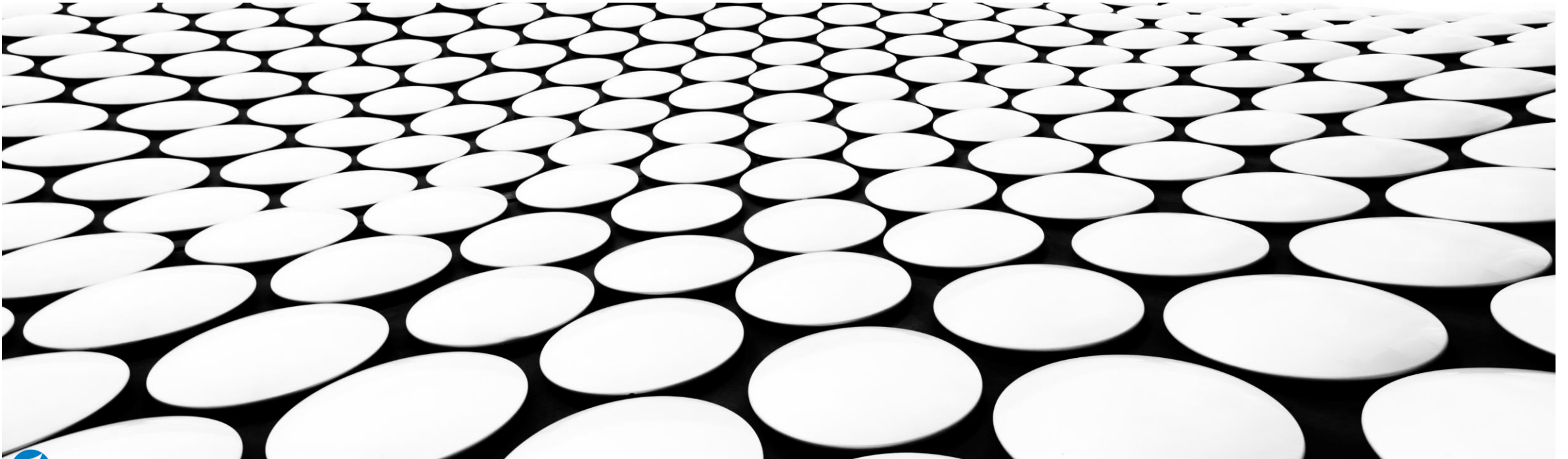

COVID-19, THE POWER GRID AND DIGITALIZATION

BY JEFF POSTELWAIT, MANAGING EDITOR, ENDEAVOR BUSINESS MEDIA



WORKPLACES ARE GOING DIGITAL

- Your workplace and mine are relying on distance work more than ever
- Even utility work can be augmented and assisted with digitization



A DATA-INFORMED WORKPLACE FOR UTILITIES

- Better customer care through better data application
- Enabling utilities to be true members of their customers' communities
- All while keeping workers safe

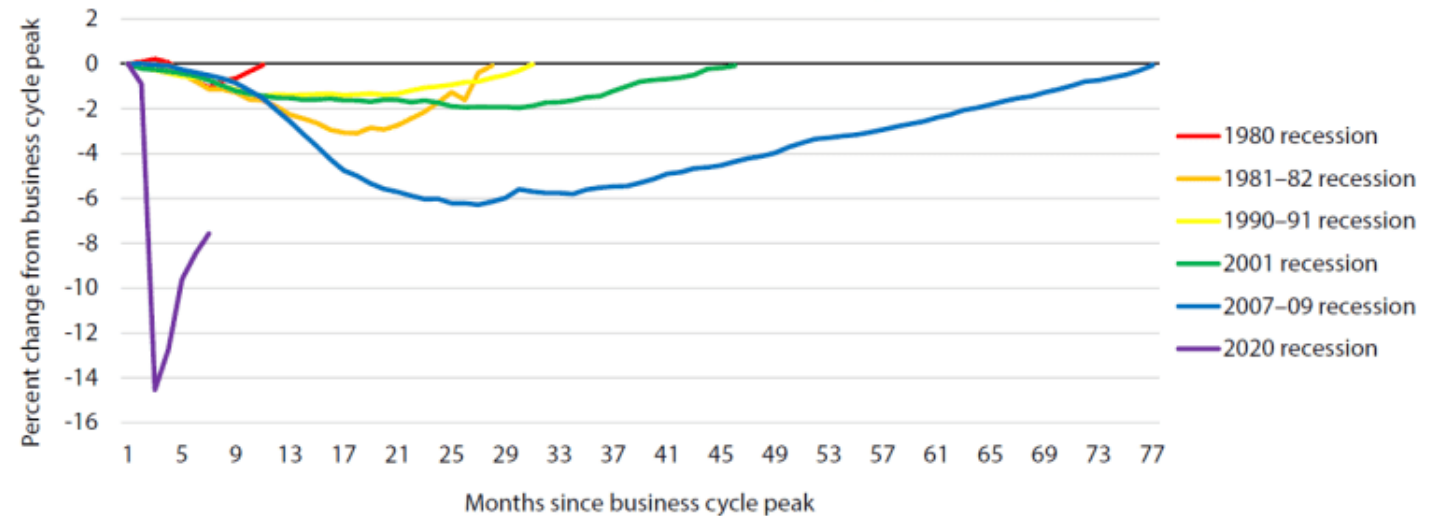


THE IMPACT OF COVID-19

- Volatility in the stock market
- Mass unemployment with spotty or nonexistent government support for working people
- Manufacturing, oil & gas, tourism, travel and healthcare all under pressure

FIGURE D.

Percent Change in Employment Relative to Business Cycle Peak by Business Cycle



Source: Bureau of Labor Statistics (BLS; Current Population Survey [CPS]) 1980-2020; NBER n.d.; authors' calculations.

Note: The figure shows the monthly percent change in total nonfarm payroll from the peak of a business cycle until total nonfarm payroll returns to the level of the previous business cycle peak.



Kimberly Nicole Foster ✓

@KimberlyNFoster

We've been in a pandemic for 6 months. The federal government gave people \$1200.



Chloe *6'1

@Chloe_Hilliard

For just \$6/day you too can sponsor an American.



Sarah McLachlan ✓

@sarahmclachlan

If y'all need a soundtrack for this commercial LMK

CUSTOMERS ARE HARD HIT

- 40% of people who lost a job or had a pay cut thanks to COVID-19 can't last more than a month with their current savings
- 14% of Americans saw their savings wiped out by COVID-19.
- 11% of US adults had to borrow money to pay bills.
- Impact is worst on younger people
- US is changing presidents, but is help for Main St. coming?

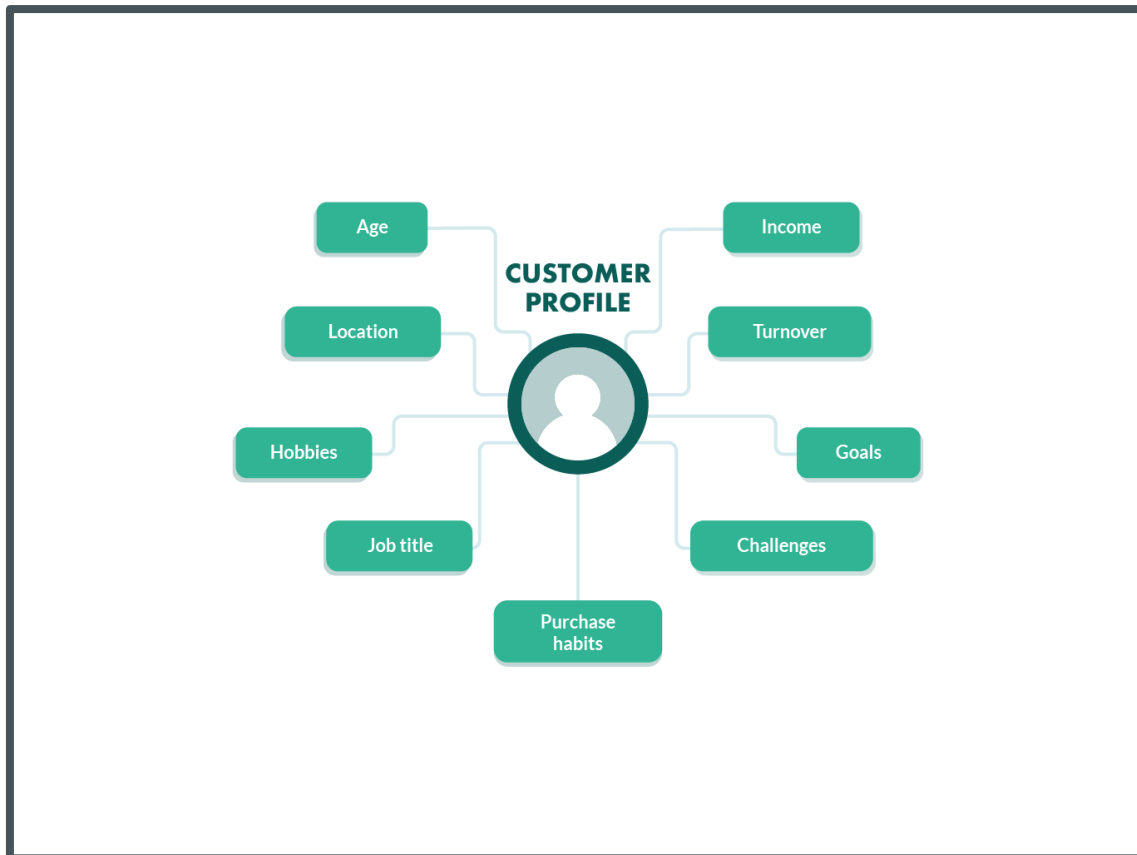
RETURNING TO NORMAL?

UTILITIES MUST BE VERY CAREFUL HOW TO PROCEED ONCE SHUT-OFF MORATORIUMS ARE LIFTED

ANALYTICS CAN HELP UTILITIES KEEP VULNERABLE CUSTOMERS SAFE



BUILDING DETAILED PROFILES FOR CUSTOMERS



- Power usage, payment patterns, late payments, credit scores, etc. can all be at your fingertips
- Macroeconomic factors in utilities' territory complete the story

USE THE DATA

- **“If we have data, then let’s look at the data. If all we have are opinions, then let’s go with mine.” -- Jim Barksdale, the former CEO of Netscape**

KNOW THY CUSTOMER

- Customers aren't just ratepayers
- Utilities aren't just someone you pay bills to



BETTER DATA, BETTER SERVICE

- Residential customers: Know their circumstances
- Business customers: Know what struggles they are facing





KEEPING AN EYE ON SMALL BUSINESSES YOU SERVE

THE DATA UTILITIES HAVE CAN HELP THEM HELP SMALL BUSINESSES SURVIVE

STAY FLEXIBLE



- The data doesn't do anyone any good if it's not put to use
- Don't miss out on opportunity because "that's not the way it's done"

KEEPING ESSENTIAL WORKERS SAFE

- Utility workers are specially trained and experienced
- Everyone deserves a safe workplace, but this knowledge can't afford to be lost to sickness or injury



APPLYING TECH TO THE FIGHT AGAINST COVID

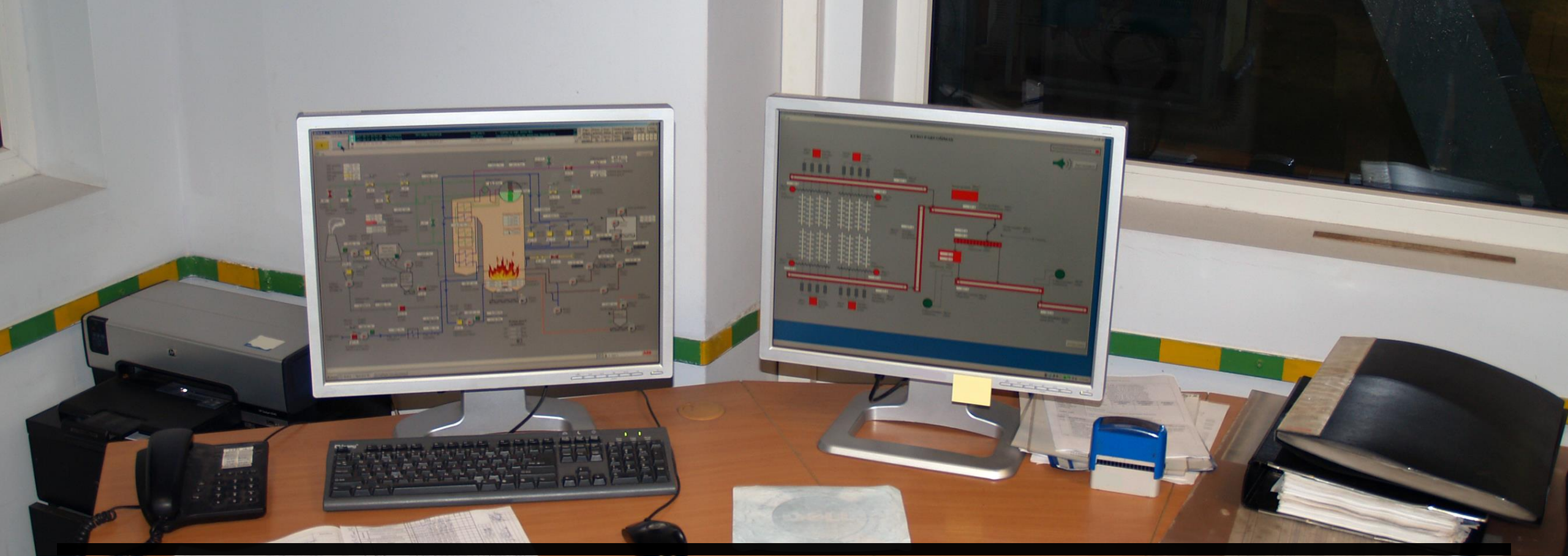
- Sanitizing workspaces with drones & UV light
- RF tagging for materials tracking
- Thermal imaging to check for fevers
- Lanyard sensors to help maintain social distancing



PREVENTING UNNECESSARY VISITS

- Preventing a single unneeded trip saves \$500
- Saving labor also saves exposure





BRINGING THE WORKPLACE HOME SAFELY

- Utility workers will need to operate sophisticated systems remotely
- Expect to see more engineers doing their jobs from home

A black quadcopter drone with green lights is flying in front of a power line tower. The drone is positioned in the center of the frame, with its arms extended. The background shows the structure of the power line tower and several horizontal power lines against a clear sky.

AUGMENTED REALITY AND AUTOMATION

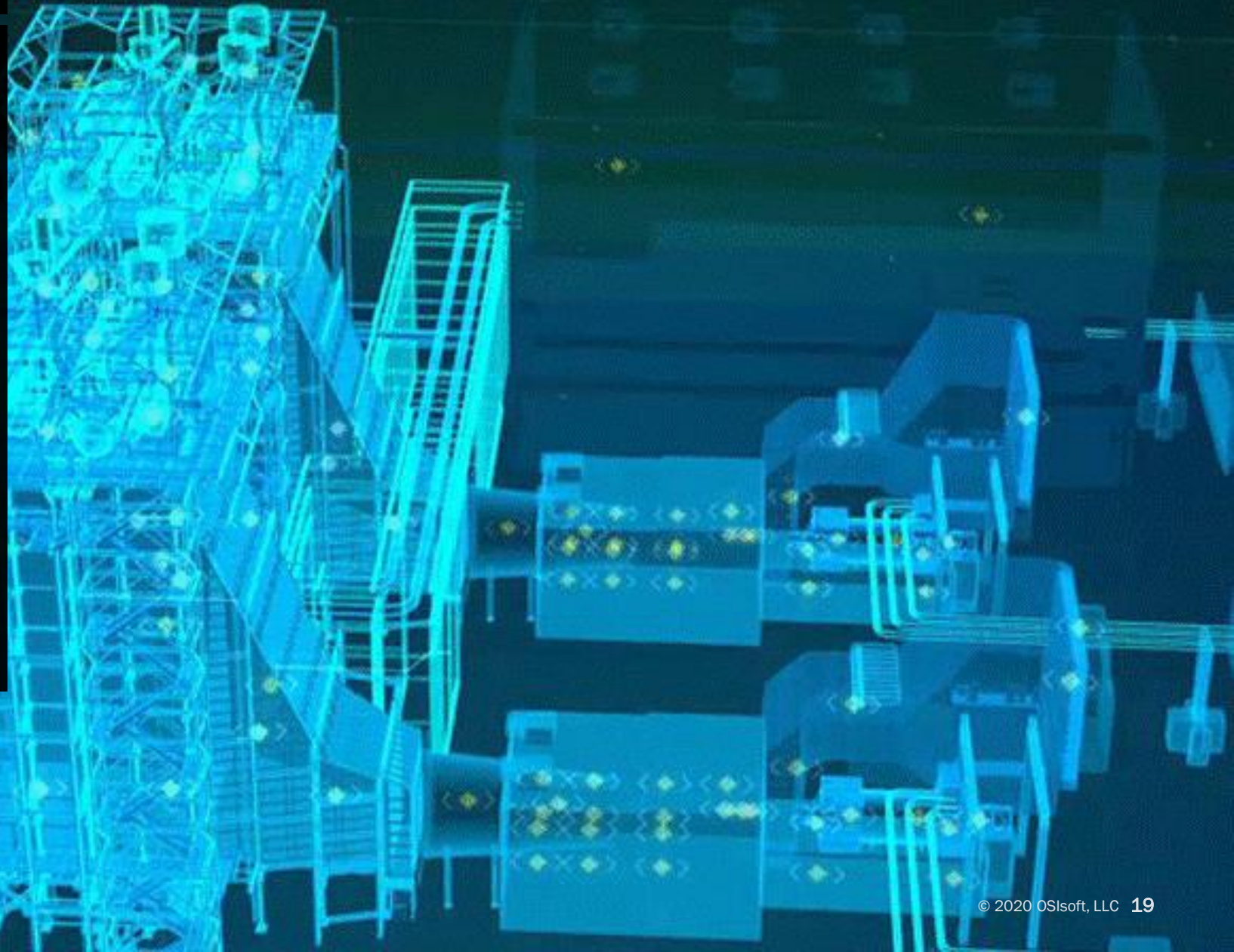
- This doesn't need to be high-tech
- Drones may also be used
- Infrared cameras to spot trouble, LiDAR systems, GPS guidance, all streamed remotely to utility workers who can maintain a safe distance

BALANCING CONNECTIVITY AND SAFETY

- Remote workplaces do offer cyber criminals new targets
- The power grid remains vulnerable to attacks, physical and cyber
- Regulatory agencies & law enforcement will be revisiting this topic

DIGITAL TWINS PROTECT THE GRID

- Makes “spoofing” attacks much harder
- Detects problems by “twinning” the real power grid virtually
- Model is fed with massive amounts of normal operations data to sense what is unusual





THANK YOU!

LET'S USE THE POWER OF DATA TO KEEP WORKERS AND CUSTOMERS SAFE