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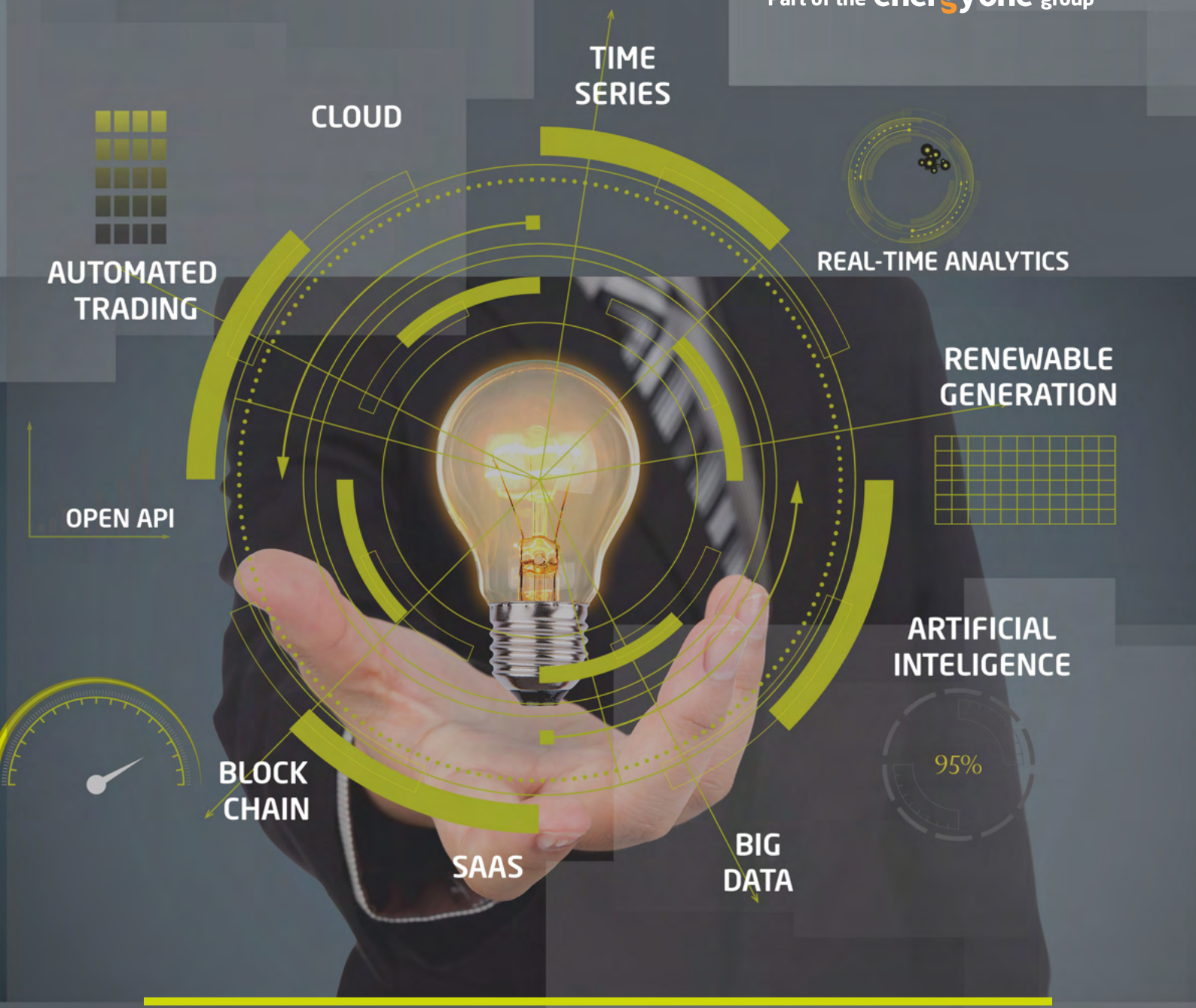
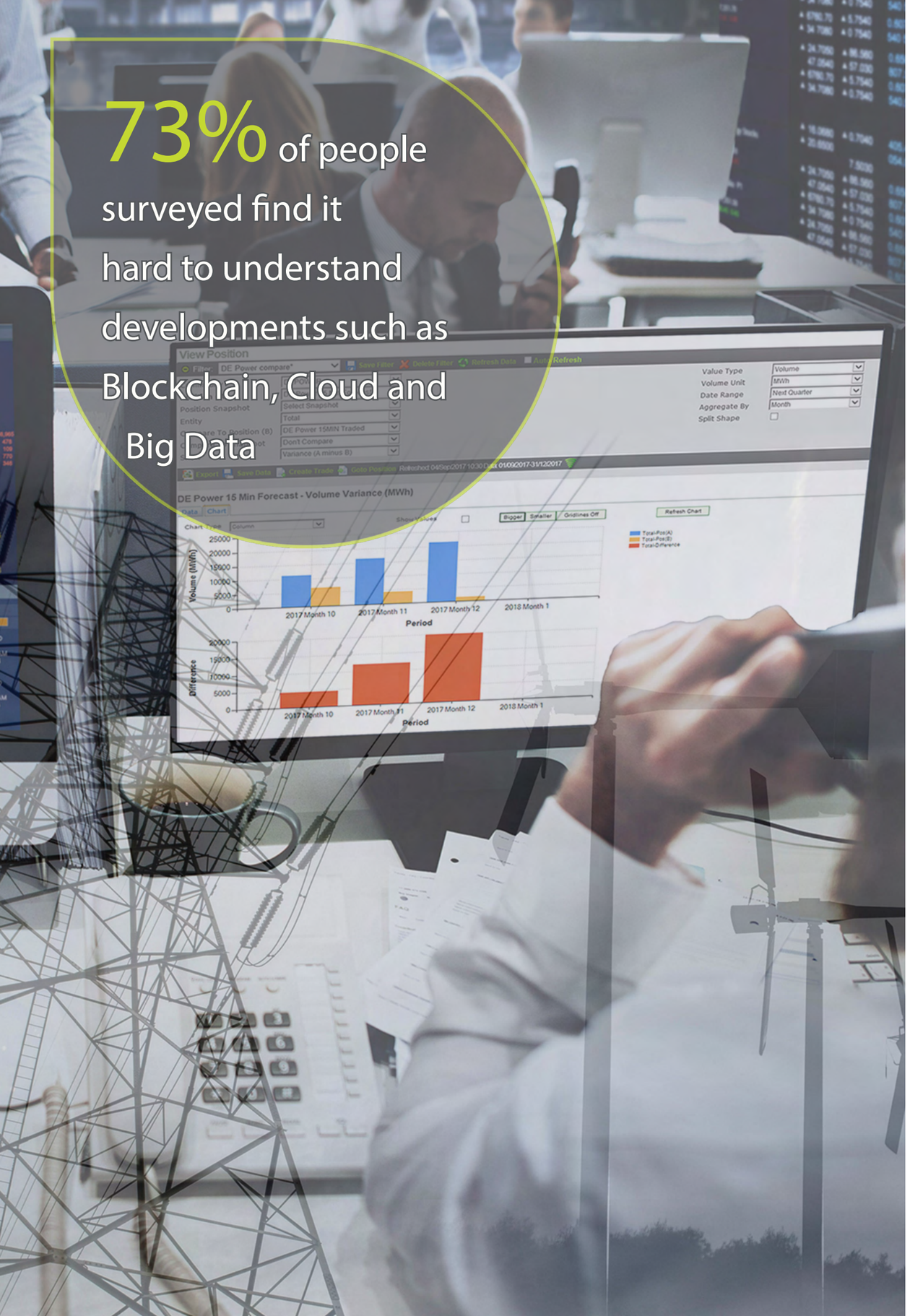


ENERGY TRADING – MAXIMISING PROFIT AND MINIMISING RISK IN THE AGE OF CHANGE



ENERGY TRADING – MAXIMISING PROFIT AND MINIMISING RISK IN THE AGE OF CHANGE

How quickly can your business adapt to new legislation, trading patterns, opportunities and emerging technologies? Can it move rapidly, increasing revenue and reducing risk, or will it be left behind?

This paper looks at the changes impacting on energy trading and what businesses need to consider in order to future-proof their systems - from pricing volatility, to the move to day ahead and intraday trading, innovations such as Cloud, Blockchain and Big Data, as well as regulatory changes. It outlines the changes that businesses can respond to and take advantage of in order to maximise profit, minimise risk and stay ahead of the competition.

It has been written following 'Future of Energy Trading'[1] research, conducted by Contigo, which found that, while the majority of those surveyed believe changes in the energy sector create exciting opportunities, they also think many in the sector are finding it hard to understand developments such as Blockchain, Cloud and Big Data. The research also found that more than half of respondents believe many trading businesses do not have the systems in place to meet all the demands of the changing energy market place, as well as highlighting their views on the most important changes likely to take place over the coming years.

The Changing Energy Market

There are a number of factors impacting on trading security and practices, with the changing generation landscape and the increasing focus on renewables being perhaps the most significant. Indeed, in Contigo's 'Future of Energy Trading' research, increased renewable generation was highlighted by 64 per cent of respondents as one of the changes likely to have the most impact on energy trading over the next five years.

Renewables are now a vital part of the UK's energy mix, and have hit new record levels on the back of a surge in capacity and high wind speeds. The Energy Trends Report, published by the Business, Energy and Industrial Strategy (BEIS) department in March 2018[2] shows that overall renewable generation increased from 83.2 TWh in 2016 to 98.9 TWh in 2017, an 18.8 per cent jump. Renewables comprised a record 28.1 per cent of gross electricity

consumption, up 3.5 per cent compared to 2016.

According to a study published in November 2017 by Bloomberg New Energy Finance[3] , renewable energy will account for more than half of the UK's and Germany's power supply by the mid-2020s.

The study found that the rapid growth in variable renewables will lead to much greater volatility in the power system, challenging inflexible 'baseload' generators and creating opportunities for new flexible sources.

In Germany, renewable power stations across the country are already producing power in such abundance that, on occasions, consumers are now actually paid to use power when prices go below zero. These negative prices occur when the supply of power outstrips the demand for it, and can be the result of low demand, unseasonably warm weather and strong breezes that provide a high level of power on the grid.

During 2017, Germany produced a total of 31.6 per cent of its total power needs from renewable sources, and on January 1 2018, the country set a new record by briefly covering between 95 and 100 per cent of its electricity use by renewables, for the first time ever.

The intermittent nature of renewable generation has created a shift from a stable longer-term horizon to a faster paced market, with a requirement to access data quickly and efficiently. Liquidity is closer in on the forward curve and so the emphasis for many businesses is increasingly on intra-day and day ahead trading and less on forward products.

In addition to the growth in renewables, there are other market changes that are likely to have an increasing impact on the energy market. Prosumers and aggregation businesses, in which consumers produce some of their own energy and communities come together to buy energy direct from the wholesale market are growing in number. This is being aided by generation being supported by developments in battery technology, and is likely to be assisted by developments in Blockchain. In addition, there is likely to be a growth in large industrial energy users looking to procure their own energy. In a challenging market, with margins already narrow, these market changes can only increase the requirement for energy trading businesses to operate with increased efficiency and agility.

Regulatory Change

These market changes are set against a backdrop of regulatory change and increasing compliance burdens, with 55 per cent of the Contigo research respondents agreeing that it is hard to keep up with the pace of change with regulations, trading practices and the generation mix.

Businesses need to ensure that they have a robust process for managing legislative reporting to ensure that they avoid financial penalties for breach of reporting requirements. Gone are the days when spread-sheets could meet these requirements, a view echoed in Contigo's research in which the majority of respondents (69 per cent) believe that spread-sheets are not sufficient to manage the demands of the energy sector.

The implementation of new rules can take significant in-house resource, with, in some cases the uncertainty around changes leading to systems being revised many times. The financial penalties are too high to risk data being submitted incorrectly or late and businesses should be investing in systems that will handle this effectively.

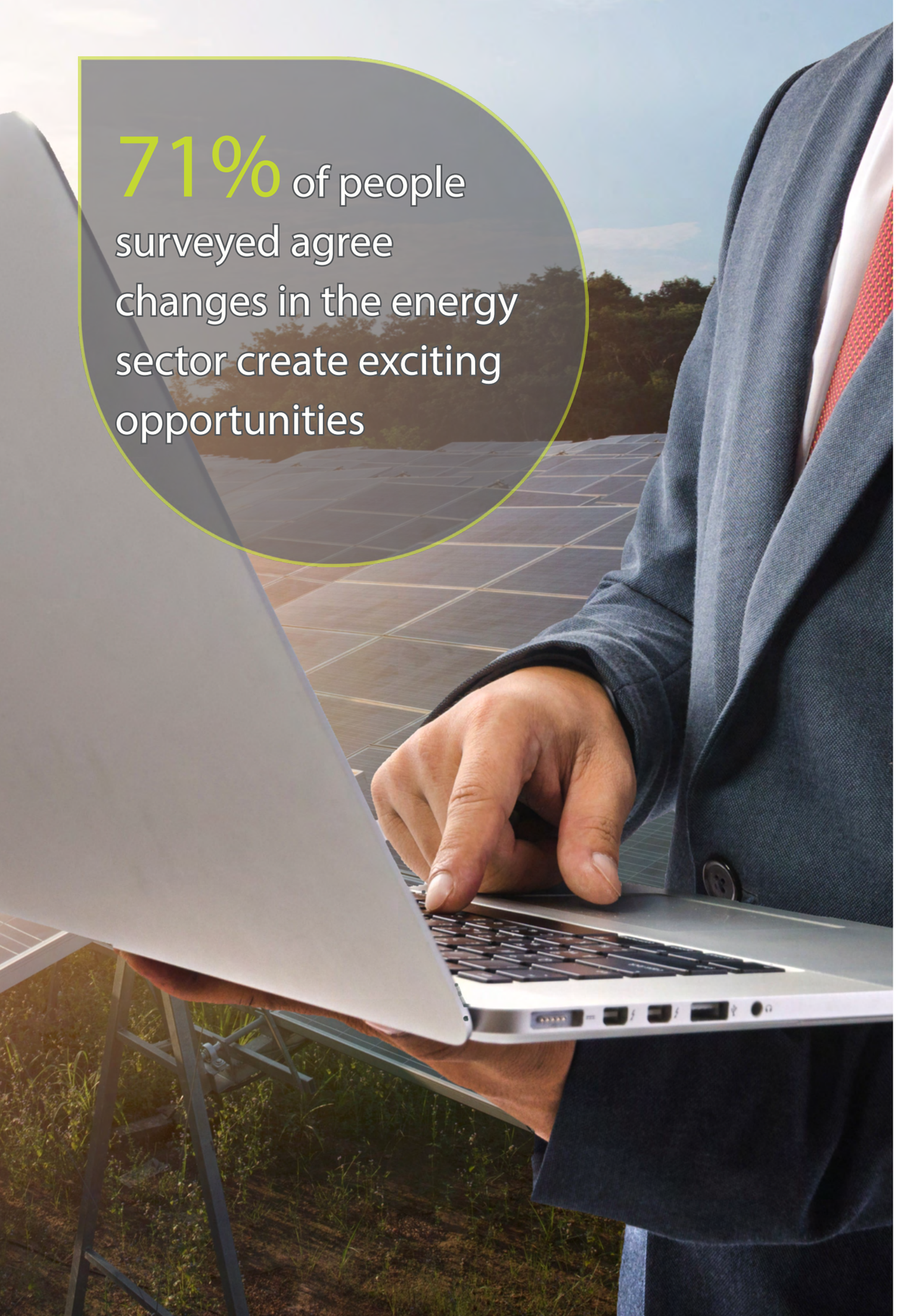
Technology Enablers

While the market is undoubtedly challenging, there are advances in technology that can assist businesses in their focus on efficiency, agility, fast-access to data and the handling of regulatory requirements.

Real-Time Data

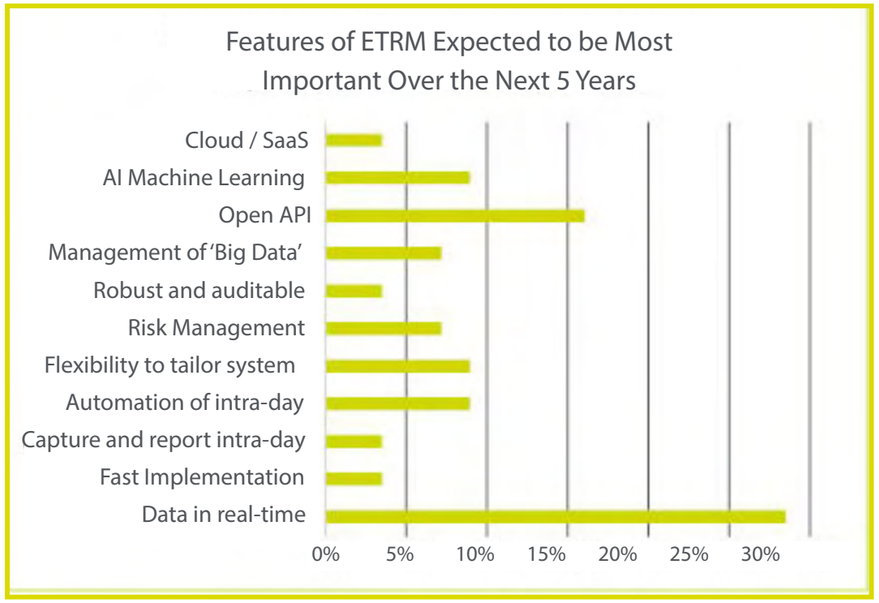
In a fast-paced market, real-time position information should be an essential component of a modern ETRM system, as businesses need to be able to access and use their data efficiently in order to maximise profit opportunities and minimise risk.

This view is backed by Contigo's 'Future of Energy Trading' research in which respondents were asked what they think will be the most important feature of energy trading software over the next five years. The feature, viewed as the most important by the largest number of respondents was the ability for data, reporting and analytics to be provided in real-time.



This is a feature that is available in some of the most modern systems, such as enTrader. These systems make use of the latest technological developments, handle data more effectively, and can provide granular trading reports in near real time. The user can view a specific snapshot of data immediately without the need to decompose data further or use additional calculations. All data is easily accessible whether it is trades, positions, volume, price track, demand or generation curves. It is captured and maintained in the system as time series data, and the system is continuously optimised to ensure the data can be imported and viewed rapidly. The time series data is held at the granularity of the specific commodity, based on calendars such as 15-minute, allowing summations of data to any level, and the ability to easily aggregate, slice and dice data.

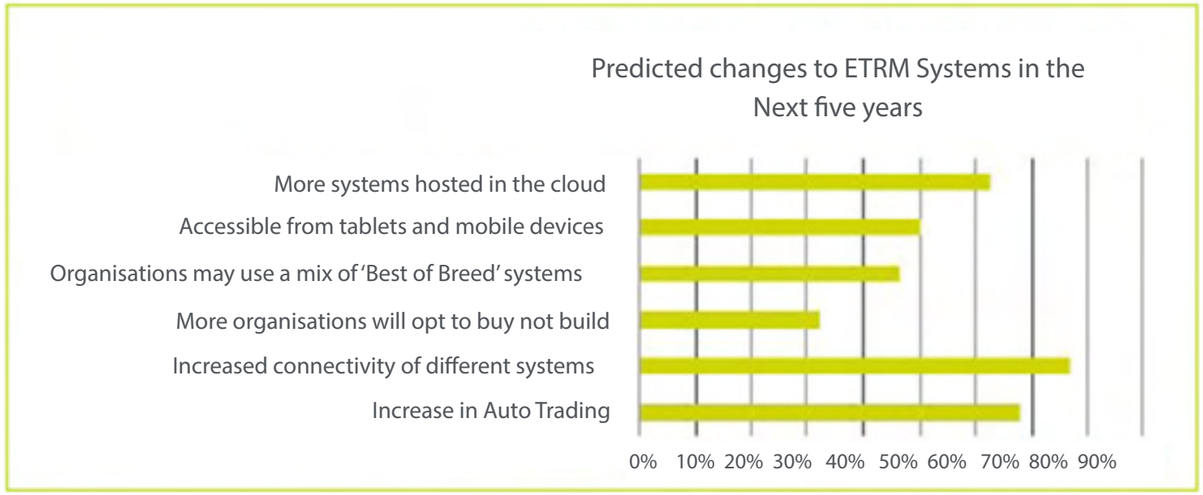
Trading systems with real-time data advanced functionality can ensure that a business understands its risk across the whole business at any time. Some systems will also offer a module to handle regulatory reporting automatically and efficiently, protecting the business from the financial penalties that can be levied for non-compliance.



Organisations should look at their systems to see if they have the architecture to achieve this important capability, as greater flexibility with fast and simple access to positon data will become even more crucial over coming years.

Open API

Contigo's 'Future of Energy Trading' research found that an open API, allowing the trading



system to be easily integrated with other systems, was ranked second in the 'most important features for energy trading systems over the next five years'. In addition, when asked how energy trading software systems will change over the next five years, the most frequently cited change, highlighted by the majority of respondents (76 per cent) was that there will be increased connectivity of different systems within an organisation.

With the research highlighting increased connectivity as an important consideration, businesses should look to procure systems with a flexible API. They can provide a raft of advantages for energy businesses, ranging from the simple integration of the ETRM system to other business systems, to the real time connections with intraday exchanges and the ability to 'plug in' big data insights, such as wind forecasting or smart metering.

An open API allows a business to seamlessly integrate all trading systems and other business systems, including trade capture, settlement and billing processes, increasing efficiency and minimizing the risk of mistakes, as manual data entry is reduced.

There is also the option to choose an ETRM system that has direct interfaces with exchanges or other execution venues, supporting automatic trade capture for the intraday and day ahead markets through exchanges. This means that customers can retrieve information from the system and see their position on a real-time basis.

There is now significantly more data available which can help businesses to inform their trading decisions and gain a competitive advantage, if they are able to gather and analyse it efficiently. A modern system with an open API will deliver a simple and low cost integration with leading data analysis tools, including wind and price forecasting systems or smart metering to provide insights for trading. It will be the companies that successfully harness these big information flows that will gain better outcomes and efficiencies, minimising risk and gaining competitive advantage.

Big Data and Artificial Intelligence

The focus is now on how information can be efficiently brought together and interpreted, with the ability to understand and leverage new technologies, data and insights growing in importance.

Machine learning AI can process and analyse this data and will become increasingly important for the energy sector, from renewable energy forecasting, to in-depth consumer understanding, demand management and algorithmic or automated trading. Some eco-start-ups for example, use signal processing and machine learning techniques to disaggregate energy readings taken from consumers' homes and determine how much energy each appliance is using. From this information it predicts energy consumption and allows homeowners with solar panels and home batteries to trade energy with neighbours using a blockchain-based energy trading platform.

Businesses need to ensure that their systems offer the flexibility to leverage new technologies and opportunities as they become more important to maintaining competitive advantage in the sector.

Cloud SaaS ETRM

Contigo's research found that 62 per cent of respondents expect more trading systems to be hosted in the cloud/SaaS over the next five years. In fact, for many businesses, it is the challenging market that is providing the impetus to make this move in order to improve efficiency and opportunities.

Modern cloud-based SaaS ETRM systems can offer many advantages over legacy systems or spreadsheets. These include speed and agility benefits, as well as cost and risk minimisation.

Modern cloud-based systems enable fast implementation and efficient upgrades of new functionality to take advantage of new market opportunities or to help meet legislative requirements. Upgrades can be rolled out rapidly, as, unlike

deployed software, individual machines do not need to be upgraded; instead, the company's system can be upgraded in a single process.

Modern SaaS ETRM systems can also help to deliver the business agility that is so important in the current market. They can provide greater flexibility and scalability, enabling businesses to respond easily to change and to future-proof their systems. They can make it easy to keep up to speed with new developments and effectively 'change' software as technology advances or the business' requirements change, scaling up or down as required. This can provide opportunities to respond to new market opportunities, quickly and efficiently.

Cloud SaaS systems can also bring cost efficiencies to a business. A modern and effective ETRM system will stream-line and simplify systems for more efficient working and communication across the business. The initial cost of procurement and the total cost of ownership can be lower, as there are usually no upfront license fees and no hardware, third-party software, or infrastructure services required. Instead, the buyer pays a monthly fee that includes usage of software and hardware infrastructure, upgrades, and support. Daily management of the infrastructure is managed by the provider, reducing the in-house technical resource required.

SaaS cloud ETRM systems can also support risk minimisation. They can safe-guard from potential cyber-attacks because of their robust security processes.

Many early adopters of cloud based SaaS ETRM systems are seeing extensive benefits across their businesses, and there is likely to be a growing divide between the capabilities of those who have and do not have this enabling technology.

However, businesses moving to a cloud based solution should ensure that the system uses the latest technology so that it is able to deliver all the functions and benefits expected. While some legacy ETRM solutions can be upgraded to offer web access using desktop virtualisation and networking software, businesses need to be aware that, without access to the application via a thin client, such as a web browser, the system is unlikely to be able to deliver all the benefits associated with more modern cloud-delivered systems.

Smarter Technology

A new generation of ETRM systems, built with the latest, smarter

technology are fast and easy to implement and allow easy configuration to adapt to varying business processes and introduce process automation. In addition, they are able to manage large volumes of data and rapidly process reports.

Businesses should look for the most agile and flexible systems that meet their requirements.

Single-Tenanted or Multi-Tenanted Cloud SaaS?

Another consideration for businesses is whether they should select a single-tenanted or multi-tenanted cloud SaaS. Both can deliver the benefits of automatic upgrades, including the latest security patches, business future-proofing and scalability, as well as cost efficiencies, however, businesses need to be aware of the differences, particularly if they are likely to require some integration with other systems.

Multi-tenanted SaaS ETRM can be a good solution for businesses that require little or no customisation of their software, as these systems are usually 'one size fits all' and are unlikely to provide this flexibility. For businesses that want to configure the system to suit their requirements, for example by integrating with other systems, adding their own reports or using a different web address, a

single-tenanted infrastructure is likely to be able to provide the flexibility required. In addition, it is only in a single-tenanted infrastructure that customers can decide when they want updates to take place.

Blockchain

Another technology that is likely to have a significant impact on energy trading is Blockchain. This technology is a decentralised platform for verifying and recording transactions made digitally, that can't be erased at a later date. It can transfer value or information securely and facilitates secure borderless transactions.

Essentially a new type of database that can be safely shared by multiple organisations and provides transparency of transaction, the distributed ledger can record the execution, confirmation and settlement processes and could lead to a reduction in the use of intermediaries between producers and wholesalers.

There is significant interest in Blockchain because it offers the potential to introduce efficiencies and reduce costs, and there are a growing number of projects using the technology in the energy industry.

With so much focus on Blockchain, it may not be long before ETRM systems require the capability to integrate with and manage trades that have been transacted on a Blockchain. Businesses that are set up with modern cloud-based, SaaS ETRM systems that have flexibility built-in and allow straight through processing, are more likely to be able to take advantage of this opportunity.

The Changing Role of the Energy Trader

With the many changes taking place in the energy market and in the technology serving it, it is not surprising that changes are expected to the energy trader's role too.

Contigo's 'Future of Energy Trading' research found that the majority of respondents (62 per cent) think that energy trader's role, over the next five years, will become more involved in monitoring trading activity rather than executing trades. 55 per cent of respondents believe that there will be a requirement for traders to become more specialised in certain areas, and a third of respondents think that energy traders will be required to write code for the customisation of trading systems. Only a small minority (8 per cent) think that there would be no change to the role of energy trader.

This creates some interesting questions for traders and trading businesses, who will need to consider the skills that will be required by energy traders working in a sector that is undergoing so many changes, so quickly.

It also highlights that many believe there will be an increase in automated trading, and this is an area that is likely to cause a great deal of debate over coming months. In the US, automated trading systems now account for half the volume in many commodity futures, according to a 2017 US government study[4]. Automated trading has sparked controversy, as some contend

that prices have become disconnected from forces of supply and demand. While in the UK, in February this year, the Financial Conduct Authority (FCA) published its Algorithmic Trading Compliance in Wholesale Markets report[5]. It summarised key areas of focus for algorithmic trading compliance in wholesale markets, including references to relevant legislation and communicating the governance, diligence and compliance required.

Strategy for Future-Proofing

In this challenging and fast-changing energy market, with volatile commodity prices and growing competition, it is now more important than ever for businesses to identify ways in which to gain and maintain a competitive advantage.

Businesses can benefit from reviewing their strategy and business models, digital platforms and processes, looking for increased efficiencies and opportunities. System vendors can be used from an earlier stage to provide insight into the opportunities available.

The market is becoming more complex, with a greater need for simplification through smarter technology. While spread-sheets and manual data inputting and analysis were common in the energy trading of the past and are still used in some businesses, the changes taking place and the digitalisation of the sector are bringing about important developments in the way trading companies operate.

Straight-through processing, real-time data, customisation and integration with other systems and forecasting tools are already providing advantages for many energy businesses.

The future is likely to see a divergence of fortunes in energy trading, with those businesses that are willing to embrace innovative digitalisation having a significant advantage over others continuing to operate with legacy systems and manual processes. Efficiency and agility will be needed to compete in this fast-changing energy market. Now is the time for businesses that are not future-ready to take action.

1 Future of Energy Trading research. For further information www.contigosoftware.com +44 (0)207 922 5150

2 https://www.gov.uk/government/organisations/department-for-business-energy-and-industrial-strategy/about/statistics#latest-statistics

3 https://about.bnef.com/blog/high-renewable-future-uk-germany-create-new-power-systems-flexibility-challenge/

4 https://www.ft.com/content/ae195fb6-47b0-11e7-8d27-59b4dd6296b8

5 https://www.fca.org.uk/publications/multi-firm-reviews/algorithmic-trading-compliance-wholesale-markets

The research was completed in March 2018, and was conducted using an online survey with responses being anonymous. A total of 56 respondents completed the survey.

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