FUTURE OF **UTILITIES**

Report 2020

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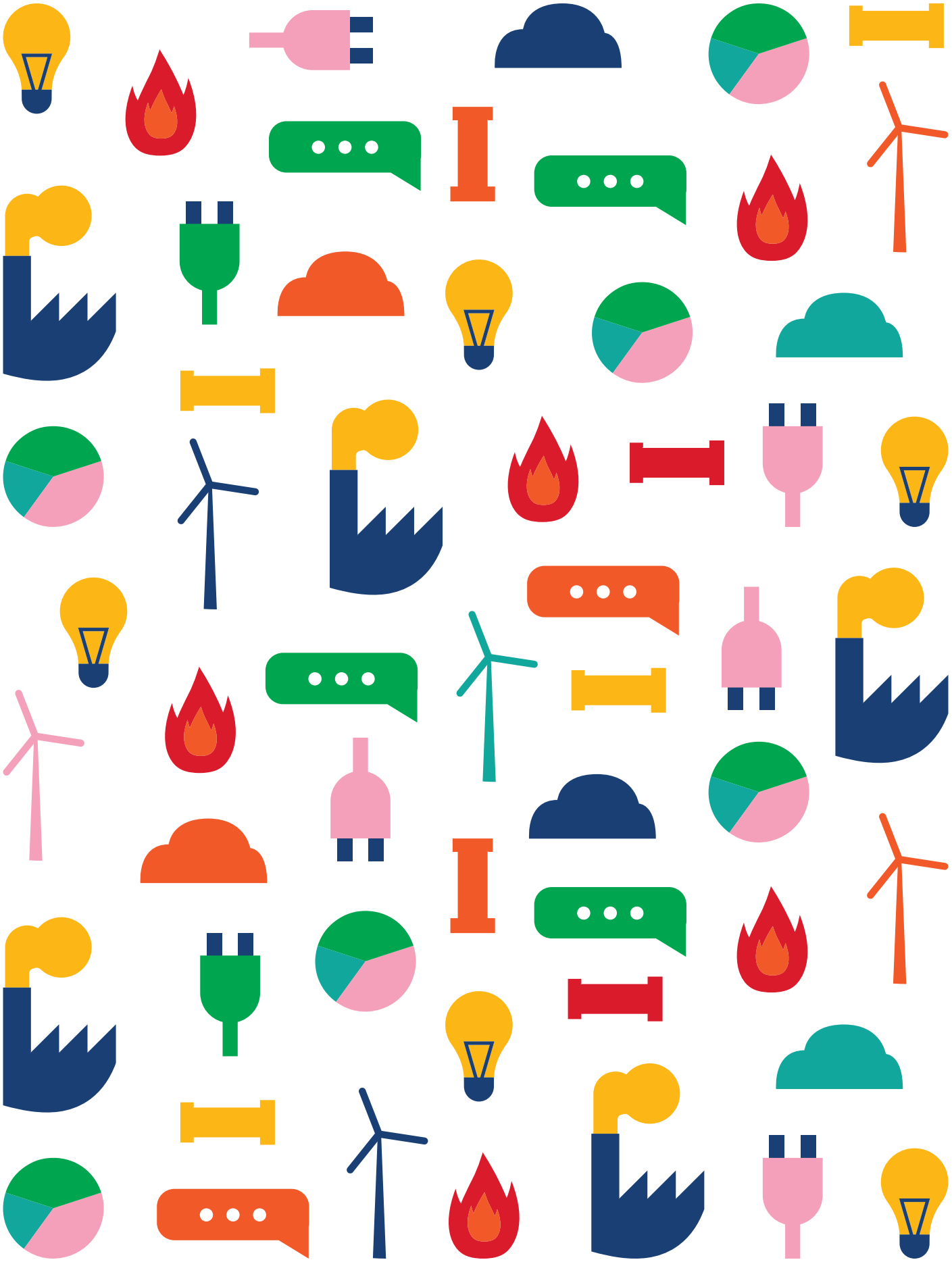

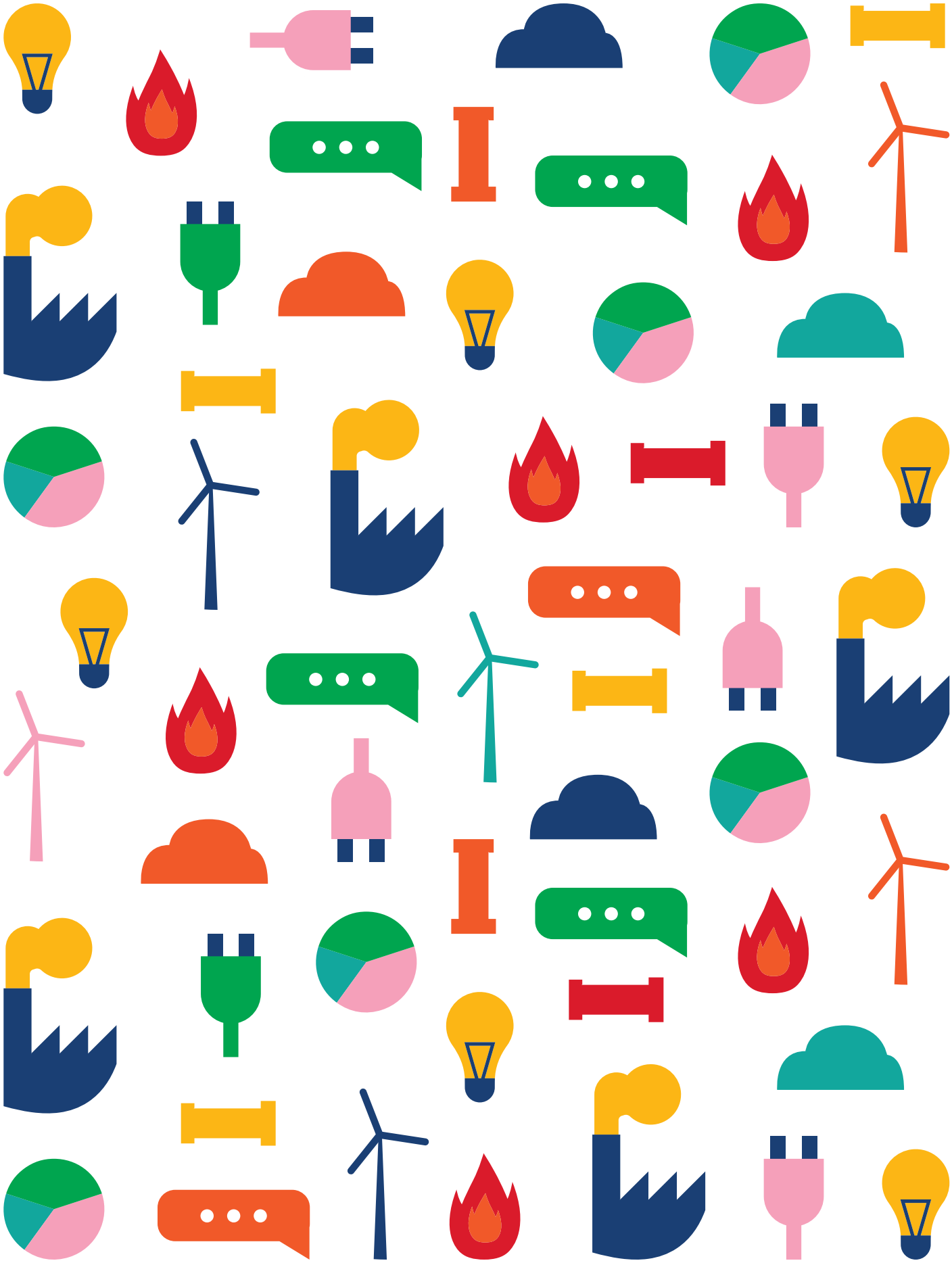

Forewords

It's hard to overstate the pressure on the utility sector. These companies provide vital strategic services, underpinning the nation's prosperity, security, health and wellbeing. Yet a combination of competitive forces, regulatory change, squeezed margins and changing customer behaviours mean companies are having to rethink every aspect of their operations. Digital technology will allow companies to respond to these challenges and deliver improved outcomes, whether it's cutting-edge customer experience or predictive analytics that reduce outages and help safeguard vital resources.

And then there's the Net Zero agenda, a scale of disruption that dwarfs all others. Utility companies have been making solid progress but their investment and plans were made for an 80 per cent reduction in greenhouse gas emissions by 2050. As our findings show, achieving Net Zero in the same timescale will require a step change in investment and activity. Utility companies cannot do this by themselves. They will need clear guidance and regulatory direction, along with increased collaboration with third-parties and local councils to put in place the technology and infrastructure to decarbonise heating and transport.

Great challenges lie ahead, as do great opportunities. The history of digital disruption suggests first movers will capture the lion's share of the gains. This survey provides a timely snapshot of an industry on the cusp of huge transformation and perhaps suggests which strategies will be most effective as companies navigate their way to 2050.

David Saunders
Director, Future of Utilities

salesforce

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Envisaging the Future of Utilities in the digital age

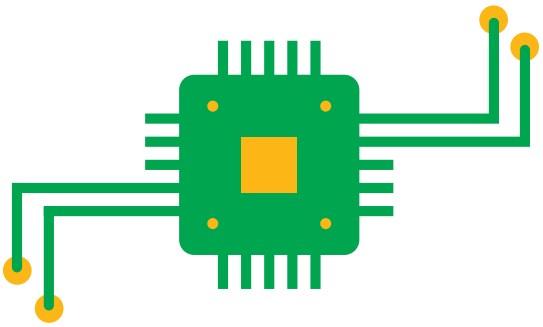
All customer-facing industries, from retail to banking, hospitality to transportation, have been transformed by the digital revolution. It's not just that digital technology has changed the competitive landscape and created brand new user experiences; it has also irrevocably changed customer expectations. Customers expect the brands they interact with to deliver the same slick, seamless and speedy service they have come to expect from the best-of-tech.

This disruption is relentless. New technologies, such as the Internet of Things, voice-as-a-channel, AI and even augmented reality, mean digitally-savvy brands are pressing ahead with previously unimaginable levels of convenience, personalisation and immediacy to engage and delight their connected customers.

90% believe that customers compare the experience they receive from tech-savvy providers elsewhere with the service they receive from their utility companies

Yet while banks, taxis and food are all available 24/7 at the swipe of a smartphone, utility companies have proved slower to embrace the potential of the digital revolution. Research by McKinsey in 2018, for example, found that utilities have achieved only a moderate level of digitisation, well below that of other industries[1]. Customers are not blind to this gap and this raising of the customer service bar is not lost on our respondents, with nine out of ten believing that customers compare the experience they receive from tech-savvy providers elsewhere with the service they receive from their utility providers.

It's a comparison that is unlikely to favour utility companies, which routinely score lowly in customer service indices[2] and suffer from high churn rates as a result. According to Citizens Advice, the official consumer watchdog for energy, one in four energy firms fail to achieve even two out of five stars in its customer service league table[3]. Sudden increases in direct debits, problems with prepayment meters, inaccurate bills, failure to return credit refunds and poor customer communication are the most commonly highlighted problems. Worryingly, given the regulators' increased scrutiny of customer service, these recurring issues are major service failings that suggest a deeper operational malaise and will require significant investment to fix.

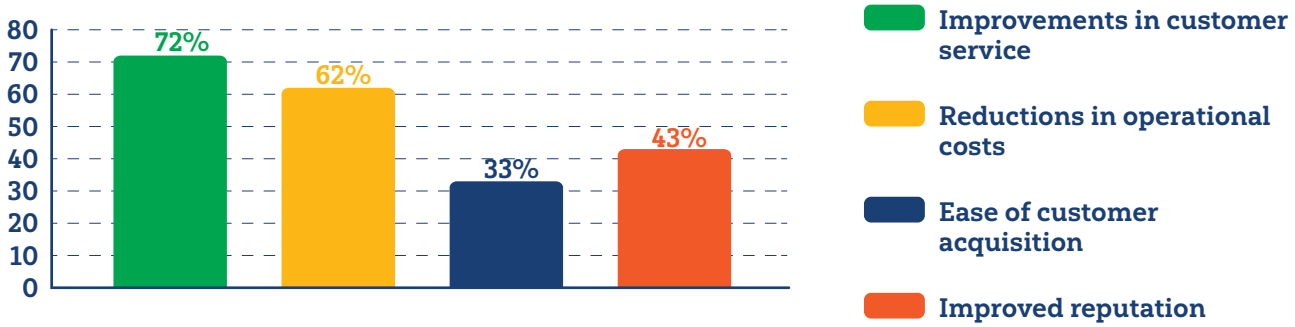


89% think digital technology is set to transform the industry over the next five years

Little wonder companies are looking to technology to deliver the kind of performance gain seen in other industries: almost all our respondents, 98 per cent, think digital transformation will be critical to the future success of a utility company and almost nine out of ten (89 per cent) expect digital technology to transform the industry over the next five years.

A change is coming

How significant do you think the benefits of digital transformation will be in the following areas?



[1] *The Digital Utility, McKinsey & Co, 2019*

[2] *The UK Customer Satisfaction Index 2020*

[3] *https://www.citizensadvice.org.uk/about-us/how-citizens-advice-works/media/press-releases/too-many-energy-firms-struggling-to-deliver-good-customer-service-says-citizens-advice/*

Digital transformation is expected to be felt across all parts of the industry, with customer service and operational costs expected to be the biggest winners.

When it comes to customer service, there are clear gains to be made by emulating the best-of-tech. The one-click solutions provided by the likes of Amazon and Uber are a world-away from the frustrations that customers sometimes experience when dealing with their energy or water supplier. From AI-powered chatbots to voice-activated digital assistants, there are now a host of new channels that make communication responsive, intuitive and personal while also creating opportunities for customers to self-serve. One utility introduced a self-service portal for account changes, payments and account history queries and within a year exceeded its registration goals by 110 per cent and saw a 65 per cent reduction in call centre traffic, resulting in operational savings[4].

Digital technology, as our respondents are aware, can drive significant cost savings for under pressure utility companies. Robotic Process Automation (RPA), for example, smart software that streamlines and automates processes, can reduce costs, eliminate errors, speed response times and improve data collection and management. Across the operation, there are huge gains to be made, whether it's optimising workforce management to improve efficiency or predictive maintenance to identify failure risks before they occur. What's more, managers can make better decisions when they get insights from AI applications that crunch through huge data sets and generate previously unreachable insights.

In the digital slow lane

82% think that utilities are currently too slow to adopt new technologies

The transformative potential of digital technology is currently going unrealised, however. Four out of five of our respondents agree that utilities companies are currently too slow to adopt new technologies. This carries real risks, not least that digitally-native new entrants will continue to capture market share by offering smarter solutions.

The history of digital disruption over the last two decades should be a warning to the utility giants that no incumbent is too big to fail. According to research by McKinsey, by the time industries near the 40 per cent digitisation mark, digital leaders have already secured large market shares. Utility companies have a window of opportunity to fast-track their digital agenda and be part of the leading pack – or risk obsolescence.

78% agree that unless utility companies improve their speed of adoption, they risk their IT investments becoming obsolete prematurely

Technology is now advancing at such a pace that companies are in a state of constant flux, constantly reinventing user experiences, products and services in order to stay relevant. Innovation leaders in other industries, from tech to banking, are working in entirely new ways, creating small multi-disciplinary teams that combine IT and business skillsets to sprint through problems, focus on business outcomes and react to feedback – and they build their systems in the cloud so they can innovate and scale rapidly without the burden of legacy systems. It means digital pioneers can pivot as market conditions change and quickly adapt their systems and processes to accommodate the latest digital innovation. Little wonder than 78 per cent of our respondents worry that unless utility companies improve their speed of adoption, they risk their IT investments becoming obsolete prematurely.

[4] *https://electricenergyonline.com/energy/magazine/1084/article/The-Business-Case-for-Customer-Self-Service.htm*

76% agree that for water companies and energy network businesses, the current regulatory structure does not provide adequate incentives for investments in digital transformation

But if utilities have been slow to embrace the digital agenda, they are quick to identify one of its causes: regulation. More than three-quarters (76 per cent) of our surveyed utility executives agree that for water companies and energy network businesses, the current regulatory structure does not provide adequate incentives for investments in digital transformation. With regulators under huge pressure to keep bills down, there's downward pressure on the allowed cost of capital, which can make investments uneconomic, while digitalisation projects in companies' business plans need to secure regulatory approval, which can act as a drag on innovation.

67% think that the current market structure does not provide adequate incentives for incumbent energy suppliers to invest in digital transformation

And in the competitive market of energy supply, two-thirds (67 per cent) of respondents think that the current market structure does not provide adequate incentives for the major incumbents to invest in digital transformation. This creates a "double whammy", because not only does the current market structure given rise to new entrants with digitally-powered offers that are eroding their market share but it also reduces their pricing power and squeezes margins, limiting their scope to respond. Furthermore, all utility companies must always weigh the looming threat of further government intervention in the market, already in evidence with the energy price cap, acting as a brake on investment. One survey of senior industry executives found that 38 per cent of senior industry executives judged government intervention in the utilities market to be an "extremely high risk" that could derail digital transformation plans[5].

As a result of these external market impacts, our survey finds the industry is still very much at the beginning of its digitalisation journey. Indeed, a worrying four out of ten either have no plans to digitalise or are only at the pilot stage. More promisingly, 20 per cent have reached the planning phase of a significant digital transformation in the next five years and 38 per cent are starting to implement such a transformation. Even so, this suggests that even by 2025 a large proportion of the industry will have yet to complete their digital transformation.

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These figures reveal a lack of urgency among the bulk of the industry. Banking, which is also a highly regulated industry with a cautious corporate culture, has been much quicker to seize the digitisation agenda: indeed, nearly half of all adults in the UK now use mobile banking and customers are increasingly happy to use AI-powered budgeting tools, robo-investors and can even pay in cheques from the comfort of their own home using their smartphone. As a result, banks are creeping up the customer service indices and holding their own against digital-native new entrants.

18% are very confident that their company's current systems will be able to adapt to the necessary level of digital transformation

The utility sector, facing its own digitally-smart competition, would do well to learn from the banks. Yet fewer than one-in-five of our respondents are very confident their own company will be able to adapt to the necessary level of digital transformation. This carries a clear and present danger: more than nine out of ten of our respondents think the UK's major utilities need to become better at innovation if they are to remain the leading players in the industry of the future.

The time to act is now.

[5] *https://utilityweek.co.uk/digital-transformation/*

The Salesforce view

Customers have, to date, shown little appetite to engage with their utility providers. And why should they? It's an industry many take for granted until things go wrong, at which point their interactions have tended to result in frustrating and unsatisfactory experiences deterring any further engagement.

Yet this is changing. Public awareness of climate change and resource conservation means there is now a growing appetite to learn more about the energy we use, the water we drink and how our choices can impact the energy transition. This creates a real opportunity for utility companies to make their own transition, from commodity-provider of lowest price to a partner delivering solutions that help us live our lives in smarter and more sustainable ways.

Public awareness of climate change and resource conservation means there is now a growing appetite to learn more about the energy we use, the water we drink and how our choices can impact the energy transition

Rather than a race to the bottom on price in a highly commoditised market, this gives companies the chance to differentiate their offers, using digital technology to create platforms that enable them to engage with customers on a wide range of issues, from energy efficiency to EV charging and smart home kit. It's an opportunity to reinvent what it means to be a utility company, with the potential to rebuild trust and reputations along with margins.

Technology will be the key to unlocking this potential. The good news is that technologies now exist to help companies transform their operations at a speed that was once unimaginable and at a fraction of the cost of previous multi-year IT projects. Yet this window of opportunity will not last forever: these findings suggest there's a five-year window before digital disruption transforms this industry and the winners will be those that move first.

Salesforce is the #1 CRM, bringing companies and customers together in the digital age. Founded in 1999, Salesforce enables companies of every size and industry to take advantage of powerful technologies—cloud, mobile, social, blockchain, voice, and artificial intelligence—to connect to their customers in a whole new way. The Salesforce Customer 360 is an integrated CRM platform that unites marketing, sales, commerce, service and IT departments. The company is a leader on Fortune's World's Best Workplaces list, and Forbes has ranked the company one of the world's most innovative companies for nine years in a row.

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The new era of utilities customer experience

Of all the far-reaching impacts of the digital revolution, perhaps one stands out: tech companies dominate the corporate landscape but the new technology has made the customer king. Today's connected customer can orchestrate the world to suit their needs, whether it's personalised shopping recommendations, one-click payments or insurance policies that auto-claim and pay-out in seconds, making life simpler, more convenient and even friendlier. What's more, the unbeatable efficiencies of AI-powered marketplaces match customer needs with the best supplier, driving down margins to deliver compelling pricing that incumbent business models struggle to match. And digital technology encourages customers to be fickle: across a wide range of services, from personal current accounts to air travel, it's never been easier to switch supplier at the swipe of a smartphone and for those that sign up to new AI-powered auto-switching services, advanced algorithms will make all the decisions and do all the legwork for them.

In the age of the empowered customer, no company can afford to neglect the customer experience (CX). Almost 90 per cent of organisations now have a chief experience or customer officer and more-than two-thirds of CX leaders expect budget increases this year, a signal of the resource and talent now being dedicated to CX[6].

Companies that get this right get results: according to PwC, customers are willing to pay up to a 16 per cent price premium on products and services in return for great experiences and 63 per cent are willing to share more personal data with a company that offers a great experience. Get it wrong, however, and one-in-three customers say they will walk away from a brand they love after just one bad experience.

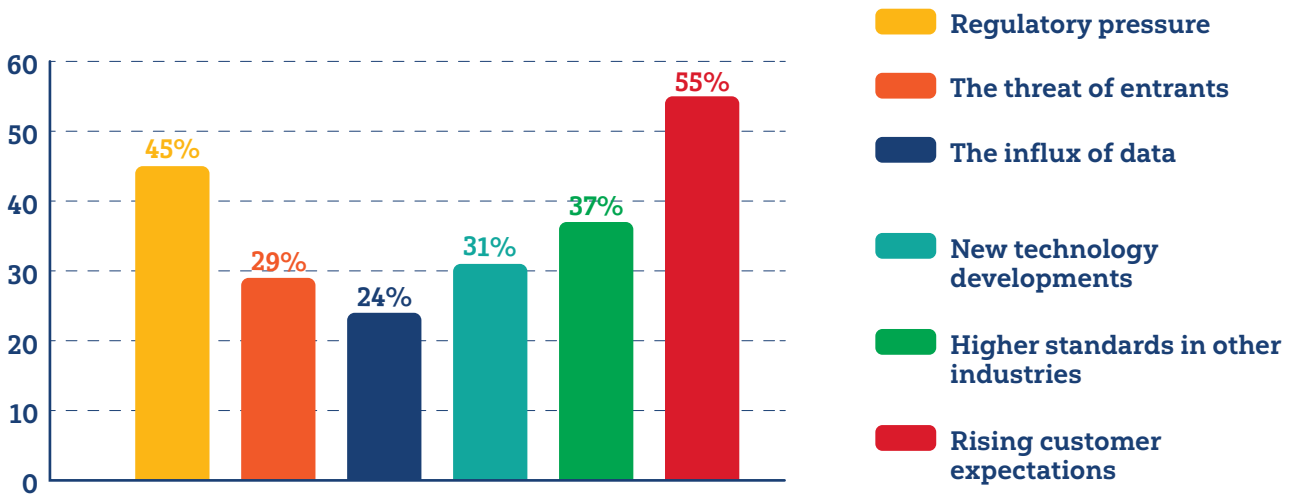
For utility companies, the rise of customer experience as the key differentiator over product and price is a major headache. Utilities routinely bump along the bottom of customer satisfaction rankings: Welsh Water was the first water company to make the top 50 of the long-running 2020 UK Customer Satisfaction Index and it's the first time since Ovo Energy in 2018 that a utility company has featured among the top 50 companies[7].

80% agree that utilities that fail to match the level of personalisation and convenience that customers receive from Amazon, Google and Netflix will find it extremely difficult to satisfy customer demands by 2030.

With customers increasingly comparing the service they get from their utility providers with the seamless, personalised journeys they enjoy with other brands, there's increasing pressure on the industry to address this CX deficit. Four out of five of our respondents agree that in 10 years' time, utilities that fail to match the level of personalisation and convenience that customers receive from Amazon, Google and Netflix will find it extremely difficult to satisfy customer demands.

With the rise of brand-smart, digitally-savvy new entrants, there's increased pressure on incumbents to focus on the customer. Nine out of ten (94 per cent) of our respondents agree that the importance of CX is now more widely recognised within the industry, and 94 per cent identify rising customer expectations as the main driver of this change.

It is often reported the utilities are striving to step-up their customer service strategies. To what extent are the following responsible for that step-change?

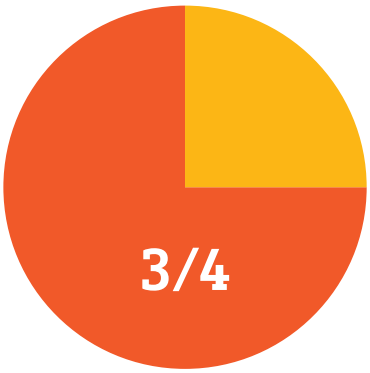


[6] *Gartner research, January 2020*

[7] *UK Customer Satisfaction Index, 2020*

Getting to know you

This is clearly the beginning of the industry's CX journey, however, and many of the features displayed by CX leaders are not yet in place. Key among these is the ability to measure customer journeys and engage customers in order to better meet their needs. According to Gartner, CX leaders not only have a dedicated CX leader, who often reports to the CEO, but many large organisations will also have more than 50 CX metrics - and some as many as 200 - and will also measure employee engagement because of its impact on the customer experience[8].



three out of four of our respondents agreed that the utility industry does not adequately measure the experiences of its customers

Yet three out of four of our respondents agreed that the utility industry does not adequately measure the experiences of its customers and 71 per cent think it is not doing enough to improve customer engagement. Without understanding what service customers currently endure and what service they would actually like from their utility provider, there's a real risk that current CX strategies will mis-fire and investments will fail to deliver a return.

Yet there has never been a better time for companies to understand their customers. New technologies, from smart home thermostats to intelligent appliances, mean energy companies can get real-time data on how customers use their services moment-by-moment while data from social media and contact centres can give unprecedented insight into their behaviours, circumstances and preferences. External data, whether it's credit ratings agencies, geo-location data or flood maps, can add a real granularity of data that can add to that understanding and help anticipate additional needs or potential risks to their services. This data can be used not only to improve customer service but also to generate personalised offers and advice, anticipate future unmet needs and configure entirely new products and pricing models, with the potential to build loyalty, generate additional revenue streams and forge entirely new relationships with customers.

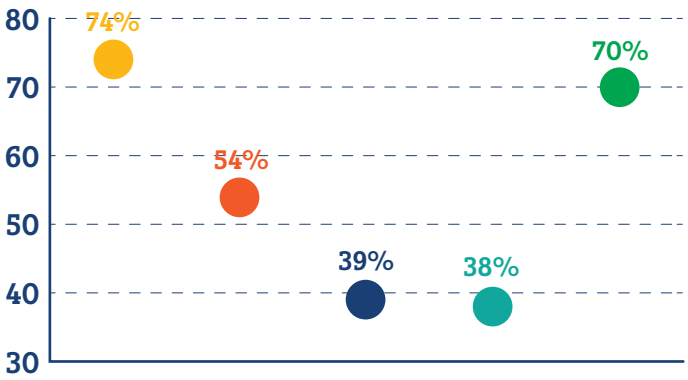
> **91% believe it's vital that energy and water companies provide value-added services in order to avoid being further commoditised**

Rather than a continual squeeze on margins, it seems utility companies could stand on the cusp of a radical reinvention – if only they grasp the potential offered by customer-centric digitalisation. Our respondents not only recognise this potential, they think it's essential to survival: 91 per cent agree it's vital that energy and water companies provide value-added services in order to avoid being further commoditised.

It's clear our respondents are keen to pursue this model, with our respondents showing an appetite to compete on measures other than price. From reputation to customer experience, our surveyed utilities want to be known for something other than being the cheapest provider. This suggests that the ongoing commoditisation of the market – and the resulting race to the bottom on price with its resulting low margins and constant churn – may be arrested if companies can successfully differentiate themselves in other areas.

[8] *https://www.gartner.com/smarterwithgartner/how-to-measure-customer-experience/*

How important are the following for differentiating your company's service offering?

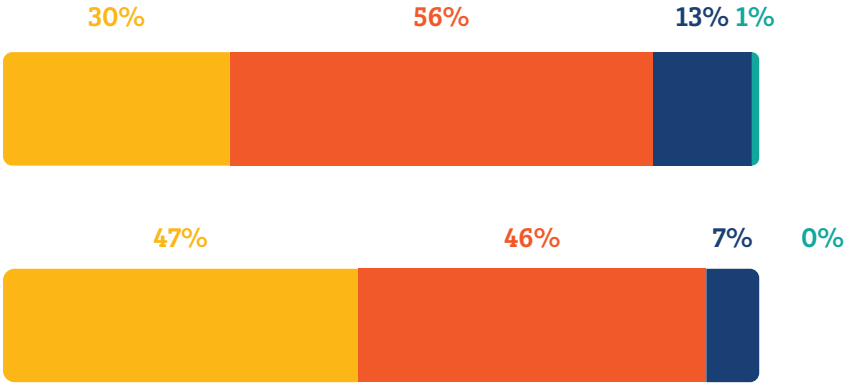


- Customer experience and satisfaction
- Brand identity and ethos
- Differentiated communication channels
- Price
- Reputation

Roadblocks

This is clearly the beginning of the industry's CX journey, however, and many of the features displayed by CX leaders are not yet in place. Key among these is the ability to measure customer journeys and engage customers in order to better meet their needs. According to Gartner, CX leaders not only have a dedicated CX leader, who often reports to the CEO, but many large organisations will also have more than 50 CX metrics - and some as many as 200 - and will also measure employee engagement because of its impact on the customer experience .

- Strongly agree
- Agree
- Disagree
- Strongly disagree



The influx of customer data will transform the industry forever

Unless the industry invests in analytical capacity, utilities companies will not be adequately prepared to make the most of customer data

The industry certainly recognises the potential to reinvent itself in a hyper-connected digital world: 86 per cent of our respondents agree that the influx of customer data will transform the industry forever. Yet vast inflows of data are meaningless without the advanced analytics to make sense of it all: one survey found that 65 per cent of organizations can't analyse or categorise all the consumer data they store[9]. It's a struggle that resonates with our respondents, with 93 per cent agreeing that unless the industry invests in analytical capacity, utility companies will not be adequately prepared to make the most of customer data.

54 per cent of our respondents said they are investing or planning to invest in big data analytics over the next five years

Encouragingly, however, more than half, 54 per cent, of our respondents said they are investing or planning to invest in big data analytics over the next five years. Yet this leaves a large minority who are in danger of being left behind, particularly the 17 per cent that currently have no plans to invest in analytical capability and will increasingly find themselves far adrift of changing customer expectations.

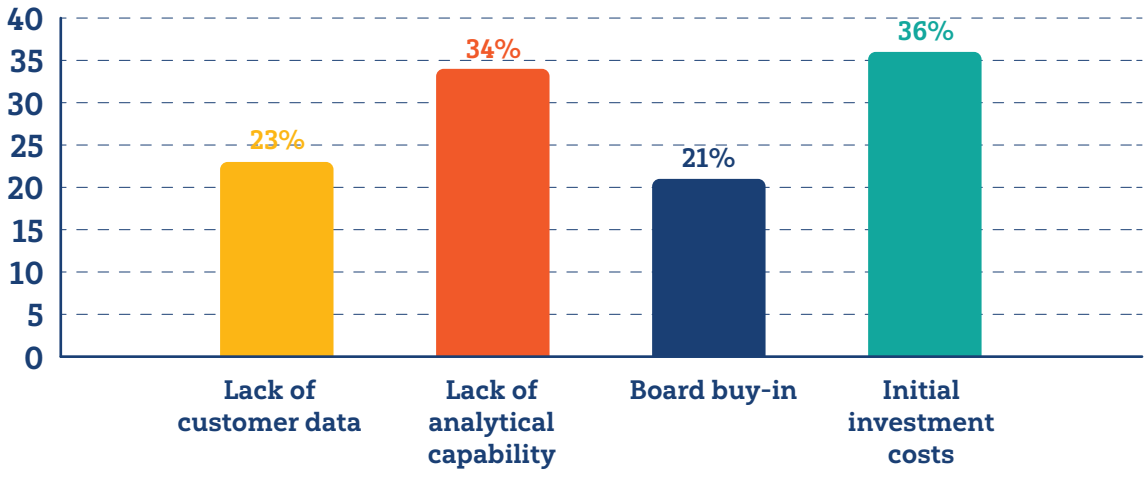
In addition to big data analytics, companies will also need to invest in new channels in order the deliver a customer experience that can withstand comparison to the likes of Amazon and Apple. Over the next three years, none out of ten of our respondents think it will be important to include mobile apps and online chat delivered by human agents as part of their channel mix.

Yet these are channels that are pretty much standard in other industries, which are already racing ahead with online chatbots and voice-activated digital assistants that can provide fast, tireless, 24/7 service at a fraction of the cost of human agents. Yet while consumer uptake of chatbots, instant messaging services and voice-activated digital assistants has taken some pundits by surprise, forcing industries from insurance and banking to retail and automotive to respond, it seems that the utility industry is taking a more cautious approach: three out of ten don't think online chatbots or voice-activated digital assistants will be part of the channel mix in 2023.

Our findings suggest that cost is the biggest barrier to improving CX, followed by lack of customer data and lack of analytical data. The lowest hurdle was that of board buy-in. This suggests that those at the top acknowledge the need for the industry to change but are constrained by the structure of this regulated industry.

[9] *https://safenet.gemalto.com/data-security-confidence-index/?utm_campaign=dsci&utm_medium=press-release&utm_source=&utm_content=report&utm_term=*

To what extent are the following barriers to improving your customers' experience?



This is worrying because the pace of digital disruption is relentless. Our survey finds that companies are investing in new consumer communication tools and billing solutions over the next five years but when it comes to next-wave technologies, such as AI and machine learning and cloud technologies, there is a more mixed picture. Over three quarters of our respondents are already investing in cloud technology or planning major investments over the next five years. However only two in five are at the same stage in respect of AI, with almost a third having no plans to invest.

Given that AI technologies and cloud are already delivering transformational results in other industries, it seems that, unless they make major changes, many utility companies could find the CX gap is only set to widen rather than close.

The Itineris view

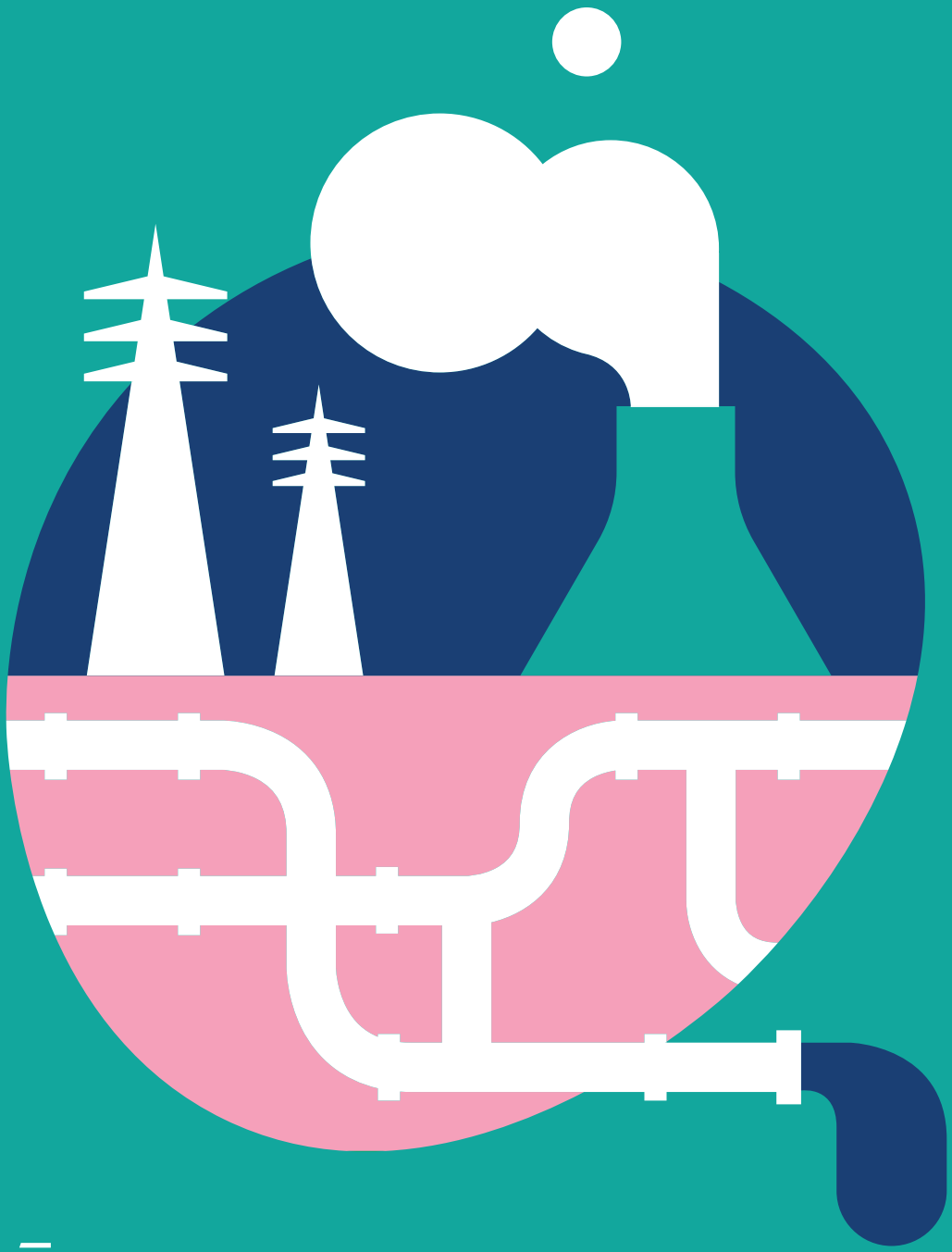
Customer expectations have never been higher and all industries are having to raise their game. This includes the utilities sector, which is already feeling the pressure of regulatory scrutiny and competition from digital-first challengers. It's an industry that faces an uphill struggle when it comes to customer experience. After all, the typical utilities company has few touchpoints with customers, other than billing or service outages, so has limited opportunities to engage and delight customers.

This means it's essential for utilities companies to get the basics right, the first time and every time. Bills must be accurate and compliant, every time. Products should be simple, transparent and fair. Communication needs to be timely, personal and delivered via the customer's preferred channel. Increasingly this will mean investment in smart digital solutions that allow customers to self-serve in order to deliver the immediacy and personalisation that they have come to expect in other areas of daily life.

Utilities companies have a lot of work to do catch up digital pioneers, which have the systems agility to innovate rapidly and develop self-serve portals and chatbot channels

Incumbent utilities companies have a lot of work to do catch up digital pioneers, which have the systems agility to innovate rapidly and develop self-serve portals and chatbot channels. The good news is that many customers will be happy if their providers get the basics right: accurate, timely and compliant billing and a good range of channels to rapidly resolve any issues. This work can start now, laying the customer experience foundations on which utilities companies can then build a suite of digital services that foster engagement and add value to daily life.

Founded in 2003, Itineris provide innovative software solutions for the global utilities market. Our market-leading billing and CIS platform, UMAX 365, is a vertical solution based on Microsoft Dynamics 365, providing a highly secure cloud solution that is easily scalable via Azure. By leveraging Microsoft Dynamics 365, UMAX 365 enables your business to be at the forefront of digital innovation and customer insight, ensuring you have a future-proof platform with market-leading technologies. In addition to offering complete prospect-to-cash and customer management functionality, UMAX 365 provides powerful utility and role-specific workflow and automation, designed to eliminate repetitive manual tasks and allow staff to focus on value adding activities. We have a proven track record of successful implementations – we have never failed a UMAX project - varying from millions of billing points per instance to smaller, complex projects. Our customers include SSE Business Energy (UK), Gazprom Energy (UK), New York City Water (North America) and The Watergroup (Belgium).



IBM

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Revolutionising infrastructure asset management

With the hype cycle now raving about AI, edge computing and distributed cloud, the Internet of Things no longer gets the attention it used to, or that it deserves. For with sensors growing in functionality and falling in price, the introduction of 5G connectivity and increased investment in data analytics capabilities, the IoT has the potential to revolutionise many aspects of day-to-day life in our homes, our workplaces and our cities.

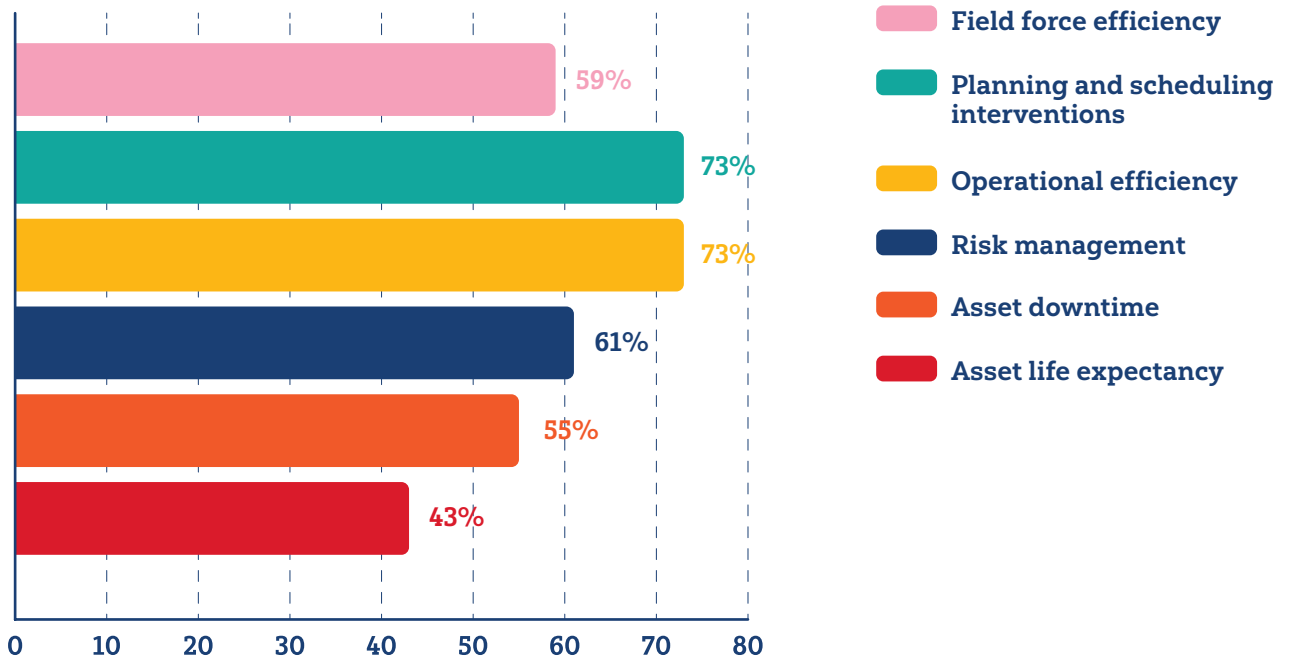
It's a revolution that will have the most profound impact on enterprises and industry, making operations smarter, safer and more efficient. According to Gartner, the utility industry will be the highest user of IoT endpoints, with connections set to surge 17per cent in 2020 to total 1.37 billion endpoints[10]. This increased connectivity will give the industry an unprecedented level of insight into the real-time performance of far-flung or difficult to access assets, whether it's sensors in turbine blades or drone on high voltage lines. Rather than reactive interventions to reports of equipment failure, the data-empowered utility will be able to anticipate failures, take pre-emptive action and prioritise workflows to optimise uptime and minimise costs.

There is ample evidence that better use of data is yielding real bottom-line benefits for early adopters. Case studies cited by IBM include a power-generation utility that reduced planned overhauls by five per cent and eliminated five per cent of forced outages, saving US$4.6 million a year and an electric and water utility that achieved a 25 per cent reduction in inventory, yielding US$33 million in savings[11]. Little wonder, our surveyed utilities executives are virtually unanimous (99 per cent) that digital technology has the potential to revolutionise asset management.

> **73% expect that the planning and scheduling of interventions and operational efficiency will be transformed significantly over the next five years**

The digital revolution is expected to have the biggest impact on planning and scheduling interventions and operational efficiency, cited by almost three-quarters (73 per cent) of our respondents as the areas of asset management expected to experience significant transformation in the next five years.

How significantly do you think the following areas of asset management will be transformed over the next 5 years?



[10] *https://www.gartner.com/en/newsroom/press-releases/2019-08-29-gartner-says-5-8-billion-enterprise-and-automotive-io*

[11] *https://www.ibm.com/downloads/cas/BKOVO92L*

[12] *https://www.stwater.co.uk/news/news-releases/severn-trent-creates-machine-learning-to-help-tackle-leakage-by-/*

An appetite for data

By gathering more data more efficiently, from sensors, drones or other datasets, and then feeding it into advanced models, the digital utility can predict the probability of asset failure and target interventions to those assets that need it most. FTSE 100 water company Severn Trent, for example, created an advanced leakage detection model that used machine learning and vast amounts of flow and pressure data – some five billion data points – collected by sensors on its network of pipes. The results from the pilot were impressive: the machine learning model halved the time to find leaks, enabled engineers to pinpoint leaks more accurately and resulted in a leakage reduction of over 16 per cent in the pilot areas[12].

This strategy doesn't necessarily rely on the installation of an extensive network of sensors: predictive analytics and artificial intelligence (AI) can be used to find patterns, detect anomalies and make highly nuanced predictions when fed with data from diverse and vast data sets. United Utilities tested an AI platform that accessed large data sets on factors such as weather, demand for water, pump performance and electricity prices in order to make smarter decisions about the most cost-effective and efficient way to run pumps, detect burst pipes and minimize the risk of discoloured water, generating energy savings of 22 per cent in just three months[13].

Energy companies are also enjoying operational savings as a result of data-driven decision-making. In examples cited by McKinsey & Co, one transmission operator achieved a 10 to 15 per cent saving on circuit-breaker maintenance by rescheduling inspection frequency and another saved 10 to 15 per cent of its maintenance spending on distribution feeders by delaying inspections in areas with very low probability of failure[14].

The industry isn't just chasing ways to save money. Our survey shows that the main drivers to improve asset management are the need to address the public's environmental concerns, whether it's managing water leaks or accommodating increased renewable energy generation, and the ability to meet increased demand as a result of demographic and environmental pressures.

This is a huge issue for electricity companies, which are under enormous pressure to deliver the network capacity for the planned electrification of transport and heat. With the Government recently bringing forward the ban on the sale of new petrol and diesel vehicles from 2040 to 2035, networks now have just three price reviews to deliver a significant increase in peak capacity. The pressure to squeeze every extra watt from the system is now on – and this means no company can afford to ignore the efficiency and resilience gains of investing in sensors, data analytics, automation and AI.

The analytics gap

66% think improved analytical capabilities will be very important to enable improvements in asset management

> **74% believe although sensor costs have fallen significantly, they need to decrease further to make full implementation viable**

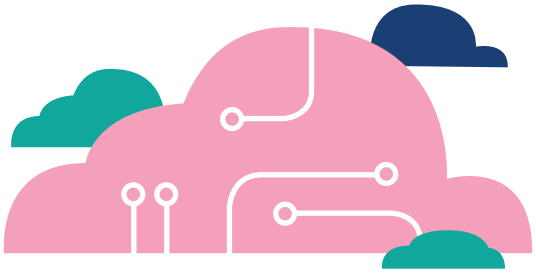
To realise the potential of new technology to improve asset management, companies will need to make good an investment shortfall. Two-thirds (66 per cent) of our respondents, for example, think it will be very important for utility companies to improve their analytical capabilities to deliver improvements in asset management. There will also need to be increased investment in sensors, although our findings suggest costs are still acting as a deterrent: three-quarters (74 per cent) of our respondents believe despite already significant falls in sensor costs, they will need to decrease further to make full implementation viable.

[13] *https://www.unitedutilities.com/corporate/newsroom/latest-news/united-utilities-signs-ai-deal-in-uk-first/h*

[14] *https://www.mckinsey.com/~/media/McKinsey/Industries/Electric%20Power%20and%20Natural%20Gas/Our%20Insights/The%20Digital%20Utility/The%20Digital%20Utility.ashx*

24% currently have no plans for a widespread sensor installation program

Indeed, despite the general unanimity of the industry that digitisation will transform operational performance, our findings indicate a lack of urgency to execute a digital programme over the next five years amongst some companies. Although sensors will be the eyes and ears of the digital utility, just 18 per cent of our surveyed organisations are currently implementing widespread sensor installation with another 20 per cent planning for implementation in the next five years – and while another four out of ten are at the pilot stage, 24 per cent, nearly one in four of our surveyed organisations, currently have no plans for a widespread sensor installation program.



73% are already implementing or planning to implement cloud information management over the next five years

When it comes to some of the core technologies for digital transformation, namely cloud computing and predictive analytics, we find the majority of the industry is making progress: nearly three-quarters (73 per cent) of our surveyed organisations are already underway or planning to implement cloud information management over the next five years and just over half (52 per cent) are at the same stage with their predictive analytics investments.

It is, however, a story of piecemeal progress. Robotic Process Automation (RPA) is a type of intelligent software that automates and streamlines many back office functions, improving the accuracy and speed of many repetitive processes. It can reduce costs while freeing up human agents for more complex value-added tasks. The benefits can be compelling. United Utilities, for example, has been pioneering RPA since 2017, when it automated the process of sending text messages to customers when an engineer is due to visit. With about 200 messages sent out per day, it previously took eight people, covering different areas, to work the process manually. Now, one robot spends 30 minutes a day on this process, saving 2,000 hours in a year and freeing up those staff to spend more time engaging with customers. Little wonder the utility has automated 20 processes through RPA, with another 12 in development[15].

41% have no plans to implement robotic process automation

Despite these gains, just 37 per cent of our surveyed utility companies are already implementing or have plans to implement RPA over the next five years with 41 per cent admitting they have no plans to implement this potentially transformative tool.

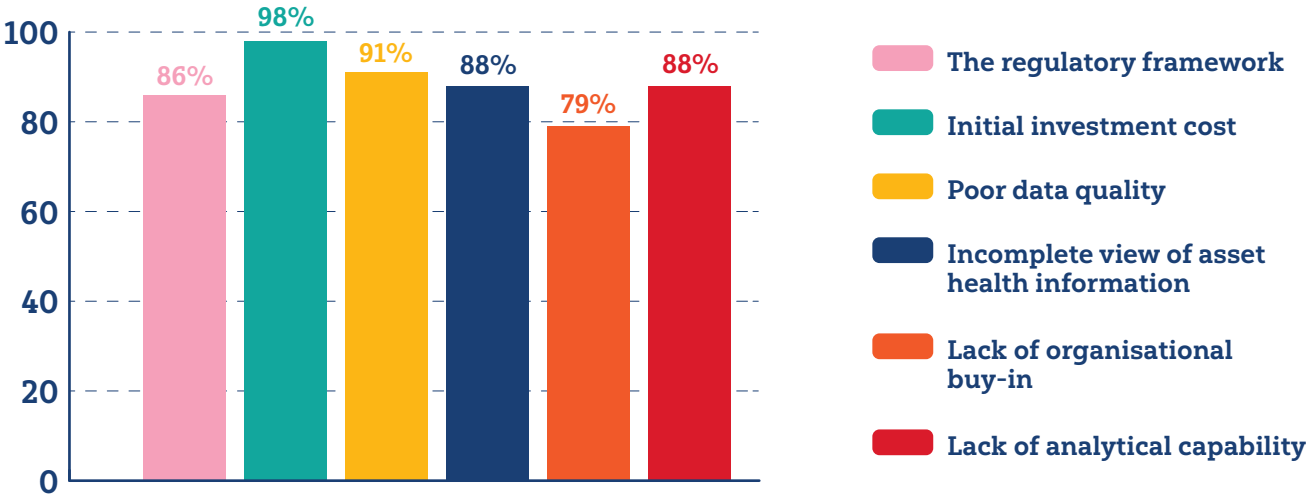
It's not just RPA where investment is lagging. Even when it comes to utility-specific technologies, such as digital field solutions and connected planning, roughly one-in-five admit they have no implementation plans over the next five years.

[15] *https://www.computerweekly.com/news/252458929/United-Utilities-RPA-crack-team-makes-early-gains*

Barriers and roadblocks

Upfront investment costs are cited as the biggest barrier to improved asset management. It's clear that utilities are keen for sensor costs to fall further before investing in widespread roll-out, even though this is an investment that would overcome two further barriers, namely an incomplete view of asset health information and poor data quality [Graphic Q33]. The cautious approach to investment is partly attributed to a lack of organisational buy-in, cited as a barrier by one-in-four respondents, and also the regulatory framework under which companies operate, cited by 28 per cent.

To what extent are the following barriers to improvements in your asset management strategy?



> **74% agree that the current regulatory framework does not adequately facilitate innovation**

> **82% think regulators often demand big improvements in asset management but too often fail to approve improvement projects in business plans**

Indeed, our survey finds that almost three-quarters of respondents (74 per cent) agree that the current regulatory framework does not adequately facilitate innovation while more than eight out of ten (82 per cent) think regulators often demand big improvements in asset management but too often fail to approve improvement projects in business plans, no doubt reflecting the water industry's criticism of Ofwat's PR19 price review.

> **87% believe that in ten years' time, those companies that fail to manage their assets digitally and pro-actively will be unfit for purpose**

Given the slow pace of implementation and the perception that the regulator acts as a brake on investment, it seems the transition towards smarter, more efficient asset management will be far from easy and will take time. Indeed, when asked when they expect their own company's asset management operations to be fully digital and pro-active, the most common time frame, cited by almost six out of ten (58 per cent) respondents, was in ten years' time.

Yet this comes despite 87 per cent of our respondents believing that in ten years' time, those companies which fail to manage their assets digitally and pro-actively will be unfit for purpose. Given the potentially transformational improvements in asset management that digital technology can deliver, there is no time to waste.

The IBM view

Revolution is a strong word but, as this survey shows, that is exactly what digitisation is unleashing in asset management. Change was coming anyway: ISO standards for asset and risk management have put asset management on the C-suite radar while the pressures of aging assets and a transitioning workforce (or, an aging workforce) threaten to stretch maintenance capabilities to their limits. Add to this the seismic disruption of the energy transition, which will see asset management on the front line of the Net Zero agenda.

These trends have converged with rapid advances in digital technology. From sensors to advanced analytics, utilities are making step-changes in their visibility and understanding of asset condition while advanced analytics platforms make it possible to optimise operations, cut costs and minimise risks. Many utility companies have employed scores of data scientists and established innovation centres in order to leverage these technologies to deliver enterprise-wide change.

With utility companies under huge pressure to help decarbonise the economy, now is the time to fully embrace the digital revolution to deliver the promise of a greener, more sustainable future for everyone

This goes hand-in-hand with a changing corporate culture, one that encourages innovation and fosters collaboration. Frontline workers are empowered to make better decisions, as advanced algorithms augment human experience and deliver swifter, safer interventions across the network.

With utility companies under huge pressure to help decarbonise the economy, now is the time to fully embrace the digital revolution to deliver the promise of a greener, more sustainable future for everyone. Such is the scale and urgency of the challenge. The Future is now and IBM is ready to assist utility companies today.

IBM enables clients to improve the operational efficiency of their physical assets and reduce costs through the power of IoT data and artificial intelligence. By collecting and curating data from billions of connected devices, sensors, and systems worldwide, we empower enterprises to derive new insights from their equipment, vehicles and facilities. With more than 6,000 client engagements in 170 countries, an ecosystem of 1,400 partners, and 1,300 IoT-related patents in our portfolio, our industry expertise, leading security, and solutions built for a hybrid cloud environment firmly establish us as a leader in IoT.

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Information Builders

Chapter sponsor

Realising the opportunities of data

There has never been so much data so readily available to companies. People, vehicles, enterprises and devices have become data factories, pumping out huge trails of data, from social media postings to unstructured text in emails and documents to data from connected homes and industrial plants.

Yet all this data is meaningless without a means to analyse and extract meaning from it. According to one survey, 55 per cent of all data collected by companies is so-called "dark data" which they either have captured but can't use or data they are not sure they have[16]. Indeed, studies suggest that many utility companies are struggling with the quality and reliability of their existing data sets, which may include records that are inaccurate, incomplete or even analogue[17].

This matters because it leaves businesses blind to the realities of their operations, their customers behaviours and experiences and the threats and opportunities that may be emerging.

When it comes to utility companies, with vast infrastructure networks, mass customer bases and complex regulatory codes to comply with, the right data in the right hands has the potential to transform operations. (Q30a) More than nine out of ten (93 per cent) of our respondents agree that data will be the key to unlocking efficiency savings. Indeed, early adopters are already generating significant savings: IBM cites a power-generation utility that reduced planned overhauls by five per cent and eliminated five per cent of forced outages, saving US$4.6 million a year[18]. One US utility analysed and modelled data on the pruning and removal of branches and fallen trees near distribution lines, using the insights to cut the hundreds of millions of dollars spent on contractors by 25 per cent[19].

Data also looks set to revolutionise how utility companies interact with their customers. Indeed three-quarters (74 per cent) of our respondents think the influx of data is driving utility companies to step-up their customer service strategies. After all, it's beyond complacent to continue with sub-par service when structured and unstructured data provides greater insight into the deficit between customer expectations and their actual experience.

> **86% agree that the influx of customer data will transform the industry forever**

Utility companies routinely score poorly on customer satisfaction indices and, as Citizens Advice, the industry's customer service watchdog, continues to highlight, some are still failing even on the basics. Bill errors are the most common complaint for consumers, ahead of the way complaints are handled and phone waiting times, while consumers said their preferred contact method is the telephone, which they expect to be answered within five minutes[20]. Utility companies that lack data on customer expectations, preferences and experiences will continue to underperform. Little wonder almost nine out of ten (86 per cent) of our respondents agree that the influx of customer data will transform the industry forever.

However, unless the industry invests in analytical capacity, this potential will be squandered. Indeed, virtually all (99 per cent) of the respondents to our survey agree that utility companies need to adopt new strategies to handle the increased amounts of data that are now available.

New solutions to old problems

The good news is there are multiple tools to help utility companies get their data into good shape. Data-validation algorithms can flag anomalies, heuristic algorithms can plug data holes, optical character-recognition techniques can digitise documents even if they are in poor condition while natural-language processing tools can capture data from free text or voice calls. And it's never been easier for companies, even those struggling with complex legacy systems and silos, to access these tools: data management platforms with pre-built interfaces can provide data integration, data quality and master data management solutions with powerful predictive analytics and customisable apps and portals so that non-technical users can rapidly gather insights to make smarter data-driven decisions.

The results can be compelling. One US-based utility serving 1.1 million electric and 790,000 natural gas users used a new data management and governance system and advanced analytics to handle increasing call volumes – around four million a year – and to provide better service when things went wrong. The increased ability to tap data to make smarter decisions and streamline processes for customers, by increasing opportunities to self-serve for example, led to a seven per cent reduction in the amount of time customer care agents spent on the phone with customers, a 13.6 per cent decline in customer calls to call centres and savings of US$1 million annually due to reduced call load[21].

[16] *The State of Dark Data, Splunk*

[17] *The Digital Utility, McKinsey, 2018 "Most operators tell us their data is scarce, patchy, or not even digitized."*

[18] *https://www.ibm.com/downloads/cas/BKOVO92L*

66% think improved analytical capabilities will be very important in enabling improvements in asset management

It is not just front-line experiences that will be transformed by the explosion of data. Asset management has the potential to be revolutionised by a wide range of new data sources, from sensors on pump stations and wind turbines, drone inspections, weather stations and flood databases. The raw data from these devices is not enough on its own, however: two-thirds of our respondents agree that improved analytical capabilities will be very important in driving improvements in asset management.

The analytics deficit

89% agree that when it comes to advanced analytics, the utilities industry lags far behind other sectors, such as financial services

Yet it seems the industry is facing a clear data and analytics gap. Almost all our respondents (99 per cent) think utility companies need to adopt new strategies to handle the increased amounts of data that are now available and 89 per cent agree that when it comes to advanced analytics, the utilities industry lags far behind other sectors, such as financial services.

Indeed, our research shows that utility companies are struggling with many of the basics of data management, with information silos and unstructured data cited as the biggest barriers to making good use of customer and asset data. These issues go to the heart of a data analytics strategy. Today's digital enterprises use data to create a holistic view of their customers and operations because this is where the value lies; data siloes mean organisations are making decisions without a real understanding of the issues and opportunities they face. These silos undermine efforts to encourage customer-centric innovation and limit efficiency savings. They also foster siloed thinking and inhibit collaboration, making it difficult to drive real change. These issues are not unique to the utility industry but other industries are making faster progress in addressing them. In banking, for example, increased investment in cloud services and advanced analytics along with new organisational approaches favouring multi-disciplinary collaboration and problem-solving, have resolved legacy and silo issues that were holding back customer-centric innovation[22].

Increased investment

47% expect to make a significant increase in investment in analytical capacity over the next three years

With 97 per cent of our respondents agreeing that unless companies commit to investing in analytical capacity, they will not obtain the full benefits of increased access to data, it's reassuring to see the industry is now shifting up a gear to accelerate its analytics capabilities. According to our survey, over half of our surveyed utilities are investing in big data and 47 per cent expect to make a significant increase in investment in analytical capacity over the next three years.

29% have little or no confidence at all in their organisation's ability to make the most of customer and/or asset data

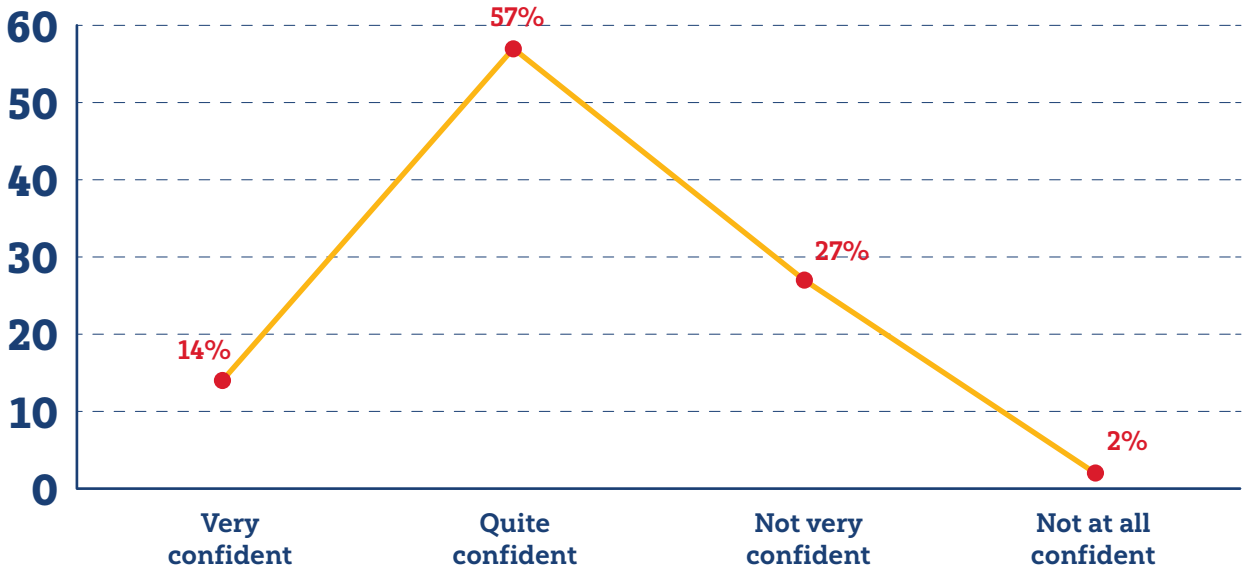
[19] *https://www.mckinsey.com/~/media/McKinsey/Industries/Electric%20Power%20and%20Natural%20Gas/Our%20Insights/The%20Digital%20Utility/The%20Digital%20Utility.ashx*

[20] *https://www.citizensadvice.org.uk/about-us/how-citizens-advice-works/media/press-releases/energy-customers-still-struggling-to-get-accurate-bills-says-citizens-advice/*

Is this too little too late? Despite the increased investment coming down the pipe, only 14 per cent of our respondents were very confident their organisation's ability to make the most out of its access to customer and/or asset data, 57 per cent were quite confident and almost three out of ten (29 per cent) had little or no confidence at all.

Those that can leverage the new data economy to transform their operations will increasingly start to outstrip rivals, both in terms of efficiency savings and customer experience. That performance gap could quickly become a key differentiator, both in the eyes of customers and regulators. Companies keen to land on the right side of that gap should act now.

How confident are you in your organisation's ability to make the most out of its access to customer and/or asset data?



[21] *https://www.cognizant.com/case-studies/analytics-solution-utility-customer-defection*

[22] *The Future of Retail Banking 2020, MoneyLIVE, 2020*

The Information Builders view

Data is like water. It flows through the modern enterprise in all directions, from operations to the customer-frontline. It knows no hierarchy: insights generated by frontline workers can be as, if not more, powerful than those flowing from the top. It empowers workers to make better decisions and give customers more transparency and control. Like water, this flow of data invigorates an organisation, making it smarter, faster and dynamic.

Utility companies have been slow to get to grips not only with the data they already store but also with the new data sources of our connected world. This means companies are missing out on the potential to gain unprecedented insight into their operations, their assets and their customers.

By deploying the right tools to clean up these old records, identify any gaps or inaccuracies and digitise and analyse unstructured data, it will be possible to harmonise old and new data

The good news is that technologies now exist that allow utility companies to close this gap. A good starting point is to look at the data already held within the organisation, which may be held in silos or formats that are difficult to analyse. By deploying the right tools to clean up these old records, identify any gaps or inaccuracies and digitise and analyse unstructured data, it will be possible to harmonise old and new data sources and begin a data-driven transformation.

Over the last 40 years, we have seen many disruptions whereby those companies that embrace the right technology at the right time are the ones that go on to not only survive but to thrive. This means a robust data management platform that generates trusted insights to propel the company forward. Those that do not will increasingly struggle, particularly as AI and machine learning accelerate the pace of change and widen the gap between the data-haves and the data-have-nots.

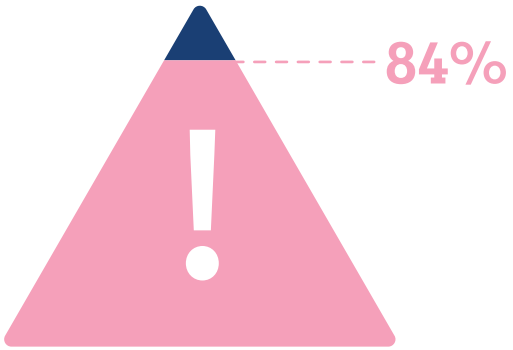
Information Builders

Information Builders helps organisations transform data into business value. Our software solutions for business intelligence and analytics, integration, and data integrity empower people to make smarter decisions, strengthen customer relationships, and drive growth. Our dedication to customer success is unmatched in the industry. That's why tens of thousands of leading organisations rely on Information Builders to be their trusted partner. Founded in 1975, Information Builders is headquartered in New York, NY, with offices around the world, and remains one of the largest independent, privately held companies in the industry.

Towards Net Zero

Since the Industrial Revolution, fossil fuels have underpinned economic growth, fuelling unprecedented gains in health, prosperity and longevity. Ending the dominance of fossil fuels without inflicting major economic damage will require a radical reshaping of the economy and society. The UK was the first major economy in the world to pass laws to end its contribution to global warming by 2050, with a commitment to bring all greenhouse gas emissions (GHG) to Net Zero compared with the previous target of at least 80 per cent reduction from 1990 levels.

This is a significant challenge. The former Chancellor Philip Hammond warned the transition will cost £1 trillion[23] although the current government believes costs will be offset by "green growth". There is plenty of opportunity in the zero-carbon transition but this is the kind of disruption that puts digitisation in the shade.



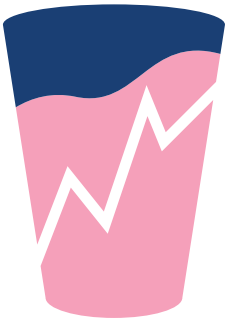
69 per cent think the utilities industry will be one of the most critical sectors in meeting the net-zero commitments

For utility companies, Net Zero is a not a theoretical concept lurking thirty years in the future: almost seven out of ten (69 per cent) of our respondents think the utilities industry will be one of the most critical sectors in meeting the Net Zero commitments.

> **"Given that current plans are designed to meet the previous target of an 80% reduction in carbon emissions by 2050, the industry now needs to have a step-change to meet the new target"**
> **-74% strongly agree**

This is a huge responsibility – with a vast price tag. Planning and investment for such a radical transformation is already underway but the industry has been working towards a target of an 80 per cent reduction in carbon emissions by 2050. Almost three-quarters (74 per cent) of our respondents strongly agree that the extra 20 per cent reduction required to hit Net Zero will require a step change.

Step change for Net Zero



Only 33% think the strategy companies must pursue to deliver Net Zero by 2050 is clear and fit for purpose

While 75 per cent agree that achieving Net Zero will require a substantial increase in the pace of change, it seems that many feel unsure where to invest their energies. Two-thirds (66 per cent) of our surveyed utility executives think the strategy to reach Net Zero by 2050 is unclear and not fit for purpose. This is worrying. Companies need certainty in order to make the right decisions and unlock investment to deliver the Net Zero agenda.

Investment in renewable energy over the past decade has been on-off-on-again as backers respond to shifts in policy, whether it's changes in subsidy schemes or planning rules. This is not unique to the UK; governments around the world are tinkering and tweaking policies to reflect political realities, changing science and the public mood. But meeting Net Zero by 2050 is a change of a different magnitude and planning and investment needs to start now, with the certainty that early investments will not be penalised by later policy shifts.

> **87% think current regulation needs to change**

[23] *https://www.ft.com/content/036a5596-87a7-11e9-a028-86cea8523dc2*
[24] *National Grid, Future Energy Scenarios*
[25] *https://www.theccc.org.uk/wp-content/uploads/2019/05/CCC-Accelerated-Electrification-Vivid-Economics-Imperial-1.pdf*

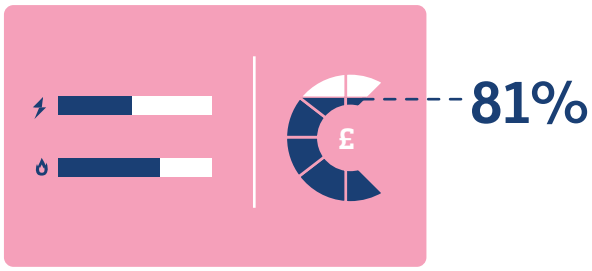
Our survey shows new regulations may be needed to provide clear direction through this huge transition, with 87 per cent of respondents agreeing that current regulation needs to change while 96 per cent think investment in a wider range of decarbonisation solutions needs to become economic to achieve Net Zero.

Smart metering

Smart meters are an enabling technology for the energy transition, enabling householders to gain better visibility of their energy usage and reduce wastage. Importantly, smart meters also open the door to innovations like time-of-use tariffs and dynamic pricing for electric vehicle charging. This is vital because industry forecasters believe that not only will the measures to achieve Net Zero, such as the electrification of heat and transport, require a dramatic increase in capacity from 103 GW today to 268 GW in 2050[24], but peak demand will double without incentives to reduce it.

95% think time-of-use tariffs will be essential to demand side response

Analysis shows that up to 53 per cent of residential electricity demand, 32 per cent of commercial electricity demand and 22 per cent of industrial electricity demand are potentially movable[25] and tariffs that encourage this spreading of the load will be key to ensuring the resilience of the grid. Our respondents agree, with 95 per backing time-of-use tariffs as essential to demand side response.



81% agree there's now a significant risk that the smart metering implementation programme will not achieve a sufficient penetration level to enable the necessary changes in the electricity system

Yet the smart meter roll-out has been plagued with delays, cost-over-runs and complaints that the meters are not so smart after all. The timeline has been extended again - suppliers now have until the end of 2024 to install smart meters in at least 85 per cent of their customers' homes – and the cost of the programme has swollen to more than £13 billion, up from the previous estimate of £11 billion. Four out of five (81 per cent) of our surveyed utilities think there's now a significant risk that the smart metering implementation programme will not achieve a sufficient penetration level to enable the necessary changes in the electricity system.

[26] *https://www.carbonbrief.org/analysis-uk-renewables-generate-more-electricity-than-fossil-fuels-for-first-time?utm_content=buffer92635&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer*

[27] *https://www.energy-uk.org.uk/files/docs/Research%20and%20reports/DeliveringthepotentialofFlexibility.pdf*

Integrating renewables onto the system

Renewables have been a success story to date but there's no room for complacency: low-carbon electricity output from wind, solar, nuclear, hydro and biomass rose by just 1 terawatt hour in 2019[26], the smallest annual increase in a decade. This could be about to change: in March 2020 the government announced plans to allow onshore solar and wind to compete in future Contract for Difference auctions, the next of which is scheduled for 2021. This move could boost generation while also lowering bills: some modelling suggests that onshore renewables are now the cheapest option for new capacity even when grid balancing costs are considered.

84% agree that electricity networks are not prepared to deliver the level of flexibility necessary for the system to handle increasing proportions of intermittent generation

There's certainly a growing urgency to act if the UK is to increase capacity: most nuclear plants are set to retire in the 2020s and the grid will also need to gear up to support the electrification of the heat and transport sectors, a radical shift that will be essential to achieve Net Zero. This shift not only has implications for peak load but will also require a system with the flexibility to handle the intermittency and distributed nature of renewable sources of generation.

Worryingly, however, 84 per cent of our respondents agree that electricity networks are not prepared to deliver the level of flexibility necessary for the system to handle increasing proportions of intermittent generation. Industry groups argue that robust competitive markets for flexibility will be essential to keep bills down during the transition and ensure security of the energy system[27]. This is backed by our findings, with nine out of ten agreeing that the continued integration of renewable energy onto the system will fail if the industry fails to establish a robust market for flexibility. Overcoming these challenges will require increased collaboration with third parties like technology providers and local councils – indeed, 95 per cent of respondents said this will be crucial to deliver the necessary level of flexibility.

> **"Storage technologies are not yet economic enough to facilitate the scale of rollout that is required" – 88% agree**

Key to this is storage, which has lagged other renewable energy developments yet is essential to further market penetration in advanced economies. Storage is now playing catch up - there has already been an 80 per cent fall in the cost of battery storage, new technologies are being advanced all the time, and the 35 million EVs expected to be on UK roads by 2050 could, through vehicle-to-grid technology, provide essential grid balancing – but there's still much work to be done. Almost all (98 per cent) of our respondents agree that delivering the increased capacity necessary to adapt to peak demands will be impossible unless storage is adequately integrated onto the system and 88 per cent think that storage technologies are not yet economic enough to facilitate the scale of rollout that is required. More investment is required, and fast, to deliver the decarbonisation agenda.

The future of heat and transport

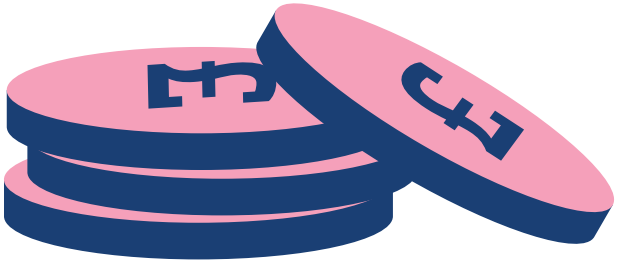
Net Zero will not happen without decarbonisation of the heat and transport sectors. Nearly half the energy used in the UK is for heating, more than that used to produce electricity or for transport. There are a number of options to decarbonise heat, including improved energy efficiency, introduction of low carbon gas, such as biomethane, into gas grid, electrification of heating,

[28] *https://cleantechnica.com/2019/09/05/57-of-uk-consumers-consider-buying-electric-vehicles/*

development of heat networks and hydrogen networks. Given its clean-burning properties, the hydrogen economy has long been discussed by scientists and environmentalists but has only recently started to make more headway, although significant barriers still lie ahead from a technology, sustainability, cost and safety perspective. Even so, 90 per cent of our respondents think hydrogen will be somewhat important in the future of heat, which is astonishing for a technology yet to be tested at scale; indeed, 42 per cent think it will be very important to heat in the future.

The electrification of transport is already underway, with the government recently bringing forward the ban on the sale of new diesel and petrol cars and, against the backdrop of a depressed new car market, sales of electric vehicles surged 144 per cent in 2019. Surveys suggest more than half of UK consumers would buy an electric car but were being held back by price and concerns about battery charge and range[28]. That certainly chimes with thinking in the utility industry, with our respondents identifying the biggest barrier to the uptake of electric vehicles as the rollout of charging infrastructure, followed by vehicle cost and range anxiety.

The capacity gap



Just 30 per cent think there's a good strategy to achieve the necessary increase in capacity over the next 30 years...and 63% think that even with a fully developed plan, it will be near impossible to achieve the necessary increases in capacity over the next 30 years

There's little doubt that the electrification of heat and transport will require a substantial increase in the capacity of electricity networks over the next 30 years but, as our survey shows, just three-in-ten utility company executives think we have the right strategy to achieve this. More worryingly, even with a fully developed plan, 63 per cent think it will be near impossible to achieve the necessary increases in capacity over the next 30 years.

> **95% agree that the general population are unprepared for the lifestyle changes that are necessary to meet Net Zero**

Net Zero, however, isn't just about signing up for smart meters and buying electric cars. The UK, indeed the world, cannot consume its way out of climate change. Consumers like to talk about making sustainable choices but many facets of modern life, such as warm homes, international travel, video streaming and out-of-season foods, all come with a high environmental price tag. Little wonder 95 per cent agree that the general population are unprepared for the lifestyle changes that are necessary to meet the target.

> **"In order to make the achievement of the Net Zero target acceptable to the consumer, changes must be sensitive to lifestyle concerns and executed at a reasonable cost"**
> **-93% agree**

This is compounded by the fact that NetZero will not come at zero cost to the consumer, with 94 per cent expecting an increase in consumers' utilities bills. This must be kept front of mind throughout the transition because unless changes are sensitive to lifestyle concerns and executed at reasonable cost, consumers may not accept them, putting Net Zero at risk. This will be particularly the case when it comes to vulnerable and low income customers and utility companies will have a responsibility to make sure the achievement of Net Zero not only brings about a greener society but a fairer one too.

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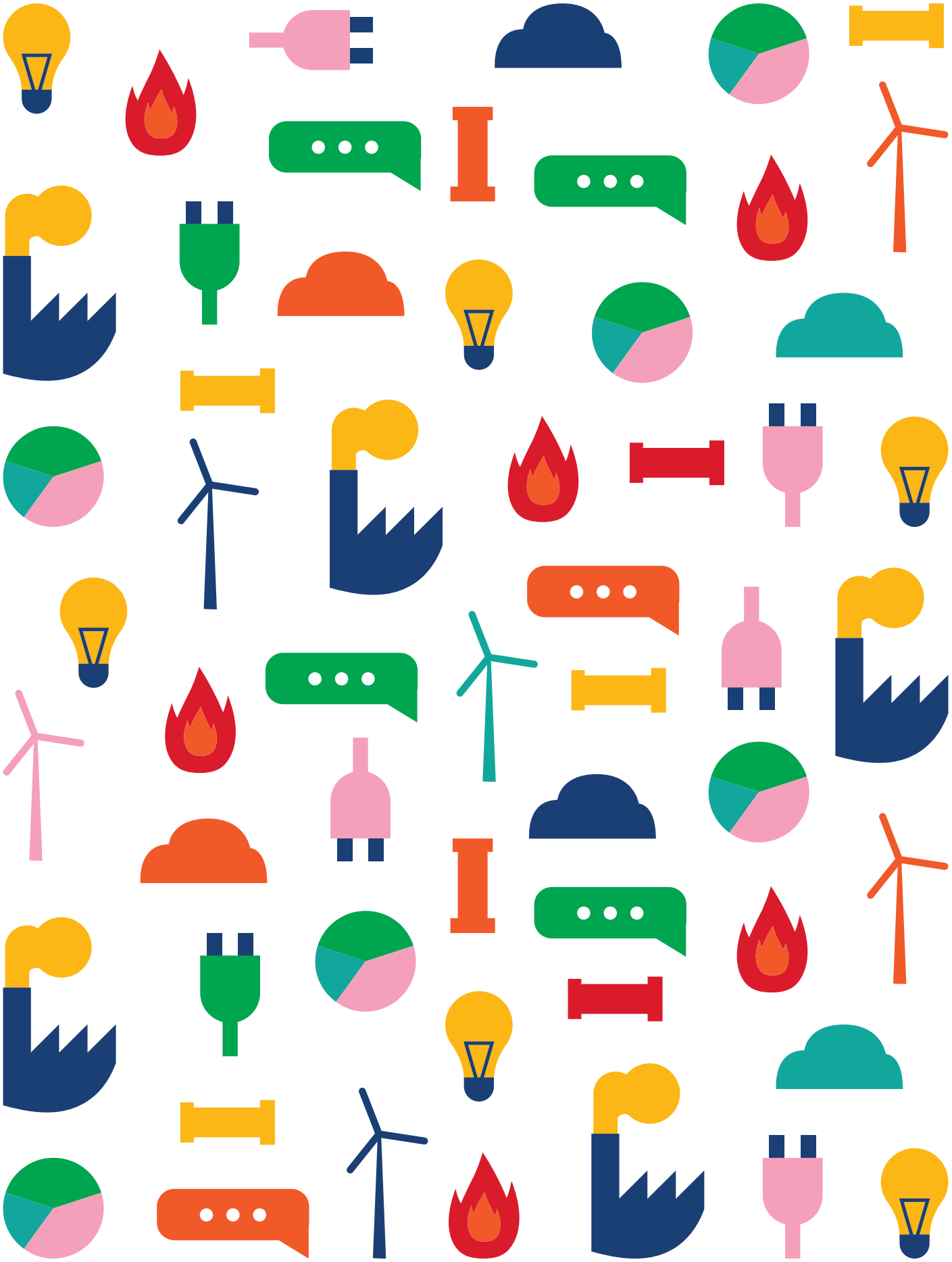

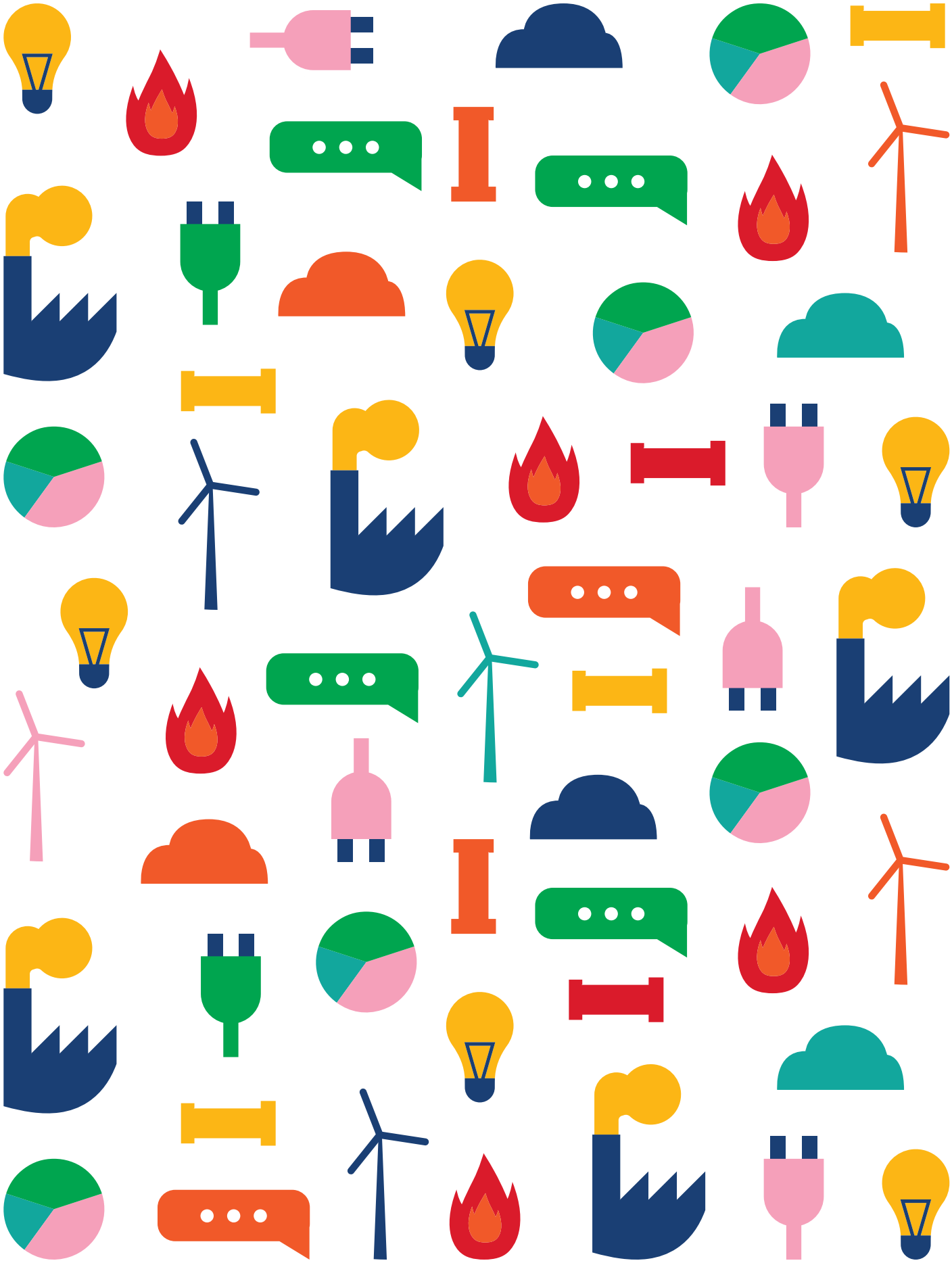

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