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Discussion-Opinion-Editorial

Electrical Industry and Technology Trends

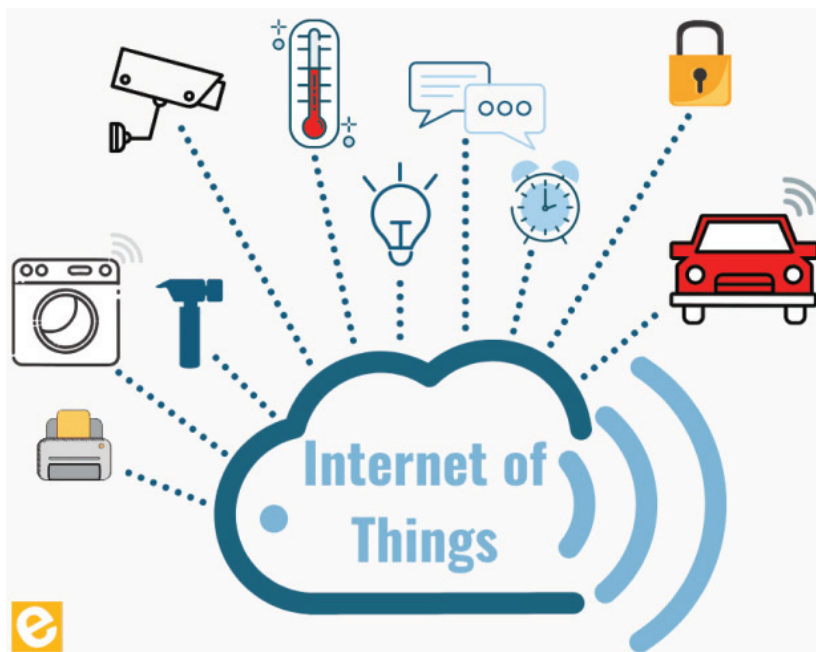
Top 10 Trends in the Electrical Industry

Technology is constantly shaping the electrical industry, creating innovative solutions to help us rethink how we build infrastructure, design cities, and consume energy. However, keeping up with this industry-changing technology can be difficult as more and more innovations hit the market. What are some of the biggest trends in the electrical industry to look out for in 2023? Here are ten that will shape the market and drive us into the coming decade.

1. Energy Storage

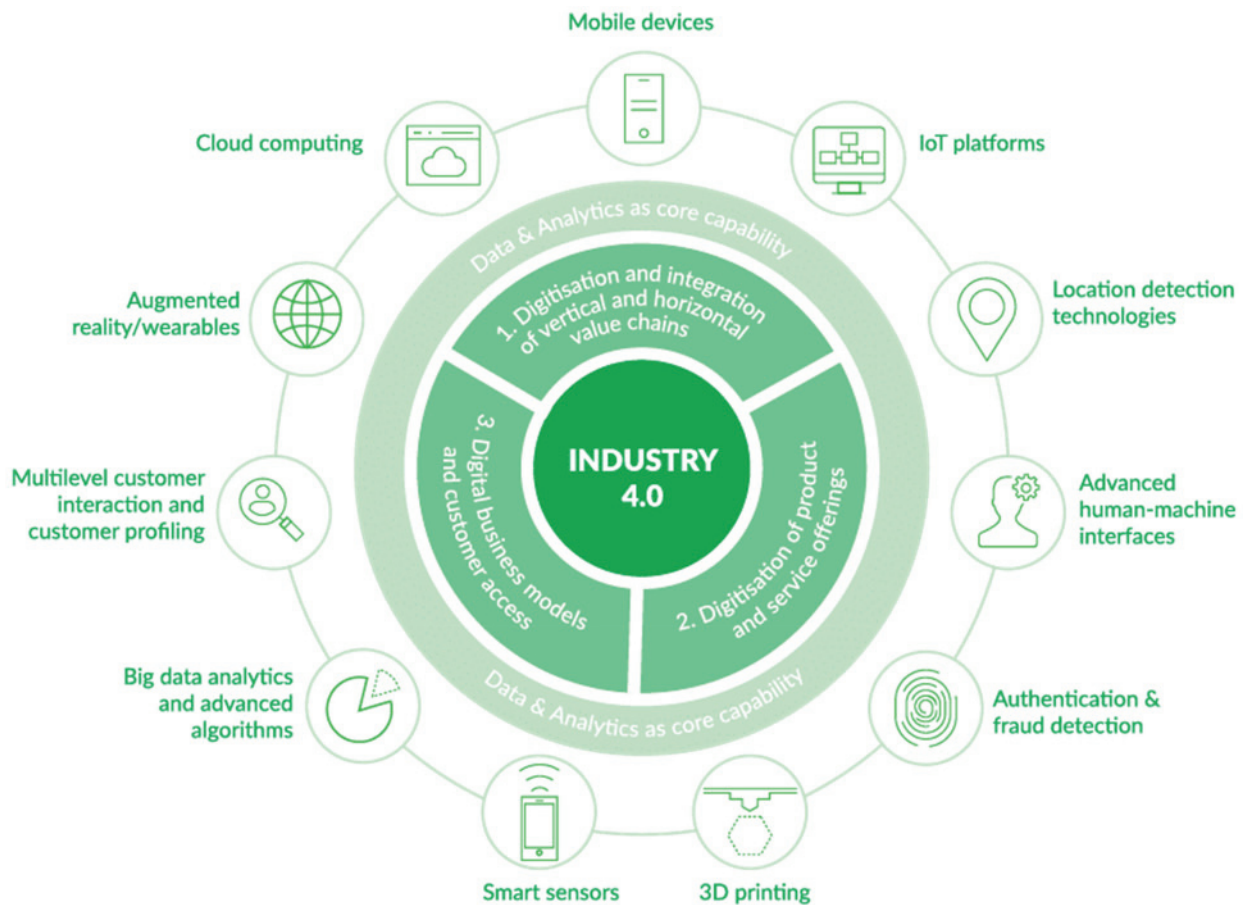
One of the most important trends this year in the electrical industry is energy storage. Regulators believe it is a necessary component to improve the future of the grid, and it is quickly growing to be a favorite resource because it can help consumers not only reduce wasteful energy consumption, but it can also help them cut on energy costs.

In short, consumers want more control over their energy. However, the current infrastructure doesn't exactly support this movement on a larger scale. Utilities will need to be further optimized before seeking a growing involvement in energy storage, but with policies driving the development of



energy storage technologies, this should help accelerate its adoption.

In fact, the US Federal Energy Regulatory Commission (FERC) has already created a “Pay-for-Performance” pricing structure to incentivize the development of energy storage technologies. It's recognized as a way to bring stability to the U.S energy grid, and it has the potential of making this a cost-effective solution on a commercial scale.



In addition, a well-developed energy storage system will improve the effectiveness of renewable energy. Although a 100% renewable-powered energy grid is possible, it will need a massive volume of energy storage behind it to accommodate energy demands when production dips.

2. Growing Energy Demand

Energy demand is growing, and it's expected to skyrocket as much as 57% by 2050. It is already grown by more than 25% in the last decade.

More and more consumers and businesses are concerned about energy efficiency, not just as a way to save money, but also to cut down on carbon emissions. Energy production happens to be the largest source of carbon emissions in the world, but with renewable energy becoming more efficient and attaining a larger share of overall energy production in the U.S., this should change for the better.

Additionally, embracing the young technologies that exist on the market right now seem to be the best way to address the concern of a booming energy demand. From distributed energy resources (DERS) to better energy storage and more accessible renewable energy options, these technologies will

be a huge player in how we maximize the efficiency of our energy consumption in the coming decades.

3. Renewable Energy

The adoption of renewable energy seems to be only increasing, partly driven by consumer interest. In 2023, wind and solar generation should even exceed 2022 with an expected growth rate of 17%. Coupled with more efficient energy storage options, renewable energy is on track to become an even bigger source of energy generation as the industry shifts toward grid parity.

4. Grid Parity

Grid parity is ultimately the next step for many utility companies. To keep it brief, grid parity occurs when an alternative energy source like solar can generate power at a cost equal to or less than the price of power from fossil fuels. Powered by the interests of consumers concerned about sustainable energy, companies that take advantage of supplying the renewable energy market can capitalize on this national interest quickly and efficiently. Even for states that

may not have as many natural resources to help generate power, grid parity will help them save in the long-term.

5. Building Information Modeling (BIM)

Building information modeling (BIM) helps contractors visualize the entire construction process before the build even starts. With cutting-edge virtual technology, BIM uses computer-generated images to show buildings, roads, utilities, and even the underlying infrastructure.

Modeling how a building's materials will hold up over time is another key feature that allows architects and engineers to recommend the best materials for a project. Even subcontractors can get a more accurate estimate of how much material will be needed, and how much time it will take to complete a job. With BIM, construction projects should see less waste, more sustainability, and a significant ROI in the long term.

6. Energy Reduction

Just as consumers want to have more control over their energy with access to sustainable, renewable energy options, they are also consciously buying energy-efficient solutions to cut back on energy consumption. And today, there are more solutions than ever. From smart power strips and smart thermostats to Energy Star-certified appliances and even windows, consumers are able to save hundreds every year over the lifetime of this technology.

Smart thermostats eliminate wasteful energy consumption with programmable settings, helping you heat and cool your home only when you need it. On average, a smart thermostat can save consumers up to Rs.10000 per year.

Energy-efficient appliances like a washer, dryer, and refrigerator can save on energy and water, further reducing utility costs to the average homeowner. In fact, Energy Star-certified washers consume 25% less energy and 45% less water than their conventional counterparts. Energy Star-certified refrigerators can help save up to 9% on energy costs. So, if you're looking to invest in new appliances, consider the energy savings in the long run to see which appliances should be replaced first to help maximize on savings and reduce energy consumption.

7. Distributed Energy Resources (DERs)

Consumers want more control over their energy, so expect DERs and better energy storage solutions to become a growing technology in the new decade. Distributed energy resources are essentially small-scale power generation or storage technologies ranging from 1 kW to 10,000 kW. This covers the residential, small commercial, community solar, and even some battery storage technologies. It's yet another way to decentralize energy production, and it's expected that more

utilities will shift toward greener products and services such as solar, home energy management systems, and more.

In the past, utilities have been seen as just a commodity, but it's now being looked to for solutions and advice as demand for sustainable energy practices increases.

8. Smart Cities

Most of the large cities in the world are already implementing smart city projects. Many utility companies are already creating value for themselves by offering more sustainable energy solutions to their customers, and supporting smart city projects are yet another way they are trying to make a bigger play in the market.

Because many utilities are already connected through the foundation between homes and businesses, their equipment can be used to detect water leaks, integrate air quality sensors, power smart streetlight systems, and so much more. Additionally, they have a large database of customer data and can provide accurate results and costs regarding smart city projects, let alone incorporate clean energy goals directly into the smart city plans. With many customers looking to backup generators to help prevent power outages in their homes, utility companies can also automate their own systems and install backup power sources, battery storage options, and microgrids to prevent outages. It also doesn't hurt that many cities may not be able to achieve smart city design without already collaborating with their existing utility companies.

9. IoT & 5G

The Internet of Things (IoT) is used to refer to every device that is connected to the internet. Smart devices need to connect to the internet and communicate with each other, and this takes a lot of data. Over the past several years, 4G has been the primary means by which this data is communicated, but once 5G began to develop, IoT became a lot more effective and much faster. The lower latency and 10x data transmission capacity of 5G versus 4G will help accelerate IoT capability.

As devices that can connect to IoT become more common, electrical connectors will certainly begin encountering them on the job. Electricians who learn how to work with IoT devices could open themselves up to new job opportunities. With an expanded 5G network, contractors could also start using internet-connected tools themselves to instantaneously receive and analyze data on-site to make better informed decisions when they're on the job.

10. LED Will Be Even More Popular

It is not very often that an industry-changing technology comes out, but every year it seems that LED is becoming more and more efficient and becoming more and more popular as

the years go by. Not only do LEDs use 25% to 80% less electricity, but they also have a much longer lifespan than their traditional counterpart – as much as 25 times longer than a traditional bulb. For any business or home, installing LEDs is a no-brainer. The savings certainly outweigh the more expensive initial cost, and are the much more sustainable option when it comes to lighting for residential, commercial, or industrial projects.

With cost savings helping outweigh why customers are switching to LED lighting, there are also less safety risks that may yield lower insurance costs.

Electrical Technology Trends for 2022

1. Electricity Meter Usage Monitors

Electricity meter usage monitors are among the best electrical solutions for tracking your energy usage, significantly cutting energy bills. This new electric product trend lets you identify the appliances that consume the most energy in your home. You can attach the usage monitors to

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your electric panel in the panel box and allow them to transmit usage data to your phone. Usage monitors are doing a better job of detecting power outages and sensing energy hogs in properties. They allow you to replace or unplug the offenders in time.

2. Smart Recessed Lighting

Recessed ceiling lights give a home a chic modern look. You can activate these smart lights through an app, voice, or clapping your hands. They keep changing to suit every indoor mood and atmosphere. For instance, they may shift from cool light to warm or morph into numerous different colors. Smart recessed lights even change colors and pulse to the music beat or gaming sounds. You can blend multiple lights into complex scenes to create a specific ambiance.

3. Smart Surge Protectors

As you increase the number of electric appliances and electronics in your home, securing them with a surge protector would be best. A surge protector is a small device that allows you to plug several components into a single power outlet. The aim is to protect your electronics, such as computers and TVs, from a high-voltage power surge. Technological advancements have led to smart surge protectors that even lower total electricity consumption.

4. Electric Car Chargers

Electric charging stations or car chargers are commonly referred to as electric vehicle supply equipment (EVSE). Electric vehicles often have built-in charging equipment, which enables you to use your home electricity

to power your vehicle. While most electric cars have a level 1 charging cord, industry experts recommend that you buy a level 2 charging cord that plugs into a 240-volt power supply. It will give you a faster-charging process. Again, you need a charging device offering the most amperage.

5. Smart Ceiling Fans

You can connect smart ceiling fans to your thermostat and program it to turn on and off, enhancing the efficiency and effectiveness of your heating and cooling system. A few smart ceiling fans come with reversible motors to allow bi-directional blade movement and smart lights.

Unlike the regular ceiling fans with only wiring or a pull cord that connects to the wall socket, you can operate your smart ceiling fans via Bluetooth or Wi-Fi. It implies you can remotely program and control your fans to operate within a specified schedule or setting even if you are far from home using your android or iOS device.

6. The Internet of Things

The internet is everywhere, enabling even appliances and other devices to surf the web. Your washing machines, refrigerators, stoves, and dryers now come with built-in computers that share and receive data and updates and enable communication to and from your mobile devices. The technology is better known as the Internet of Things (IoT).

With technological advances, the electrical industry is shifting its focus to energy-efficient and environmentally friendly electrical products. On top of the trends above, there is also more focus on sustainable options, like LED lighting, to cut energy consumption. Since trends keep changing, stay updated with what's happening in the industry.