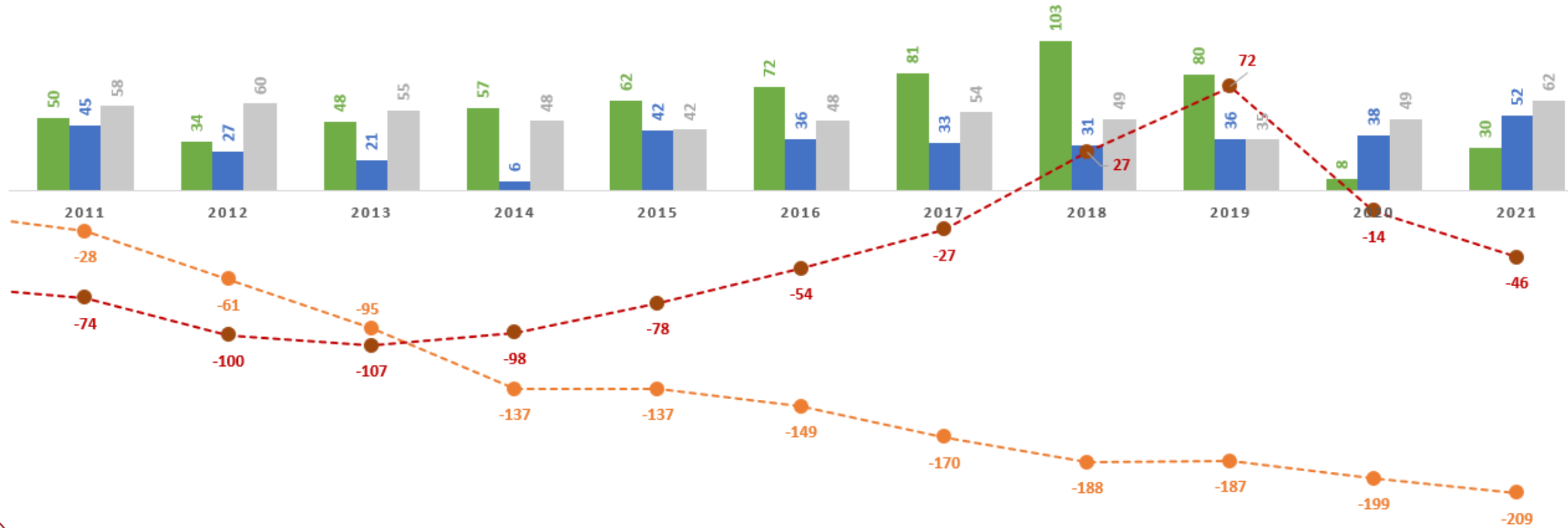


Jan Feb Mar **Apr** May Jun Jul Aug Sep Oct Nov Dec



STP JATC & WORKFORCE DATA: 2010 - PRESENT

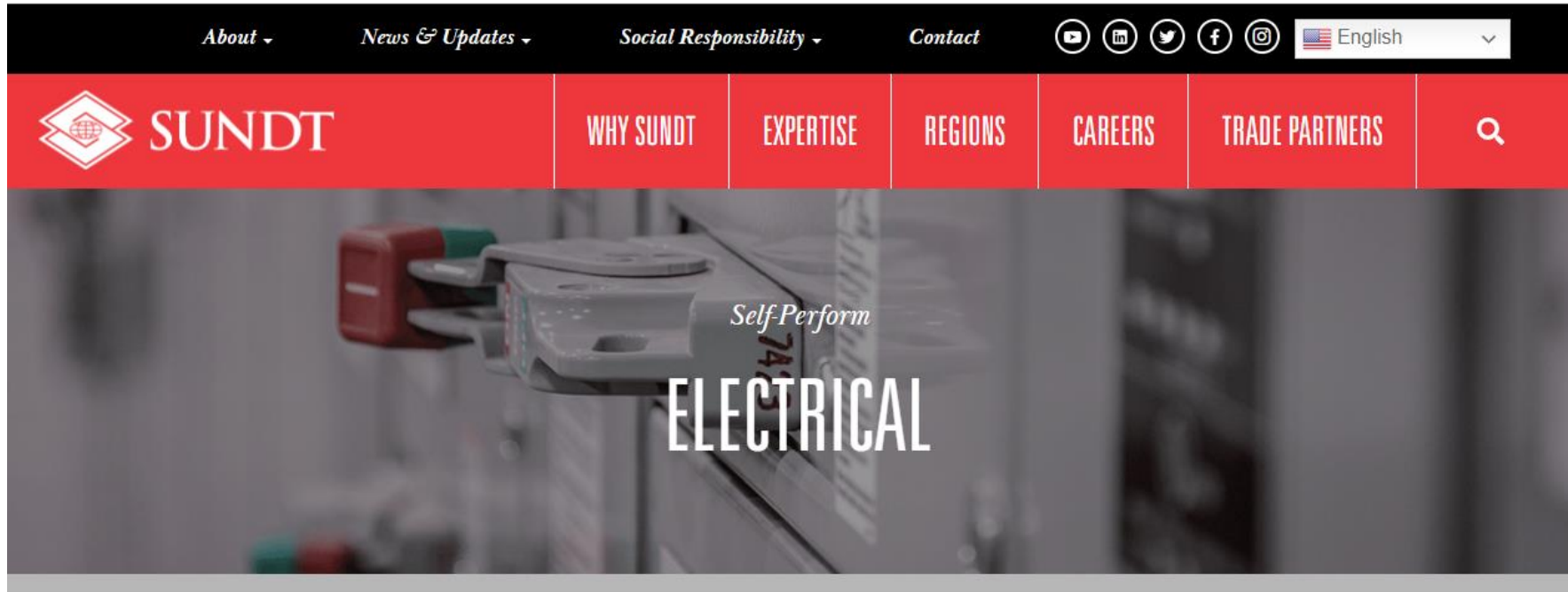
- Indentured
- JATC Graduates
- Retirees
- Cumulative Workforce Impact: Graduates vs. Retirees 2010 - Present
- Cumulative Workforce Impact: New Indentures vs. Retirees 2010 - Present



Opportunities & Threats



Threats



DIRECT CONTROL

We proudly self-perform electrical, instrumentation and control scopes on select projects.

As a licensed electrical contractor in multiple states, we have experience in high-voltage, medium-voltage and low-voltage work. Our skilled craft workforce helps save our clients time and money, and provides Sundt direct control over the quality of work and jobsite safety.





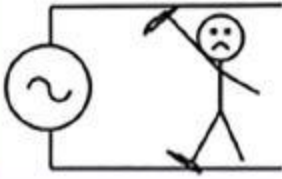


Threats

"5-Hazard" Protection

Addressing Electrical Hazards



Hazard	Conventional	Digital Electricity™
High Current	Circuit Breaker 1960 	✓
Ground Fault	GFCI/RCD 1971 	✓
Arc Fault	Arc Fault Detector 1999 	✓
High R (Resistance) Also "High Impedance"	 ✗	✓
Touch	 ✗	✓



Threats

The image shows a screenshot of the Qmerit website. The background is a photograph of a modern building at night with a car charging station and a silver car. The Qmerit logo is in the top left. The navigation menu includes: Learn About Electrification, Our Company, Partner with Us, Electrification Services, Shop, and Home Charging Installation (highlighted in blue). The main headline reads "Leading the Charge" with the subtext "Qmerit makes it easy to go electric." A white sidebar on the right contains two sections: "GET INSTALLATION SOLUTIONS" with links for Homeowners and Commercial / Multifamily; and "PARTNER WITH QMERIT" with links for Electrical Service Contractors, EV Auto OEMs, EVSE OEMs, and Fleets & FMCs.

Qmerit

Learn About Electrification ▾ Our Company ▾ Partner with Us ▾ Electrification Services ▾ Shop **Home Charging Installation**

Leading the Charge

Qmerit makes it easy to go electric.

GET INSTALLATION SOLUTIONS

- [Homeowners ↗](#)
- [Commercial / Multifamily ↗](#)

PARTNER WITH QMERIT

- [Electrical Service Contractors ↗](#)
- [EV Auto OEMs ↗](#)
- [EVSE OEMs ↗](#)
- [Fleets & FMCs ↗](#)



Opportunities

IMB Partners Leads a Strategic Growth Investment into Carr & Duff

IMB 
PARTNERS

CARR  **DUFF** INC.
ELECTRICAL CONSTRUCTION

ServiceTitan[®] RECAP

WEBINAR 

THE STATE OF PRIVATE EQUITY IN THE TRADES

FEATURING

 **FRED SILBERSTEIN**

 **BRIAN COHEN**

Register for Tuesday, July 12 at 11am PT / 2pm ET

HOW TO ATTRACT PRIVATE EQUITY INVESTMENT

Join us as we interview PE expert and Reedy Industries CEO, Joe Kirmser, on private equity for HVAC & mechanical industries.

We'll cover what it's like to be acquired by a PE group, what happens after the acquisition, and how to attract PE investors.

 **WITH GUEST**
Joe Kirmser
CEO
Reedy Industries

 **11AM PACIFIC**
JULY 12, 2022

[JOIN NOW!](#)



Thinking Different

Do you see this as a threat or an opportunity?



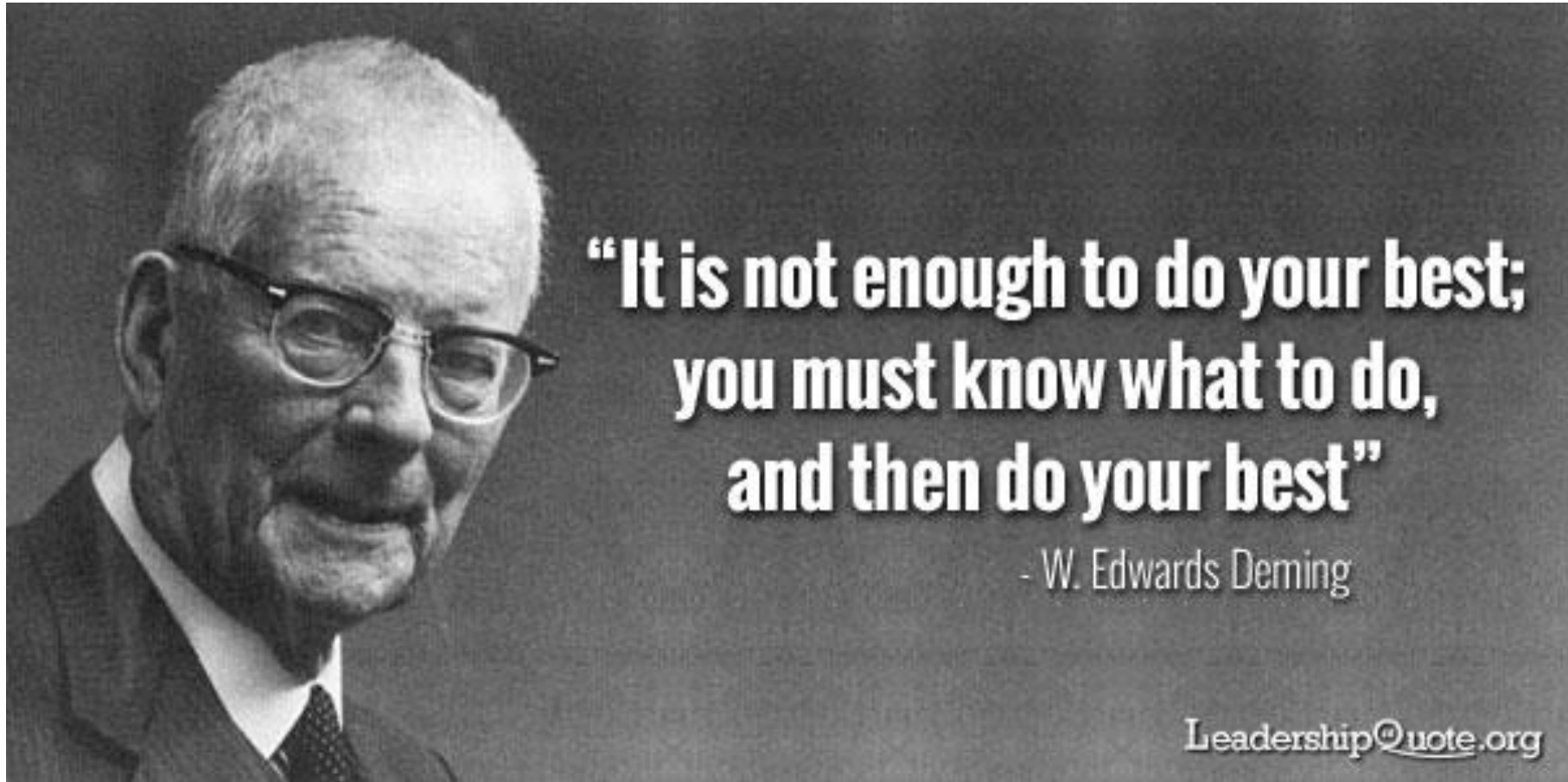
The United Rentals' Worksite Performance® platform includes Total Control® a cloud-based worksite management solution that helps you make the most of your equipment fleet—rented and owned.

This comprehensive, integrated suite of tools and services makes it easy to streamline your processes and cut your annual rental costs by up to a third



Edward Deming

It is not necessary to change. Survival is not mandatory.



ECs need to Think Different

- Shift to an Abundance Mindset
- Challenge Status Quo
- Stop Hurting each other
- Joint Venture
- Build Trust through transparency



The Impact of Electrification on Electrical Contracting

ECs need to Own

- Supply Chain
- Building Data





Josh Bone
ELECTRI
Executive Director
josh.bone@electri.org

In the 2020s, fans, factcheckers and journalists debated the character's birthdate. [\[24\]](#)[\[25\]](#)[\[16\]](#) In July 2022, the character resurfaced on social media when fans claimed that George's birthday was July 31, 2022. Despite the claim, no official evidence has been found confirming this or any other specific date, [\[26\]](#) although there is some evidence from the show that the year of his birth is 2022. [\[16\]](#)





