

# The Future of Energy and Utilities

# Accelerating the Energy and Utility Industry

TOP 3 DIGITAL TRENDS FOR 2021

With a [2.5 % decrease in global electricity demand](#) in the first quarter of 2020 and a further 2.5% expected by the end of the year, the ongoing pandemic continues to affect the energy and utilities industry. Like many other sectors, the extraordinary circumstances of the year are changing the landscape of energy consumption due to increased lockdown measures and subsequent lifestyle changes. What was once the powerhouse of global economies is now under threat, and with no sign of the pandemic slowing down over the winter, the sector faces new and unprecedented pressures.

While the economic implications of 2020's events are clear, some interesting social transformations are also underway. Now that power suppliers are under threat as a result of reduced demand and diminished investment, their employees are being increasingly considered as 'essential workers', putting them into the same category as healthcare and services. At a wider level, the current paradigm has also highlighted the need to safeguard utility and energy companies as well. Governments have intervened where possible and introduced protection measures, which, for some, will usher in

a sense of security and order, while for others, will cause concerns of interference and ulterior motives.

However, there is a silver lining to all this. The pandemic has had some unexpected effects on the digital transformation of the power and utilities sector. Instead of hindering progress, the economic and social changes have acted as catalysts for the adoption of automation and technological development in many different ways. And, if the opportunities are taken early enough, it may bring the future closer than we all thought.

At the centre of this transformation are three main trends: decarbonisation, decentralisation, and digitalisation. Within each of these areas, there are significant opportunities to address climate change, as well as fulfilling the potential presented by intelligent automation, better data usage and smarter consumer business models.

By increasing investment in these spaces, the sector will tackle new challenges by streamlining operations, improving customer experience, and reducing environmental impact.

# Three Future Trends

In this article, we'll take a closer look at these key trends and what they mean for short-term survival and long-term growth.

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## 01

# Digital business models

According to [Gartner's 2019 CIO Agenda](#), digital was one of the top priorities for utility CIOs in 2019. Forward-thinking companies were already exploring digitally-enhanced business models, but were struggling with legacy systems, entrenched practices and insufficient investment. However, with the COVID-19 curveball, there was no other alternative than to adapt and change a little earlier than planned.

At the broadest level, energy and utility companies currently face two main challenges: continuing operations safely, and maintaining a close relationship with stakeholders and consumers. With the correct application of digitalisation, these challenges can not only be overcome for the short term, but in the future as well.

A successful digital transformation enables more effective and streamlined consumer interactions, and in today's locked-down and socially distanced world, being able to communicate with customers remotely is more important than ever. For instance,

[McKinsey reports](#) that there will ultimately be a 20-40% increase in the intent to spend online amongst US consumers, with 73% being more likely to switch products or services as they discover alternative options.

To combat this, improved customer service, payment channels, and streamlined communication through digitalisation is the way to go, as demonstrated by energy supplier Oxxio. Having released their [tracking and service application](#) before the pandemic, it paved the way for them to offer all facilities in one place without the need for physical interaction. As well as letting customers pay their bills and change their personal data, Oxxio's app also delivered insights into how much energy the customer was using and predicted their final annual bill. In a time of uncertainty, it's these kinds of details that let people feel a little more in control. After its launch, more than 50% of the energy supplier's customers installed the app on their phones, with self-service tripling in just three years.

## Social change

Digitalisation is also having a profound effect on the overall consumption of energy. With the meteoric rise of video chatting platforms such as Zoom, and companies adjusting to remote ways of working, people are flying, commuting and driving significantly less. While the positive environmental effects are undeniable, patterns of spending are likely to dramatically change in the years following COVID-19, meaning that energy and utility companies must rethink their pricing and services strategies.

These spending patterns aren't necessarily a problem. They could instead drive inventive thinking that only necessity can bring. For instance, in a newly-released [YouGov survey](#), 85% of people want to see a continuation of the personal or social changes they have experienced during COVID-19, with just 9% wanting a complete return to normality.

Then there's the green agenda, which has been a focal point for many energy and utility companies in recent years. Under this new spotlight, they will need to further invest in renewable energy together with better production and communication methods, as reflected in YouGov's findings. The study highlights that more than half of the surveyed population are noticing cleaner air and are more aware of how much the 'old' way of using energy was affecting the environment.

There are many ways that digitalisation in the energy sector can address this challenge. For instance, by developing remote capabilities for field workers, the need for long-haul travel will be reduced, and with it, the carbon footprint. And, with [74% of CFOs surveyed across all industries planning to move to remote working](#), it's safe to say that the energy and utilities industry will need to take serious steps to keep pace.

## Optimising operations

The energy and utilities industry companies are facing disruption from all directions, with the already-present socioeconomic pressure points being amplified by the global pandemic. To balance, manage and maintain steady energy flow in an economically viable way, companies will adopt sophisticated automation and analytics solutions to their services, delivery methods and business models. However, while digital innovation is the clear remedy to many of these pressure points, it all depends on how invested – both culturally and financially

– companies are in making meaningful change. While the industry is still only dabbling in the [efficiency-boosting potential of Utility 4.0](#), certain elements are quickly becoming a reality. Technology innovations such as The Industrial Internet of Things (IIoT), machine learning and cloud computing are currently being used for asset monitoring, smart metering and predictive maintenance. And, as these technologies continue to evolve and new ones come to light, it's easy to see just how much things can shift if given the chance to do so.





02

## Data as a valuable resource

**A**nother unexpected consequence of COVID-19 is how the fuel marketplace has changed. Just a few years ago, the prospect of [oil prices dropping below a value of 0](#) was unimaginable, but once again the current climate has surpassed even the most pessimistic estimations. Yet, not all is lost. By gaining a better understanding of how to collect and interpret data, energy and utility companies will improve their forecasting practices, risk modelling capabilities, customer retention strategies and other business-critical areas.

Fortunately (at least for some of the bigger players), sophisticated

data capture technologies such as cloud computing, machine learning, blockchain and enhanced cybersecurity have already been integrated. With their deployment comes a vast influx of valuable insights thanks to the widespread adoption of smart devices and home systems by consumers.

Nevertheless, the quality of the data is only as good as the value it brings. As well as having the means to collect information, industry players must turn their attention towards ways to store, secure, analyse and grow from what they learn.

## How data sparks success

To survive during COVID-19 and prosper in the uncertain years that follow, energy and utility companies will utilise data in the following seven ways:

### 1. Predicting and preventing power outages

For many people, the occasional outage is a normal part of life, but something on the scale of [50 million people suddenly losing power](#) (as seen in the USA in 2003) can have a disastrous effect on daily life and the economy. To prevent something of this magnitude from occurring again, historical data and predictive analysis, underpinned by machine learning can be employed to mitigate the impact of weather damage or grid overloads. Not only will this protect public perception of energy brands, but the monetary value of pre-empting something at such scale is immeasurable.

### 2. Smart load management

To better manage energy loads, companies can balance energy demand with supply within a particular period. Through a smart load management system, they will handle all network requirements, including demand, energy sources, end-use devices and advanced control systems – helping to reduce wastage and grid overload.

### 3. Business agility

Agility is crucial to navigating businesses through opportunities and threats, both internally and externally. By employing intelligent use of market data, building risk-limit dashboards and undertaking

advanced scenario modelling, companies can improve customer centricity, business continuity and employee engagement.

### 4. Optimise engagement strategies

While many energy and utility companies already offer online and app-based platforms for payment, re-visiting how they function during a pandemic could further increase brand awareness and loyalty. By gathering and analysing both first and third-party data, they can paint a more vivid picture of their customers as they exist today, paving the way for more targeted and time-relevant messaging and offers.



## 5. Improve customer experience

In today's digital world, all stakeholders expect accurate and personalised information to make informed choices. By leveraging data to understand audience needs and expectations better, companies will be better placed to deliver improved experiences. And, in times of COVID-19 where information is fast-changing, this has never been more crucial.

## 6. Identify and mitigate payment risks

Utility companies are heavily dependent on receiving payments from customers, who in turn may be experiencing their own financial hardships during the economic downturn. Through the use of their first-party data, these companies can identify who is most at risk of non-payment and react accordingly. For example, once they can see

who fits into a risk category, they can use particular communication strategies, payment plans and relief programs to maintain income.

## 7. Simplify complex data

It's one thing to identify and collect relevant data, but it's another to extract value from it. To overcome this challenge, Gas Networks Ireland (GNI) and Dept created a [portal that simplified complex data sets](#) in user-friendly,

intuitive and digestible ways. By providing data in an easy-to-understand and aggregated fashion, they created an engaging marketing platform, with genuine value and transparency for their customers.

## Decarbonisation and intelligent automation

At its purest form, intelligent automation combines artificial intelligence to create systems that can adapt and make real-time changes based on data input. Its applications have already been proven across the IT and [manufacturing industries](#), and its merits are easily transferable to energy and utility as well.

As COVID-19 gives consumers a better understanding of their power usage, it's clear that the reduced demand is paving the way for cleaner living. Only a few months ago, [Britain officially became coal-free](#), and developing countries are also beginning to aspire to the same success. But implementing new energy technologies in less developed infrastructures will take even more investment from companies and regional authorities.

The landscape has also drastically

changed in terms of customer retention. The market has never had more choice and people are being significantly more careful in choosing their provider. And, with advances in battery technology and the electrification of transport, this means that modernisation is not just desired, but essential.

Intelligent automation is one way to tackle many of these challenges in one go. By developing smart grids, industry players are able to optimise operational capacity and integrate new technologies to improve efficiency, service levels and environmental impact. With the [CRI estimating that the energy and utility industry can save between \\$237 billion and \\$813 billion](#) globally over the next three years, the potential is there – as long as the adoption rates keep pace.

### Enter the smart grid

Climate change has long been a challenge for the energy sector, and although various renewable sources have been identified and integrated into the world's power supply, there is still room for improvement in terms of how efficiently they operate. That improvement comes in the shape of smart grids.

To put it simply, smart grids are electrical networks that employ emerging technologies to manage and oversee the operating processes for the transfer of energy from the generation source through to end-users. This is especially useful for renewable energy producers who often experience unnecessary energy wastage, despite being able to predict favourable weather conditions. A report by the [China Renewable Energy Society](#) showed that more than ten billion kilowatt-hours of power were wasted in 2011, resulting in lost revenue of \$793m

because of insufficient grid connections. Fortunately, these numbers have steadily reduced in recent years, but they are far from what they could be with the correct technology to mitigate them.

While this is certainly a hardware issue, these problems can be lessened or even prevented through automated intelligence.

**Through the use of smart grids, the renewable energy sector can try to strike the optimal balance between supply and demand, with predictive analytics helping to reduce waste.**

By remotely tethering with smart meters in domestic and industrial locations, smart grids can be fed relevant data to help them achieve more intelligent levels of supply – resulting in less waste and more savings for all stakeholders.

## Intelligent automation is already working

Energy and utility businesses apply intelligent automation in many different ways. Take the example of U.S.-based gas and electric company, XCEL Energy, who used data from sensors placed on wind turbines to [forecast wind strength through](#)

[machine learning](#). Then, by harvesting and processing the data, they were able to increase the efficiency of their operations and reduce costs to their customers by \$60 million.

While intelligent automation is designed to be autonomous in some respects, the real value comes when paired with human counterparts, as seen from the Russian gas giant, Gazprom. By implementing [Robotic Process Automation](#) (RPA) to automate gas

meter readings in residential and business premises, workers could validate more than 100 invalid meter readings in just two weeks – saving over 10 hours of work per employee.



# Tomorrow starts today

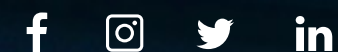
Despite the advances in digitalisation, the effect of the economic downturn is very real and just like many other industries, the energy and utilities sector still needs to remain cautious to brave the troubled waters until the world is ready to get back to business.

However, this doesn't mean that you have no other option but to

wait it out. As we've seen, energy companies are accelerating their adoption of emerging and digital technologies to ensure that they don't only survive this year, but thrive in the next one too. In some ways, the time has never been better to take a look at your digital capabilities and identify the areas where you can supercharge operations through modernisation.

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