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Filling in the blanks

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Scope 3 refers to greenhouse gas emissions that are indirectly caused by an organisation and occur outside of its direct operations or owned assets. These often make up the majority of a total carbon footprint and for data centres assessing and reporting Scope 3 emissions is a complex task. It demands a comprehensive understanding of the upstream and downstream value chain, as well as the associated products and services it provides.

As they endeavour to improve their sustainability based credentials, data centre owners and operators need to rely on accurate environmental information from manufacturer supply chains about their products' embodied carbon, transportation and distribution, energy use in operation, material content and traceability, as well as end-of-life treatment.

The trouble is that this information is often unavailable, incorrect or too limited in detail for an accurate assessment of Scope 3 emissions. In this issue's Question Time we've asked a specially selected panel of industry representatives to look at whether manufacturers of network infrastructure products and systems should be doing more to help data centre owners and operators accurately assess and report their Scope 3 emissions, and if greater collaboration is the key to achieving sustainability goals.

Another ongoing problem faced by data centres is the difficulty in finding individuals with the necessary skills and expertise. We take an in depth look at training and skills development, with three excellent articles. First up, Rose Weinschenk of Uptime Institute Intelligence explains how moving to a more targeted recruitment plan can help widen the talent pool. Rose is followed by our old friend John Booth of the National Data Centre Academy (NDCA), who discusses whether artificial intelligence (AI) is under threat from the ongoing skills shortage. Last but certainly not least, Anna Marriott of Virtus Data Centres looks at how investing in people can create operational excellence.

This issue also contains a focus on optical fibre cabling. Thomas Meyer of Corning Optical Communications examines the European Union (EU) Construction Products Regulation (CPR) and the role of cables in ensuring fire safety. Andrew Sedman of R&M then goes on to explain the key changes to ISO/IEC 14763-3 and their implications.

With lots more besides, I hope you enjoy this issue of Inside_Networks and if you'd like to comment on any of these subjects, or anything else, I'd be delighted to hear from you.

Rob Shepherd
Editor

Inside_Networks
THE NETWORK INFRASTRUCTURE E-MAGAZINE

![AFL logo](F AFL)

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Planning processes and sustainable power are the biggest barriers to the development of data centres in the UK

The UK planning system remains an area of major concern and is seen as a significant barrier to the development of data centres. This is according to an independent industry survey from BCS, which captured the views of over 3,000 senior data centre professionals across Europe including owners, operators, developers, consultants and end users.

James Hart, CEO at BCS, said, 'It is clear from the response to our survey that the planning process needs reform. The sector believes it has been hindered by an overly complex planning system that has lacked clarity.'

The UK government's recent decision to consider addressing this issue within the context of wider planning reform by revising the National Planning Policy Framework (NPPF) has been welcomed by over 92 per cent of the survey respondents. Additionally, its announcement that it is to designate the data infrastructure, including data centres, as critical national infrastructure has also proven popular, with a similar percentage welcoming the initiative. This would shift decision making from local authorities to the national level, potentially expediting approvals for substantial projects.

Alongside planning issues, sustainable power in the UK is the major challenge and without addressing this too, the current deployment conundrum facing the industry will continue. As the demand for data continues to surge, the power requirements of these facilities have become a pressing issue in the UK, raising concerns about sustainability, grid capacity and energy resilience.

This is echoed by 90 per cent of survey respondents who stated that the single largest constraint on new data centre development in the UK is the limitations of power supply, with 92 per cent citing availability of power in either of the top two positions as the key driver to the location of their data centre expansion. 87 per cent of participants felt that restricted power availability and appropriate data centres with the capability to handle concentrated workloads is already impacting the speed of artificial intelligence (AI) adoption.

Hart commented, 'The government and energy regulators must play a proactive role in addressing these power challenges. Investments in upgrading the national grid are essential to ensure it can handle the rising demand from data centres while supporting the broader transition to renewable energy. Policies that incentivise decentralised energy generation, such as on-site solar panels or local wind farms, could also help alleviate pressure on the grid.'

Ultimately, the UK faces a delicate balancing act. Hart concluded, 'Data centres are critical to economic growth and technological advancement, but their power needs must be managed sustainably and equitably. Addressing the power issues facing data centres requires a coordinated effort between government, industry and energy providers. Without decisive action, the UK risks falling behind in its digital ambitions – or compromising its environmental commitments. The time to act is now.'

James Hart

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Warning to data centres as overconfidence threatens sustainability progress

93 per cent of data centre operators believe they are fully prepared to meet their organisation's sustainability goals, yet 60 per cent do not believe current green strategies are fit for purpose, according to independent research from Keysource. Findings show that 97 per cent agree they have clear oversight of sustainability targets and the feasibility of achieving them. However, only 53 per cent reported adequate visibility of these targets and the steps being taken to meet them.

In 2023, 38 per cent of operators were reluctant to measure the carbon impact of new tools and services. However, in 2024, there was 16 per cent reduction in these numbers, with less than a quarter (22 per cent) expressing the same reluctance to consider carbon within new service investments.

More decision makers beyond sustainability focused roles are now involved in green initiatives, goals and progress, with 91 per cent actively contributing to the setting and tracking of sustainability targets – an increase from 67 per cent in 2023. 78 per cent of these decision makers also believe they have the necessary data and tools to meet the reporting requirements of the Energy Efficiency Directive (EED).

Data centres also suffer from a fragmented approach to measuring specific scope emissions. 50 per cent of respondents are prioritising Scope 1 emissions from directly generated assets, such as owned buildings and vehicles. Meanwhile, 42 per cent have directed funds towards Scope 2, covering indirectly generated purchased utilities, such as electricity, and 45 per cent focus chiefly on Scope 3, which includes the procurement of goods and services.

When it comes to measurement, the increased presence of dedicated green budgets for the data centre industry may help in tracking investment-based emissions. 55 per cent of teams now have access to separate green funds, up from 50 per cent in 2023. Despite progress, 40 per cent of organisations still do not separate their budgets, indicating a lack of clear visibility between funding and sustainability progress.

'It's one thing to feel confident in your sustainability plans, and quite another to put it into action,' stated Jon Healy, chief operating officer at Keysource. 'Our research demonstrates as much, with practical application lagging behind perceived progress. While the industry clearly recognises the importance of an integrated approach toward sustainability, we must urge data centres that the hard work is just beginning to deliver on best laid strategies. The findings of our report are encouraging, yet the role of data centres in progressing or restricting worldwide climate goals relies on executing strategies swiftly and effectively.'

Jon Healy

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Public largely unaware of data centres' critical role in society

51 per cent of UK consumers have never heard of the term data centre, highlighting a significant lack of awareness about their critical role in powering daily digital life. Research from Telehouse reveals how, despite the increasing reliance on digital services and their recent categorisation by the government as critical national infrastructure, 67 per cent of UK consumers admit they do not know what a data centre is or does.

Mark Pestridge

The survey, which involved over 2,000 consumers, identifies a significant gap in public understanding. While 48 per cent of respondents believe data centres positively impact the digital services they use at home and work, such as video streaming and online shopping, there remains a substantial knowledge gap about the scale and scope of data centre operations. 43 per cent of the respondents were unaware of the vast number of people, applications and data supported by these facilities.

Telehouse has launched an educational initiative featuring a character named DC. Mark Pestridge, executive vice president and general manager at Telehouse Europe, commented, 'We realise there's a significant knowledge gap regarding data centres and their impact on digital lives. Through an engaging video, DC aims to demystify data centres, explaining their functions and significance in everyday technology use.'

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Wireless Broadband Alliance calls for greater industry collaboration if ubiquitous 6G connectivity is to be achieved

The Wireless Broadband Alliance is calling for greater collaboration if 6G is to achieve ubiquitous connectivity that comprises Wi-Fi, cellular, non-terrestrial networks, the internet of things (IoT) and other wireless technologies. Wi-Fi and cellular are the two most adopted wireless broadband technologies in the world, available in billions of devices and used daily by billions of users.

Tiago Rodrigues

While the cellular standards organisations have made efforts to integrate these systems and positive progress has been made, broader real world adoption and implementation have lagged. Reasons for this include the need to harmonise fragmented user experiences, complexity of non-3GPP access methods, costs related to implementation complexity and the need to learn from previous cellular generations.
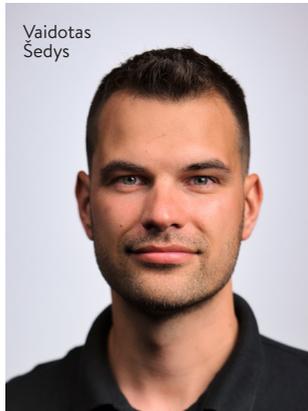
Tiago Rodrigues, CEO of the Wireless Broadband Alliance, said, 'Collaboration between cellular, Wi-Fi and other wireless technologies stakeholders including operators, vendors and vertical industry players is crucial for the success of 6G. The Wireless Broadband Alliance aims to make 6G not just a technological leap but a practical solution for global connectivity challenges.'

Meta's fact checker plan will detonate a misinformation explosion

Meta's decision to remove fact checking from its platform is set to spur heightened activity from fake accounts and troll farms, which thrive on spreading deliberate falsehoods, according to Oxylabs. It raises significant concerns about the potential rise of disinformation online and its impact on society.

Fact checkers have played a crucial role in enabling users to identify false information by marking content as potentially misleading and providing links to reliable research. The system did not remove content but instead gave users the context needed to make informed decisions, with the decision to remove content always coming from Meta and not fact checkers.

Vaidotas Šedys, chief risk officer at Oxylabs, said, 'Public concerns of wild spreads of disinformation bombing the users of Meta's social media platforms might act as an invitation to troll farms to test the new boundaries. Henceforth, the transition period will be precarious, requiring a heightened level of caution from users, policymakers and Meta itself.'

Vaidotas Šedys

NEWS IN BRIEF

EfficiencyIT has been certified by Planet Mark, a globally recognised sustainability certification organisation. Planet Mark certification highlights EfficiencyIT's commitment to measuring and reducing its carbon footprint, while actively contributing to industry-wide sustainable growth.

Portugal, Spain and Sweden are ahead of the pack when it comes to phasing out legacy copper networks in Europe, a study from the FTTH Council Europe has revealed. Its Copper Switch-Off Tracker shows the progress 27 European Union (EU) member states and the UK are making toward adopting full fibre broadband infrastructure.

Iceotope has announced two key leadership appointments. Alain Andreoli joins as non-executive chairman, while assuming the role of president and chief executive officer is Jonathan Ballon.

UK businesses encountered more than 753,341 malicious attempts each to breach their online and IT systems in 2024, according to Beaming. This attack level was four per cent higher than in 2023, making last year the worst ever for attempted cyberattacks, with businesses encountering a new online threat every 42 seconds.

Colt Technology Services has secured a Platinum rating from EcoVadis for the third consecutive year. Platinum is the highest achievable rating and ranks Colt in the top one per cent of global EcoVadis companies.

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DATA CENTRE WORLD

R&M

The power of ping

Hi Rob

The success of the UK's digital infrastructure is likely to hinge on three key areas according to a 2020 techUK data centre report. It cited that the UK's position as the largest data centre market in Europe, and second largest commercial cluster of data centres in the world, probably relies on its ability to provide 'power, position and ping'.

The evolving artificial intelligence (AI) landscape has only magnified the increasing importance of these areas. While power refers to a stable, high quality electricity supply, and position access to customers afforded by a given location, ping is all about connectivity.

The influence the industry holds over power and position is, to some degree, limited, with the vast majority of data centre operators at the mercy of finite energy supplies. In parallel, UK digital infrastructure facilities remain firmly confined within land borders. However, when it comes to ping, there is much potential to carve out superior capabilities and, as such, this area represents a highly competitive battleground for market share.

As a result, 2025 is set to see a huge focus on connectivity. In the autumn 2024 budget announcement, the UK government pledged to invest £500m to improve reliable fast broadband and mobile coverage across the UK. This has already attracted the interest of mobile and telco leaders.

Elsewhere, the government has classified data centres as critical national infrastructure (CNI) and recently commissioned a review to identify barriers to adopting transformative technologies. This review focuses on identifying the high growth technologies and sectors in the government's Industrial Strategy, aiming to enhance productivity and drive growth to boost the UK economy. Connectivity is clearly intrinsic to unlocking much of the potential in this domain.

Looking across the industry, investment is equally high. In July 2024 the Office for National Statistics (ONS) estimated that 'market sector' – that is to say private sector – investment in digital infrastructure was £9.2bn in 2022. But this figure is not without its own problems. Currently, around 80 per cent of data centres are in Slough or the Docklands, so there is a profound need to ensure this

g

there are indicators. In recent S&P Global research, direct cloud connectivity, network as a service and data centre interconnection all featured prominently in investment plans. Respondents were also asked if they thought AI will have a significant impact on their organisations' cloud and inter-data centre networking in the next 12 months. 80 per cent said yes.

If 2023 and 2024 have been the years of increased demand for compute capacity due to AI, 2025 will be the year that businesses want to capitalise on connectivity. Not only will this allow them to capitalise on a wider net of opportunities, but it will consolidate the UK's position as a leader when it comes to digital infrastructure.

Mark Lewis
Pulsant

Editor's comment
As Mark makes clear in 2025 connectivity will emerge as a critical battleground for data centre providers competing to capture market share. As demand for seamless global integration grows, robust, high-speed connectivity will become a key differentiator and a cornerstone of competitive advantage.

digital infrastructure investment is spread across the UK.

Whilst it is almost impossible to predict how companies will invest in improving connectivity to drive competitiveness,

On a learning curve to

Hi Rob

After a report called on the government to act urgently to address a growing digital skills gap that, if left unchecked, could lose the economy billions, a group of secondary schools is working in a new, innovative way with forward thinking digital infrastructure companies to upskill students in digital and technical skills. The aforementioned report from techUK highlighted several constraints affecting growth in data centres including the need for central and local governments to implement policies now to ensure the next generation is equipped to thrive in careers within the sector, sustaining the industry's momentum.

Bringing data centres into careers awareness in schools is vital. The good news is that an expanding group of secondary schools has already taken it a step further with a ground-breaking, UK first programme of digital and employability skills designed and run by digital infrastructure leaders working collaboratively to bring more people into the industry.

The Digital Futures Programme, which is cited in the techUK report, began four years ago, bringing together Activate Learning Education Trust (ALET) – a multi academy trust comprising six secondary schools with just over 3,000 students in the Thames Valley – and some forward thinking digital infrastructure companies willing to leave competition at the door. Four of the ALET schools are University Technical Colleges (UTCs). These are science, technology, engineering and mathematics (STEM) focused secondary schools, where students study a specialist technical subject like engineering alongside

traditional GCSEs or A Levels.

During the programme, these UTC students learn technical and employability skills as part of their curriculum to prepare them for STEM focused degrees or apprenticeships. The programme enables students to learn about the digital infrastructure industry and the significant opportunities, even at entry level, that are available.

Employment opportunities coming from the programme, which now has 13 partners on board including some of the biggest

fix the talent shortage

career ladder, and employers taking on enthusiastic, skilled apprentices.

The employer partners contribute financially, enabling effective administration of the programme. They also volunteer their time to set exciting challenges, run masterclasses on technical topics and train students in key employability skills such as communication, teamwork, CVs and interview skills. All students benefit from this programme, with engineering students also getting to work closely with partners within selected BTEC units, where partners set projects that enable students to cover the necessary theory but apply it in the context of real-world issues partners face every day.

ALET offers training and significant levels of support for the partner volunteers to help them work with the students, and the volunteers get huge satisfaction from their time with students, 'paying it forwards' and passing on their skills and passion for their industry.

Cheryl Chapman
ALET

Editor's comment

Regular readers will have noticed numerous references to the great work that ALET and its industry partners are doing to help address the ongoing skills shortage. It's great to hear that their efforts are reaping rewards. The Digital Futures Programme really is a win-win for employers, students, UTCs and the UK digital infrastructure industry, however, more must be done by the sector as a whole to build on this success.

data centre companies, are growing each year, with ALET supporting partners to develop and promote their apprenticeships. So far, with the programme having run in only one UTC until this academic year, five students have started working for partners after completing Level 3 qualifications. Following the success of the programme at UTC Heathrow, the programme rolled out to all four of ALET's UTCs last September, and the intention is this expansion will continue, benefiting both the students getting a foot on to a lucrative

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SECURE YOUR SUCCESS

Three of a kind

Data centre owners and operators are turning their attention to Scope 3 greenhouse gas emissions as they aim to become more sustainable. Inside_Networks has assembled a panel of industry experts to examine whether manufacturers of network infrastructure products and systems are doing enough to help them on this journey

▶ Although more data centres are addressing their Scope 1 and 2 greenhouse gas emissions, Scope 3 has now come into sharp focus. As the largest contributor to a data centre's greenhouse gas emissions, Scope 3 includes all indirect emissions from across a data centre's supply chain such as the extraction of raw materials, as well as assembly, shipping and travel.

Despite their significance, Scope 3 emissions are the least reported and understood. Some manufacturers lack transparency or standardised reporting methods, leaving data centre operators to make assumptions or rely on third-party data. Moreover, lifecycle assessments

(LCAs) for hardware are typically not shared in detail, compounding the problem of incomplete reporting. This gap makes it challenging to align with sustainability targets such as those set by the Science-Based Targets initiative (SBTi).

Scope 3 will become a higher percentage of emissions going forward, so what should manufacturers of network infrastructure products and systems be doing to help data centre owners and operators? Inside_Networks has assembled a panel of industry experts to offer their opinions and discuss whether greater collaboration is key to improving Scope 3 reporting.

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ARE MANUFACTURERS OF NETWORK INFRASTRUCTURE PRODUCTS AND SYSTEMS DOING ENOUGH TO HELP DATA CENTRE OWNERS AND OPERATORS ACCURATELY ASSESS AND REPORT THEIR SCOPE 3 GREENHOUSE GAS EMISSIONS? WHAT ENVIRONMENTAL INFORMATION SHOULD TECHNOLOGY SUPPLIERS MAKE READILY AVAILABLE TO ENABLE SUSTAINABLE CHOICES TO BE MADE?

ZAC POTTS
HEAD OF SUSTAINABILITY AND INNOVATION AT SUDLOWS

Assessing and reporting Scope 3 greenhouse gas emissions is a complex process. It requires a thorough understanding of the upstream and downstream value chain for the business itself, and its associated products and services supplied.

A key part of this assessment is purchased goods and services. Without data from the supply chain, it is very difficult to make a good assessment of this. The availability and quality of this data is increasingly a key factor in purchasing decisions.

Most suppliers appreciate this and are doing something to move forward in this space, but are they doing enough? Unfortunately, in most circumstances, no, I don't think they are, but likely it's not for a lack of trying. Manufacturers increasingly provide some data, but when you consider the size of the bill of materials for some projects, and the different variants of even simple products, it's unsurprising that there are often large gaps or inconsistencies.

Embodied carbon, energy use in operation, material content and traceability, and end-of-life treatment are all important pieces of environmental data. Making this information readily available not only allows for calculation and reporting, but it also empowers and enables engineers to incorporate these factors into the design process when potential for impact is high, allowing the evolution of better, more sustainable designs. Providing this data in standardised formats through certified lifecycle assessments (LCAs), Environmental Product Declarations (EPDs) and responsible sourcing data is ideal.

The fact there is still a lot of work to do should not be seen to undermine the progress and efforts made to date, as there is some truly commendable work being done in places. In my view it is simply the scale of the task at hand which means that, at least for now, even a lot of effort may not be 'enough'.

> 'MANUFACTURERS INCREASINGLY PROVIDE SOME DATA, BUT WHEN YOU CONSIDER THE SIZE OF THE BILL OF MATERIALS FOR SOME PROJECTS, AND THE DIFFERENT VARIANTS OF EVEN SIMPLE PRODUCTS, IT'S UNSURPRISING THAT THERE ARE OFTEN LARGE GAPS OR INCONSISTENCIES'

HELEN MUNRO
HEAD OF ENVIRONMENT & SUSTAINABILITY AT PULSANT

Nobody has a perfectly accurate understanding of their Scope 3 emissions. It's a problem across the corporate world – and that includes data centres.

Even greenhouse gas accounting, the process of measuring and reporting on emissions, in practice demonstrates significant variations in methodology and exclusions, with data not comparable enough to confidently differentiate between Company A's and Company B's products. As such, energy consumption – while a Scope 2 impact for data centres – is likely to be the most tangible and important environmental sustainability factor. It is easy to dismiss upstream impacts but we shouldn't.

Forget the number for a moment. When technology hardware is made, we pull resources out of the earth, causing immense disruption to ecosystems and forever changing cultures and landscapes. This in itself is not infinitely sustainable – after all, there's only so much of the planet to go around. Manufacturers disclose to their investors the risks around materials availability subject to supply chain disruption, often in relation to geopolitical issues, but this should also be considered a question of sustainability at the heart of the business model.

The faster manufacturers accelerate effective circularity, the faster they will ease pressure on the environment and mitigate their susceptibility to supply chain issues. Being circular, achieving balance means being prepared to spend as much effort in recycling and restoration as it takes in manufacturing and distribution.

It is not enough for a vendor to talk about how many tonnes of hardware they have 'taken back' without giving some perspective on how much of their output this represents. A way for manufacturers to achieve this could be by retaining ownership of the hardware. By taking on more responsibility for end-of-life processing, it incentivises design for re-use and repairability, the knock-on effect being that circularity will be accelerated.

While great upstream emissions data would be useful, I'd much rather see manufacturers evidence serious strategies and measurable progress around the shift to circularity. Scope 3 reductions will follow.

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'WHEN TECHNOLOGY HARDWARE IS MADE, WE PULL RESOURCES OUT OF THE EARTH, CAUSING IMMENSE DISRUPTION TO ECOSYSTEMS AND FOREVER CHANGING CULTURES AND LANDSCAPES. THIS IN ITSELF IS NOT INFINITELY SUSTAINABLE – AFTER ALL, THERE'S ONLY SO MUCH OF THE PLANET TO GO AROUND.'

ANDREW GOMARSALL
EXECUTIVE DIRECTOR AT N2S

The fast answer is no! At the same time, I am not convinced data centre operators are pushing hard enough to obtain the Environmental Product Declarations (EPDs) or lifecycle assessments (LCAs) that manufacturers have a duty to disclose.

Admittedly, the situation is somewhat ambiguous, as data centre operators are focused on providing space and power, not the IT equipment their clients put in the racks. Therefore, the operators' clients will more likely need to take the responsibility for this part. But they need to be encouraged to do so to help the industry more accurately assess its carbon footprint which, at present, varies considerably. Manufacturers, operators and their clients need to be working together to grow a circular economy.

A data centre clients' Scope 3 carbon emissions reporting is impacted by embodied carbon content, for example, uninterruptible power supplies (UPS), cooling equipment and other infrastructure. And, significantly, there is up to 90 per cent embodied carbon present in their IT products/assets at the pre-use stage, with printed circuit boards (PCBs) taking the lion's share.

This highlights why we need greater transparency from manufacturers by making their carbon data readily and easily accessible from across their respective supply ecosystems. For example, encompassing the carbon emissions impact of the raw materials consumed in component manufacture, product assembly, through to final distribution of products to market.

What is required is data driven reporting. This provides an accurate, measurable and auditable method for operators and their clients to manage their entire Scope 3 CO_2e lifecycle to understand their environmental positions, and drive decisions that support their sustainability reduction targets – from procurement to retention and at the disposal stage.

This is both complex and time consuming, and many will require support from technology lifecycle management and disposal specialists. Recording and understanding the environmental impacts of IT asset purchases plays a key role alongside equipment re-use, end-of-life disposal and, crucially, sustainable PCB materials recovery and refining. Together, these are all essential to decarbonising the supply chain and enabling truly holistic Scope 3 accounting.

> 'WE NEED GREATER TRANSPARENCY FROM MANUFACTURERS BY MAKING THEIR CARBON DATA READILY AND EASILY ACCESSIBLE FROM ACROSS THEIR RESPECTIVE SUPPLY ECOSYSTEMS.'

MICHAEL AKINLA
BUSINESS MANAGER NORTHERN EUROPE AT PANDUIT

Manufacturers, their sales channel partners and data centre customers are becoming more attuned to the critical factors for shared data in respect of Scope 3 emissions. Clients need to know a product's global warming potential (GWP), which is allocated per product.

By leveraging Environmental Product Declarations (EPDs) on a range of products, manufacturers provide transparency regarding the environmental impacts of the materials and manufacturing processes. Customers currently rely on manufacturers to supply the product stage (A1 to A3) data. These reports detail emissions throughout the lifecycle of a product, aiding customers in aligning with sustainability objectives and regulatory compliance, including Scope 3 emissions tracking.

The latest iterations of hot aisle and cold aisle containment systems, power distribution units (PDU) and connectivity products and their GWP data assist operators to optimise energy consumption and improve efficiency. Suppliers are constantly reviewing and reconfiguring cable and other product manufacturing, saving raw materials. This benefits supply chain logistics, while maintaining product integrity and capabilities.

It is essential for manufacturers to support customers' operational sustainability and help reduce the carbon footprint inherent to data centre management. Today there are several advanced tools and dashboards that enable real-time monitoring and forecasting of energy use and associated carbon emissions. This capability is crucial for directly impacting wider Scope calculations.

Investing in regional manufacturing sites reduces product transportation distances, as well as increasing speed of delivery for data centre customers. Single stock keeping units (SKUs) allow customers to order and receive preconfigured and dynamically rated cabinets for installers to configure and ship to sites, greatly reducing transport journeys, costs and deployment time.

Manufacturers need to be committed to the circular economy, adopting renewable and recycled materials in product and packaging design, which eliminates substantial amounts of single use plastics, and reduces upstream and downstream emissions. Suppliers that follow a lifecycle sustainability approach help data centre customers map emissions across the supply chain.

By embedding environmental stewardship into our operations and product development, manufacturers aid customers in meeting their carbon neutrality and sustainability goals.

> 'IT IS ESSENTIAL FOR MANUFACTURERS TO SUPPORT CUSTOMERS' OPERATIONAL SUSTAINABILITY AND HELP REDUCE THE CARBON FOOTPRINT INHERENT TO DATA CENTRE MANAGEMENT.'

JON HEALY
CHIEF OPERATING OFFICER AT KEYSOURCE

Scope 3 data is often incomplete and inconsistent. However, the leaps we've made to assess emissions factors across this mammoth task remain a marked success.

There is no one reason. Industry generally prioritises Scope 1 and Scope 2 over Scope 3, meaning analysis isn't integrated into supply chain decision-making to the degree required. Equally, limited industry collaboration exacerbates the problem, with no clear benchmark for progress. Lastly, a lack of standardisation across analytics tools, processes and partnership agreements inhibits progress.

Data centre operators are restricted by a lack of priority, transparency and collaboration, and the sheer scale of the problem. While operators are attempting to build as complete a picture as possible, the relationship between analysing Scope 3 and deciphering sustainability progress is currently a tough ask.

A level of standardisation on the measurement of Scope 3 emissions, particularly on the manufacturing side, is critical to improving this dynamic. It is virtually impossible for data centre operators to decipher the values of Scope 3 emissions otherwise. However, we need to take some of this responsibility – data centre operators need to explain to suppliers that Scope 3 analysis is required. Equally, our sector must increase collaboration around sustainability standardisation, creating a unified approach to bettering our pursuit of net-zero.

A vast array of environmental information is required to inform impactful sustainability transformation. This ranges from assessments of total emissions from production to disposal (carbon footprint) to energy efficiency and consumption details. We need to understand how products are made, how they are used throughout their lifecycles, and what co-dependencies influence their ability to be green or otherwise.

Equally, analysis is required for materials' use. What is its lifetime? Can it be recycled? Does it contain any potentially hazardous substances? What level of rare earth metals has been sourced, and how responsible was that extraction process?

Without this information, sustainability progress claims lack credibility and the industry risks stunted or overinflated progress. True transformation will require full and honest environmental disclosures, of which we are all responsible. Getting ahead of sustainability objectives is a moral and business imperative.

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> 'TRUE TRANSFORMATION WILL REQUIRE FULL AND HONEST ENVIRONMENTAL DISCLOSURES, OF WHICH WE ARE ALL RESPONSIBLE. GETTING AHEAD OF SUSTAINABILITY OBJECTIVES IS A MORAL AND BUSINESS IMPERATIVE.'

JON LABAN
FREELANCE CREATIVE SYSTEMS THINKER

Manufacturers of network infrastructure products and systems are making significant strides to help data centre operators accurately assess and report their Scope 3 greenhouse gas emissions, but there's still a great deal of room for improvement.

Scope 3 emissions, which account for over 80 per cent of a company's carbon footprint, are notoriously difficult to track due to their indirect nature. They include activities such as procurement, transportation and use of sold products. This presents unique challenges when it comes to gaining accurate information.

To better support data centre operators, manufacturers should provide comprehensive Environmental Product Declarations (EPDs) that detail the lifecycle environmental impact of their products. This includes information on raw material extraction, manufacturing processes, transportation, usage and end-of-life disposal.

Additionally, manufacturers should offer tools and software for tracking and managing emissions data, enabling operators to integrate this information into their sustainability reporting systems. Unavailable information, or data that is not shared, compounds the problem of incomplete Scope 3 reporting.

Moreover, collaboration between manufacturers and data centre operators is crucial. By working together, they can develop standardised methodologies for calculating and reporting Scope 3 emissions, ensuring consistency and accuracy across the industry. This collaboration can also help identify areas for improvement and innovation in reducing emissions.

While manufacturers are making efforts to support data centre operators in assessing and reporting Scope 3 emissions, there is a need for more comprehensive environmental information, standardised methodologies and collaborative efforts to drive meaningful progress in sustainability.

> 'WHILE MANUFACTURERS ARE MAKING EFFORTS TO SUPPORT DATA CENTRE OPERATORS IN ASSESSING AND REPORTING SCOPE 3 EMISSIONS, THERE IS A NEED FOR MORE COMPREHENSIVE ENVIRONMENTAL INFORMATION, STANDARDISED METHODOLOGIES AND COLLABORATIVE EFFORTS TO DRIVE MEANINGFUL PROGRESS IN SUSTAINABILITY.'

Introducing FlexCore™

Panduit's **NEW** Optical Distribution Frame Solution

PANDUIT™

The ultimate in flexibility, manageability, scalability, and security

Flexibility in your network infrastructure is crucial in order to meet evolving needs and scale as new services are brought on-line.

Discover the FlexCore™ ODF, empowering you to optimise floor space, take risks out, and make changes easily.

High Density
Data centre floor space can be reduced by 50%*.

Intuitive
Save time and cost. Intuitive routing paths enable faster moves, adds, and changes (MAC's) and keep cabling efficiently managed to eliminate the need for 'rip and replace' as the system scales.

Innovative
Innovative cable management and lockable vertical cable manager doors eliminate circuit risk and downtime.

Scalable
Pay as you grow. Modular cassettes can be added to enclosures as needed and frames expanded side-to-side or back-to-back.

Secure
Enable multi-tiered service level access with lock options for vertical cable managers, frame and 4RU enclosures.

Breadth of Solution
FlexCore™ is compatible with a wide range of Panduit solutions including Ribbon Fibre Cables, LC Uniboot Patch Cords, PanMPO™ assemblies, RapidID™, and FiberRunner ™, making it a 'best in class' solution for building entry, meet-me-room, and Fibre distribution areas.
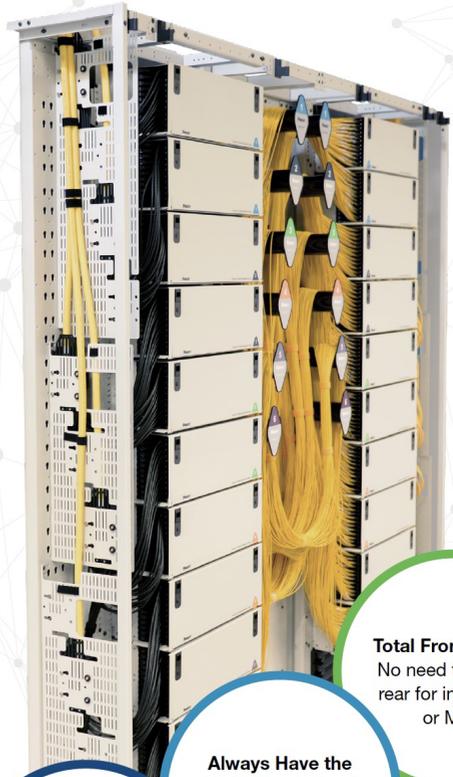
Total Front Access
No need to access rear for installation or MAC

Always Have the Right Patch Cord
Length consolidated to 4m†

3 Modular Building Blocks
Endless possibilities

* Assumes 4 double frames (2 double frames in a 'back-to-back' arrangement). Design conditions and configuration specifics apply.

† Based on either a single frame, double frame or quad frame (quad being a double frame placed back-to-back).

Put to the test

Andrew Sedman of R&M explains the key changes to ISO/IEC 14763-3 – and their implications

▶ ISO/IEC 14763-3 Information technology - Implementation and operation of customer premises cabling Part 3: Testing of optical fibre cabling, is an international standard specifying systems and methods for inspecting and testing fibre installed in customer premises. ISO/IEC 14763-3 provides a consistent, uniform framework for assessing cabling infrastructure, ensuring it meets required specifications, as well as reliability and performance criteria. It aligns with premises cabling standards including the ISO/IEC 11801 series and refers to existing standards-based procedures, where applicable. This ensures comprehensive coverage of cabling system requirements from design through installation to testing.

Mode	Connector identification	Connector type	Reference connector to reference connector test limit (db)	Refe conne standa conne limi
Multimode	Rm1 [a]	MM SF	0.10	0
	Rm12 [a]	MM MF12	0.15	0
	Rm24 [a]	MM MF24	0.20	0
	Rm16 [a]	MM MF16	0.15	0
	Rm16A [a]	MM MF16 APC	0.15	0
Single-mode	Rs1-Grade 2 [b]	SM SF	0.2	0
	Rs12 [b]	SM MF12 APC	0.35	0

[a] Rmxx: reference connector MM xx number of fibres
[b] Rsxx: reference connector SM xx number of fibres

WORK IN PROGRESS

Since the first edition was published in June 2006, ISO/IEC 14763-3 has undergone several revisions to address technological advancements and industry needs. There were some significant additions to ISO/IEC 14763-3 in May 2024:

• Testing of MPO cabling
MPO cabling testing has been added to address the increasing deployment of high density optical fibre and industry-wide demand for standardised testing. MPO connectors contain multiple fibres (12, 24 or more) within a single ferrule, increasing the complexity of testing compared to single fibre connectors.

Ensuring proper alignment, polarity and cleanliness across multiple fibres requires specialised methods. Detailed information regarding MPO testing includes references to IEC 63267-2-2, the newly developed standard that defines MPO reference connectors. ISO/IEC 14763-3 specifically defines reference connector performance values.

• New test limits for connector attenuation against reference connectors
New test limits define the reduced allowance for losses in mated connectors, as per the above table, where the reference-to-random connections have been reduced from 0.5dB and

erence ctor to rd grade ctor test t (db)
.45
.45
.45
.45
.45
0.7
0.7

29

0.75dB down to 0.45dB and 0.7dB respectively for multimode and singlemode connectors.

• End-to-end link light source power meter (LSPM) testing and modular plug terminated links (MPTL) LSPM testing
Inclusion of end-to-end and MPTL link testing is a direct consequence of the development and increasing uptake of connection methods that are traditionally associated with copper systems but also exist for fibre. End-to-end link LSPM testing measures optical power loss along an entire fibre optic link. This is the most practical way to validate the operational performance of a fully installed cabling system.

The rise in direct connections to network devices has led to increased use of MPTLs. MPTL configurations present unique testing challenges, particularly in evaluating the performance of field terminated plugs. Standardised LSPM testing procedures are required to ensure link performance and reliability, helping to accurately assess

insertion loss and overall link quality. ISO/IEC 14763-3 now provides clear guidelines for assessing these links.

• Measurement uncertainty for all measurement methods
Measurement results can be influenced by factors such as test equipment variability (light sources, power meters, connectors etc) environmental conditions (temperature, humidity etc), as well as operator skill and the techniques used. Measurement uncertainty is a key concept in metrology and incorporating it into ISO/IEC 14763-3 aligns the standard with global measurement principles, such as those outlined in the ISO/IEC Guide 98-3. By addressing measurement uncertainty, the standard clarifies the margin of error in test results and supports informed decisions.

• Normative inspection for cleanliness to align with the ISO/IEC 11801 series
This is perhaps the most important part of this whole standard – and widely regarded as long overdue. Since the start of fibre handling, R&M has emphasised that

'ISO/IEC 14763-3 provides a consistent, uniform framework for assessing cabling infrastructure, ensuring it meets required specifications, as well as reliability and performance criteria.'

inspection and (only if necessary) cleaning should be a fundamental task for all fibre handlers. Section 6.8 states 'The inspection for cleanliness of any connector shall take place prior to any mating to another connector.'

Having recommended cleaning methods ensures uniformity in how fibre cleanliness is addressed, reducing variability across installations and establishes a baseline for cleaning procedures, benefiting installers, testers and end users. The addition of cleanliness inspection ensures testing aligns with the design and installation standards outlined in ISO/IEC 11801, which mandates stringent cleanliness standards for optical fibres as part of a broader framework for cabling infrastructure quality. This inclusion reflects increased adoption of high density fibre solutions, which are more sensitive to contamination due to their multi-fibre configuration.

• Recommended cleaning methods
Recommended cleaning methods now give proper guidance in Annex E for the cleaning of connectors, whether LC MM, LC SM, LC APC or MPO APC. This is a normative annex, which means it's mandatory for compliance. Cleaning methods are part of the end-to-end process of ensuring network reliability – from design to operation. Recommended cleaning methods complement ISO/IEC 11801 requirements, providing actionable steps to achieve and maintain cleanliness standards.

• Description of reference connectors
Clear definitions of reference connectors ensure that tests can be replicated under consistent conditions. This is vital for verifying compliance and performance over time.

• Testing to support singlemode ranges up to 10km
This addition goes beyond the structural limits of the ISO/IEC 11801-2, which defines a maximum possible channel length of 2km stretching through horizontal, backbone and campus systems. The IEEE 802.3ae standard specifies that 10 Gigabit Ethernet over singlemode fibre (10GBASE-LR) can operate over distances up to 10km. By extending testing support to this range, ISO/IEC 14763-3 ensures cabling installations meet the performance criteria for such high speed applications.

• Other changes

The new revision has been restructured for several reasons, including easier cross-referencing of topics. The addition of new topics also necessitated a different document structure. Obsolete and outdated content has also been removed to streamline the document.

The decision to delete a section of plastic optical fibre (POF) testing reflects the declining use of POF in customer premises cabling, as industry trends have shifted towards glass optical fibres. POF has significantly lower bandwidth and higher attenuation compared to glass optical fibre, making it unsuitable for high speed applications that demand gigabit or terabit-level transmission rates.

BEAR IN MIND

Changes in the performance data now stated in the standard make it vital for fibre cabling systems testers to use these new values. Unfortunately, with certain LSPM testing equipment, previous versions of the same standard such as ISO/IEC 14763-3:2014 and ISO/IEC 14763-3:2006 are often provided. It is critical that installers know what standard they are testing to, and using superseded standards makes no sense at all.

Thoroughly reviewing ISO/IEC 14763-3 will help understand new testing procedures and requirements, ensure compliance and reap all the benefits this brings. Make sure to update testing protocols to include the latest methods, particularly for MPO cabling and extended singlemode fibre links. It's also crucial to verify that testing equipment aligns with the updated specifications.

FINAL THOUGHT

I'd also suggest implementing mandated cleanliness inspection protocols to prevent contamination causing performance issues. Comprehensive training for installation and maintenance teams on the new requirements and procedures is essential. By adhering to the updates, network professionals can effectively test and maintain fibre cabling installations in line with the latest industry benchmarks, enhancing the reliability and efficiency of network infrastructures. ◼

ANDREW SEDMAN
Andrew Sedman is head of technical support and training at R&M. He drives content of the training modules for R&M's partners worldwide and is owner of the warranty program and technical support. He has extensive experience in the design and management of structured cabling across university campuses, airports, data centres and offices. Sedman holds the BICSI Registered Communications Distribution Designer (BICSI) certification.

NetAlly

NetAlly's innovative network test solutions have been helping engineers and technicians better deploy, manage, maintain and secure complex copper and optical fibre Ethernet networks for decades. They can help you validate compatibility with standards compliant SFP/SFP+ modules before deployment and deliver quick results for speedy problem identification and resolution. They can also perform comprehensive automated tests on fibre links, test network performance, capacity, quality of service (QoS), and service provider service level agreements (SLAs) between sites, and perform LANBERT Media Qualification testing to quickly validate if your existing fibre cable plant can support higher speeds.

LinkRunner 10G is a portable Ethernet tester for multigigabit and 10 Gigabit Ethernet networks (copper and fibre). It simplifies validation and configuration, plus streamlines workflows by combining essential functions into a single, portable and ruggedised unit.

To find out more **CLICK HERE.**
www.netally.com

Excel Networking Solutions

Excel Networking Solutions' Enbeam fibre optical cabling systems deliver high performance, future proof networking and are designed to meet the demands of modern communication infrastructures. The range includes singlemode and multimode options, offering both OM3, OM4 and OS2 standards to ensure optimal data transmission over long distances. Whether for enterprise networks, data centres or industrial installations, Excel's fibre solutions are engineered for reliability and scalability.

Key features include compliance with Construction Products Regulation (CPR) Euroclass classifications, extensive third-party testing, and seamless integration with Excel's end-to-end network infrastructure solutions. The range also includes pre-terminated fibre assemblies, simplifying installation and ensuring fast, flexible deployment with minimal disruption.

Available in a variety of cable types, including loose tube, tight buffered and indoor/outdoor constructions, Excel's Enbeam fibre cabling guarantees both performance and durability. Backed by a 25-year warranty, our solutions reflect a commitment to quality, sustainability and innovation in the world of high speed connectivity.

CLICK HERE to explore the full fibre portfolio or contact our sales team on 0121 326 7557.
www.excel-networking.com

Networks Centre

In Europe, which standard – CENELEC 50173 or ISO/IEC 14763-3 – should we follow for loss values of connectors, splices and cable? Will either of these choices meet the customer's requirements and be acceptable to the manufacturer providing the warranty? Furthermore, do additional standards, including IEC EN 61280-4-x and IEC 61300-3-35, need to be considered?

When testing using test cords with reference grade termination, ISO/IEC 14763-3 allows for more stringent lower limits compared to CENELEC 50173.

However, some customers will insist on custom limits, which can be problematic if the manufacturer providing the warranty has different requirements. Whilst some optical loss test sets (OLTSs) allow the recertifying of results to another standard, this has limitations and may not be acceptable to the customer and/or warranty provider.

Networks Centre has a specialist test equipment division that can advise on these matters, so call us to discuss your issues. **CLICK HERE** to send an email or call 01403 754233.
www.networkscentre.com

Panduit

The FlexCore optical distribution frame (ODF) from Panduit offers a versatile and secure front access cabling system that also provides improved protection for critical optical fibre connections.

Utilising innovative cable management and simple, intuitive cable routing, the FlexCore ODF simplifies and reduces time for moves, adds and changes. With standard locking doors and optional locks on each enclosure, the FlexCore ODF solution enables multi-tiered security – an important addition for multiple client access.

The system manages up to 3,168 fibres per frame, and provides multiple configurations using just three modular building blocks. This flexibility allows for design customisation and scalability, while optimising both product availability and system density.

Compared to typical data centre cabinets, the FlexCore ODF can reduce floorspace in a data centre by 50 per cent. In addition, with side panels and doors with locks, the FlexCore ODF solution allows the system to be completely enclosed and secure.

CLICK HERE for more information on the FlexCore ODF.
www.panduit.com

30% Faster Moves, Adds and Changes

Corning Optical Communications

The rise of artificial intelligence (AI) is reshaping the data centre industry as we know it and driving increased demand for advanced optical fibre solutions. Modern data centre designs, like spine-and-leaf, are undergoing their own evolution to support AI, with greatly increased connectivity from device to device and a lot more fibre in the back-end.

At Corning, we have the solutions to make the transition to AI-enabled data centres as seamless as possible. Our EDGE and EDGE8 solutions, including new very small form factor connectivity, facilitate a smooth transition all the way to 800Gb/s and 1.6Tb/s for duplex and multifibre cabling infrastructures.

Additionally, our slim, high fibre count cables with Flow Ribbon Technology, EDGE Rapid Connect Solution and EDGE Distribution System allow for extreme fibre density to be deployed at scale and support aggressive implementation timelines.
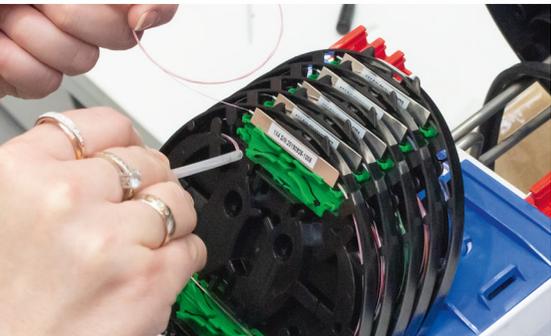
CLICK HERE to discover more.
www.corning.com

Hot on the case

Thomas Meyer of Corning Optical Communications examines the European Union (EU) Construction Products Regulation (CPR) and the role of cables in ensuring fire safety

With the increased use of plastics in buildings dramatically accelerating the average time from ignition to a full fire, a more stringent CPR has been in place in Europe since 2013. Construction products that conform to this regulation are given the CE marking – confirmation that they have been assessed according to a harmonised European standard or a European Technical Assessment has been issued for it.

HERE TO STAY

In the UK, recognition of the CE mark was initially due to end on 30th June 2025 in favour of the UK Conformity Assessed (UKCA) mark but instead the current rules, which allow for continued recognition of the CE mark, will remain in place. So,

Class*	Test method (reaction to fire)		
	Determination of the calorific value	Bunched Cable Burn Test	Single Cable Burn Test
	EN ISO 1716	EN 50339	EN 60332-1-2
A_{ca}	x	-	-
$B1_{ca}$	-	x	x
$B2_{ca}$	-	x	x
C_{ca}	-	x	x
D_{ca}	-	x	x
E_{ca}	-		x
F_{ca}		determination of performance not re

EN 50575 test method for the assessment of fire behaviour and fire

Standard	Measurement	A_{ca}	$B1_{ca}$	$B2_{ca}$	C_{ca}	D_{ca}
EN 60332-1-2	H/mm		≤ 425	≤ 425	≤ 425	≤ 425
EN5039	Flame source kW		30	20.5	20.5	20.5
EN 50399	FS/m		≤ 1.75	≤ 1.5	≤ 2.0	
	THR$_{1200}$/MJ		≤ 10	≤ 15	≤ 30	≤ 70
	HRR/kW		≤ 20	≤ 30	≤ 60	≤ 400
	FIGRA/Ws-1		≤ 120	≤ 150	≤ 300	≤ 1300
	Flaming Droplets		d0, d1, d2	d0, d1, d2	d0, d1, d2	d0, d1, d2
EN 61034	Smoke Production TSP/SPR		s1, s1a, s1b, s2, s3	s1, s1a, s1b, s2, s3	s1, s1a, s1b, s2, s3	s1, s1a, s1b, s2, s3
EN 60754	Acidity		a1, a2, a3	a1, a2, a3	a1, a2, a3	a1, a2, a3

EN 13501-6 parameters for determining the fire classes for cables

	Smoke Density	Acidity/Corrosivity
	EN 61034-2	EN 60754-2
	-	-
	x	x
	x	x
	x	x
	x	x
equired		

classes

	E_{ca}	F_{ca}
	≤ 425	

the requirements for the performance of cables in the event of fire, as well as the necessary testing and assessment procedures. Various methods are used to assess the fire behaviour of cables and their classification is based on parameters such as flame propagation, smoke development, heat release and the acidity of the cable materials.

Currently, national regulations have been introduced in Europe that define the CPR classes for cables between B2ca and Eca. Accordingly, cable manufacturers offer cables that fall within this performance range.

The EN 13501-6 standard, on the other hand, classifies cables according to their contribution to fire behaviour. Based on this classification, cables can be divided into classes A1, A2, B, C, D, E and F. A cable's fire class indicates how it behaves in the event of a fire and how it contributes to fire protection, considering properties like low flame propagation, low smoke development or no release of burning droplets.

The EU CPR also regulates the performance of fire tests. It stipulates that the fire behaviour of construction products must be assessed by authorised testing bodies, also known as notified bodies (NB).

IMPACT ASSESSMENT

The use of flame retardant materials in cable construction can vary and has an impact, of course, on the associated fire risk. In the event of a building fire, it can spread to other floors or neighbouring rooms via burning cables inside the building. Cables pose an additional risk of burning droplets falling to the ground and creating further sources of fire.

The industry is continuously working on improving the fire protection properties

let's go into the relevant standards in more detail and explore some of the work being done to improve the fire protection properties of fibre optic cables within the manufacturing industry.

The EU CPR includes two important standards that are relevant for the assessment and classification of the fire behaviour of cables – EN 50575 and EN 13501-6.

SETTING THE STANDARDS

The EN 50575 standard specifies

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'The industry is continuously working on improving the fire protection properties of optical fibre cables to further minimise the risk of fire. One focus is on the development and use of new materials with improved flame retardant properties to effectively reduce the spread of flames and smoke development.'

of optical fibre cables to further minimise the risk of fire. One focus is on the development and use of new materials with improved flame retardant properties to effectively reduce the spread of flames and smoke development. In addition, it is mandatory to use halogen-free materials to minimise toxic gases and smoke in the event of fire. This applies, for example, to cables of fire protection class Cca, particularly for use in data centres, and cables with the highest performance requirements of cable fire protection class B2ca for use in public buildings such as nurseries or schools.
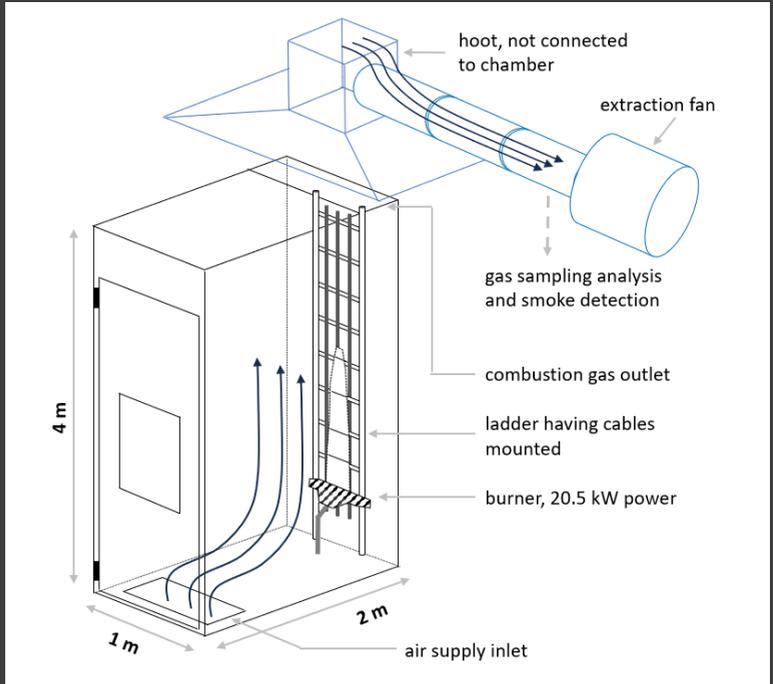
Principle of the EN 50399 test method

Labels in figure:
- hoot, not connected to chamber
- extraction fan
- gas sampling analysis and smoke detection
- combustion gas outlet
- ladder having cables mounted
- burner, 20.5 kW power
- air supply inlet
- 4 m
- 1 m
- 2 m

EXPERIENCE AND FINDINGS
The most important test method for examining and

Fire Situation	Class	Performance
Fully developed fire in a room	Aca	No contribution to fire
	Bca	Very limited contribution to fire
Single burning item in a room	Cca	Limited contribution to fire
	Dca	Acceptable contribution to fire
Small fire attack on a limited product area	Eca	Acceptable reaction to fire
	Fca	No requirement

Cable fire protection classes

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evaluating the fire behaviour of cables is the fire test according to EN 50399, which provides information on how a cable reacts to fire when exposed to a defined flame power (20.5kW).

In a cable fire, various factors such as the nature of the combustible material, the ambient conditions (oxygen) and the interactions between the elements play a role. Different conditions in the event of a fire can influence both the fire dynamics and the course of the cable fire. As a result, flame propagation, smoke development and the release of thermal energy in the cable fire can vary. These factors are also considered in laboratory tests and fire tests. For this reason, it is essential to analyse the setting parameters of the EN 50399 test method to better understand their influence on the course of the fire.

One example is the airflow in the test chamber. The setting parameters that determine the airflow in the chamber are precisely defined and should be stable. Variations could influence the fire test result, like a fireplace, where the airflow is adjusted by different damper settings and the fire burns more or less strongly. By carefully selecting and controlling the setting parameters, we can achieve reliable and reproducible results and gain a more comprehensive understanding of the fire behaviour and test results.

Testing the fire behaviour of cables in accordance with EN 50399 is very complex and places high demands on test laboratories. In addition to precise compliance with the prescribed test parameters and conditions, careful selection and preparation of the samples is also key. This is crucial to achieve meaningful and reliable results for the evaluation of cables.

HIGHER REQUIREMENTS

The standards mentioned are not static – they must be regularly adapted to new requirements. For this reason, additional requirements for cables with functional integrity will soon be included in the EN 50575 standard. The development of new materials and cables is a challenging task for cable manufacturers. However, the ability to independently analyse and evaluate the fire properties of materials and cables gives us a wealth of data that will continue to incrementally improve fire safety. ■

THOMAS MEYER
Thomas Meyer is burn laboratory supervisor at Corning Optical Communications. He received his degree in mechanical engineering from University of Applied Sciences Dresden in 1987. He has more than 25 years' experience in the field of fibre optics in varying engineering roles and in 2016 he joined Corning's materials group of the technology department as manager of the fire performance lab.
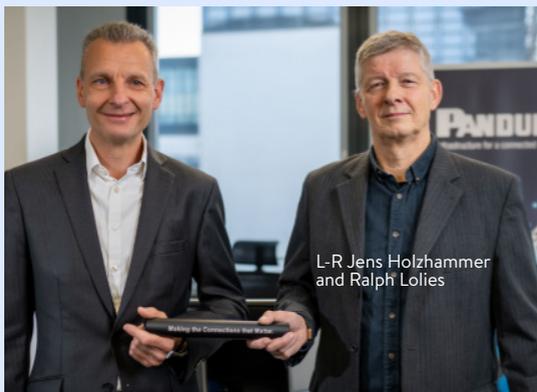
Jens Holzhammer joins Panduit EMEA as managing director

Panduit has announced the appointment of Jens Holzhammer as managing director for Europe, the Middle East and Africa (EMEA).

With extensive experience in developing new markets and customers, he brings a broad range of technical and commercial expertise to his new role.

Holzhammer has held various management positions, including CEO, with international companies in the electronics and IT industries. His vision for Panduit includes fostering a culture of continuous improvement and collaboration to ensure the company remains at the forefront of the industry.

Underlining the opportunities for the company, Holzhammer stated, 'Panduit combines the agility of a start-up with the stability and insight of an established market player. The company is well positioned in several key growth areas – from sustainable data centre infrastructure and intelligent building networking to renewable energy and the industrial environment.'

L-R Jens Holzhammer and Ralph Lolies

Mayflex appoints Lee Cavanagh as business development manager

Lee Cavanagh has joined Mayflex as business development manager in the UK. He joins Mayflex having previously worked in the industry in various business development roles for LMG, DACC and PTC IT Infrastructure Solutions.

Cavanagh will primarily concentrate on the Excel Networking Solutions brand, with a focus on end users and consultants across the UK. Ross McLetchie, sales director at Mayflex commented, 'We are delighted to welcome Lee – he has good knowledge and relevant experience, along with a desire to win and grow business. With his positive attitude we know that he's a good fit to join the Mayflex team.'

Cavanagh said, 'I'm excited to join Mayflex and to be back in the industry that I know and love. I can't wait to learn more about the products and the brand and then to get out to meet customers and consultants.'

Lee Cavanagh

Emtelle welcomes new president to lead its USA division

Emtelle has appointed Beni Blell as the new president of its USA division, as it looks to strengthen its presence in the American market. Blell brings over 30 years of experience in the optical communications industry to the company, having held senior leadership roles in other globally recognised organisations.

Blell will oversee the operations and sales of Emtelle's state-of-the-art manufacturing and testing facility in Fletcher, North Carolina. Recently,

Beni Blell

the facility was further enhanced with the addition of a cutting-edge test track, enabling advanced testing of microduct and cable solutions under real world installation conditions.

Blell said, 'I am honoured to join Emtelle at such an exciting time in its growth journey. I look forward to working with my talented team to leverage the company's global expertise so we can deliver exceptional value to Emtelle's existing and prospective customers and partners.'

Salute to expand its European operations with the strategic acquisition of Keysource

Salute has signed a definitive agreement to acquire Keysource. Upon closing the transaction, Salute's EMEA presence will expand to a workforce of more than 500 individuals including 130 new Keysource employees. This acquisition will strengthen Salute's ability to address the rising demand for artificial intelligence (AI) driven infrastructure, and deliver scalable and sustainable advisory solutions to global customers.

Erich Sanchack, CEO of Salute, said,

Erich Sanchack

'The acquisition of Keysource and its range of advisory services will strengthen our ability to support the rapid change in advanced technology for data centre operations across Europe. While we already have a strong team providing technical design, build and operations advice in the Americas, we sought out the opportunity to enhance our EMEA operations. The exceptional talent and expertise that Keysource brings align perfectly with Salute's mission to better serve our customers on the ground in all regions.'

Siemon celebrates its ongoing commitment to sustainability

Siemon has reaffirmed its commitment to sustainability, social responsibility and robust governance principles with its 2024 Environmental, Social, and Governance (ESG) Report. It highlights the company's leadership in advancing ESG initiatives within the ICT industry.

John Siemon, chief technology officer at Siemon, stated, 'Our aim is to drive meaningful change across all aspects of our business. Achieving the EcoVadis Gold Rating, investing in state-of-the-art tools for ESG reporting and being recognised as a Great Place to Work for the second consecutive year reflect the strides we have made. At Siemon, sustainability and ethical business practices are embedded in our DNA.'

John Siemon

Siemon has continued its focus on reducing environmental impact through innovative product design and sustainable packaging solutions. The report details Siemon's ongoing alignment with global initiatives, including adherence to the Responsible Business Alliance Code of Conduct, membership in the United Nations Global Compact, and progress toward the Science-Based Targets Initiative (SBTi) commitment to net-zero.

CHANNEL UPDATE IN BRIEF

Alcatel-Lucent Enterprise and Westcoast have announced a new channel partnership. Westcoast will now distribute the full portfolio of Alcatel-Lucent Enterprise communications and networking technologies to organisations across diverse vertical market sectors.

Zayo Europe has appointed Caroline O'Connor as chief legal officer. She will oversee all legal functions across Zayo Europe including compliance, risk management and corporate governance.

Perstorp will now serve the specialty fluids markets from new site in Amsterdam. This marks Perstorp's first step toward the growth of the synthetic ester business, becoming a recognised leader and supplier of synthetic fluids that enable sustainability benefits such as enhanced operational safety, cooling efficiency and reduced maintenance.

TM Forum has appointed Guy Lupo to lead its AI and data innovation industry mission. This strategic appointment underscores TM Forum's commitment to helping the global telco industry accelerate the adoption of AI at scale by enabling sustainable, safe and responsible use of AI and data technologies.

ABB Electrification's Smart Buildings Division and Wieland Electric have announced a strategic partnership. The collaboration combines Wieland's innovative connector technology with ABB's extensive portfolio to deliver plug and play electrical installation for greater efficiency in modular and serial construction projects.

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THINK SAFETY
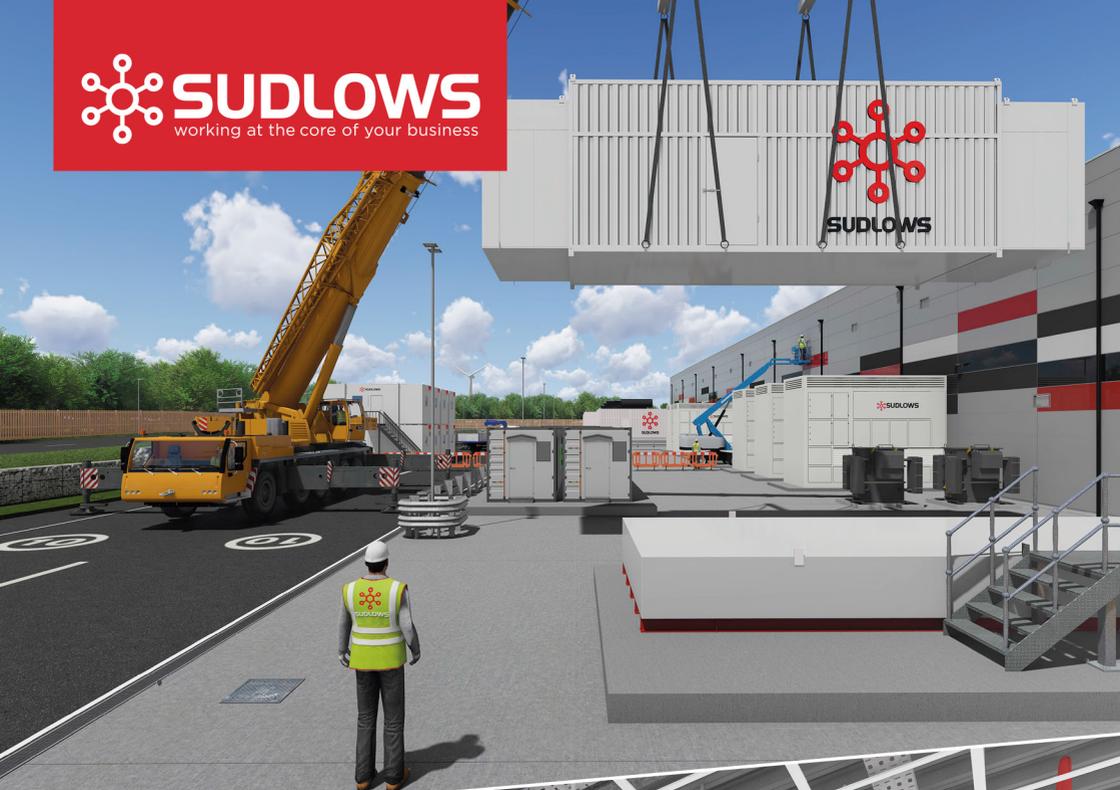
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Quickclicks

Your one click guide to the very best industry events, webinars, electronic literature, white papers, blogs and videos

Base-8 Versus Base-12: Which Fiber Cabling System Is Right for You? is the question posed in a blog from **Siemon.**
CLICK HERE to read it.

The Importance Of Cabling Standards is a white paper from Ian McKiernan of **Excel Networking Solutions** that addresses how standards impact the design and installation of reliable cabling networks.
CLICK HERE to download a copy.

An Introduction To Data Centre Heat Reuse is a white paper from the **European Data Centre Association (EUDCA).**
CLICK HERE to request a copy.

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LMG's Smart Moves: How Landlords and Tenants Thrive in the Evolving CRE Market report reveals that 70 per cent of UK commercial real estate (CRE) leaders are concerned about economic pressures, while tenant demands and sustainability expectations are driving unprecedented market shifts. **CLICK HERE** to download a copy.

PoE Technology – Market And Applications is a white paper by Jean-Jacques Sage of **Aginode. CLICK HERE** to download a copy.

Zero Trust Network Access For IT/ OT Environments is a blog by Mark Nairne of **North. CLICK HERE** to read it.

Schneider Electric has published two reports that fill key knowledge gaps regarding AI's impact on sustainability, particularly in energy use. **CLICK HERE** to download Artificial Intelligence And Electricity: A System Dynamics Approach and for a copy of AI-Powered HVAC In Educational Buildings: A Net Digital Impact Use Case **CLICK HERE.**

Taking the initiative

Rose Weinschenk of Uptime Institute Intelligence explains how moving to a more targeted recruitment plan can help widen the talent pool

▶ Staffing shortages in the data centre industry are largely due to rapid industry expansion, but the low numbers of employees from under-represented groups suggest that a re-examination of the industry's recruitment practices could widen talent pipelines. This could include targeting military veterans, women, neurodiverse individuals and those looking to switch careers.

SHARP FOCUS

Uptime Institute's 2023 staffing survey revealed that two-thirds of data centre operators have initiatives in place to hire new entrants. However, 58 per cent reported difficulty in sourcing qualified candidates, which raises concerns about the effectiveness of current recruitment strategies. By re-evaluating their recruitment initiatives to focus on smaller, clearly defined groups, operators can improve the effectiveness of their recruitment programs.

While most new hires are sourced through internal promotions or from other data centre operators, the industry is not without additional options. Uptime's 2023 staffing survey revealed that 41 per cent of respondents recruited

new talent from universities, 30 per cent from other mission critical industries and 12 per cent from the military. These groups offer an advantage due to their association
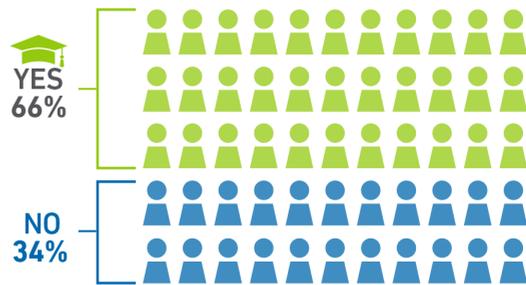
Does your organization have initiatives or programs in place to hire (e.g., recent college graduates or training program graduates)? (n=

YES 66%

NO 34%

UPTIME INSTITUTE DATA CENTER STAFFING SURVEY 2023

Where has your organization recently recruited from for open data center positions? Choose all that apply. (n=226)

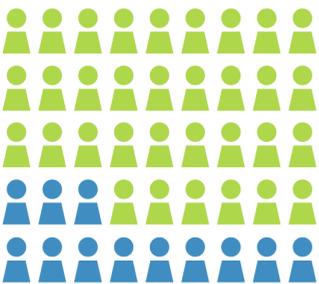| 54% Internal promotions | 49% Other data centers | 41% Universities | 12% Military / veterans' groups |
		30% Other mission-critical industries (e.g., laboratories, hospitals)	10%	9% Trade schools
			High school secon school
			15% Other

UPTIME INSTITUTE DATA CENTER STAFFING SURVEY 2023

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with large, easily targeted institutions. Women and minorities generally comprise a fraction of these groups and funnelling these individuals into a data centre career may require additional strategic consideration. Let's look at each group in more detail:

• University graduates
Data centre companies often offer internships to university students, but there are issues with visibility. Hyperscalers typically provide access to college internships on their websites, but data centre-specific opportunities are often hidden in a mass of more general science, technology, engineering and mathematics (STEM) internships.

e new entrants into the job market
402)

uptime
INTELLIGENCE

Some operators fear that publishing easily accessible information about their day-to-day activities could mean exposing confidential information to business competitors. As a result, operators that engage in recruitment outreach initiatives tend to do so through third-party organisations, so they can highlight their brands without exposing proprietary data.

While universities are an important source of talent, the industry's tendency to focus on this singular group contradicts current hiring needs. Additionally,

university graduates often seek leadership positions, which they believe are warranted by their degree – but these positions are limited and usually require relevant experience.

• University Technical Colleges (UTCs)
UTCs deliver the mainstream curriculum to 14-18-year-olds in the UK, and partner with industry organisations to provide specialised training. UTCs at Heathrow, Reading, Swindon and Oxfordshire now offer the Digital Futures Programme, which is designed to equip students with the skills, knowledge and experiences needed for a career in the digital infrastructure industry.

The curriculum is developed in collaboration with leading industry organisations. After graduating from the Digital Futures Programme, students are placed with industry partners or other organisations for employment opportunities. Each UTC graduates up to 150 students annually.

• Veterans
Military veterans are a recognised source of data centre operational talent, particularly in the US. The ability of veterans to follow processes and instructions with minimum deviation is highly valued.

In several countries there are programs in place that allow military veterans to train on-site with no financial expenditure to the employer. In the US, the government-led DOD SkillBridge program allows veterans to continue receiving a military salary while working on internships or apprenticeships in various partner companies.

Despite this, only 12 per cent of Uptime's staffing survey respondents reported recruiting from the military in 2023. It is likely that, while many data centres provide opportunities through the DOD SkillBridge

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'While most new hires are sourced through internal promotions or from other data centres, the industry is not without additional talent pool options.'

program, they compete with many other more widely recognised partner industries on the program.

• Women

Uptime's 2024 global survey of data centre managers reported that 80 per cent of data centre operators employ 10 per cent or less women. Women are less likely than men to pursue STEM careers, and only a small subset will be drawn to data centre careers. Early education that shapes career paths is crucial for this group, but most initiatives catering to women tend to focus on those already attached to the industry.

Many organisations promote employee-led networking groups for specific demographics to connect with each other across sites and roles. While this strategy may foster a sense of visibility, it risks putting the onus of inclusion on to employees rather than employers. These diversity-based groups may at times have the opposite effect to that intended – participants may become more aware of their demographic's limited presence in the company.

• Neurodiverse individuals

While many neurodiverse individuals possess STEM backgrounds, they often struggle to secure steady employment. This is especially true for those with autism spectrum disorder (ASD). Those with ASD struggle in social situations and find it difficult to display the necessary social skills inherent to the interview process, such as interpreting nonverbal cues or maintaining eye contact.

Evidence suggests that, given the proper support, this group tends to demonstrate advantageous characteristics in a work setting. Researchers from York University found workers with ASD are more likely to intervene upon witnessing misconduct or dysfunction in the workplace, and less likely to engage in unethical behaviour.

In a data centre context, this may translate to adherence with operating procedures and a lower likelihood of compliance errors. Despite the high placement rates, few employers are aware that successful vocational programs for neurodiverse individuals exist. Fewer still may be willing to invest resources into this demographic due to negative stereotypes surrounding autism.

OUTSIDE THE INDUSTRY

Although 30 per cent of 2023 staffing survey respondents report recruiting from outside the sector, few initiatives specifically target workers from mission critical industries outside the data centre industry. The main obstacles facing this group are a lack of awareness about opportunities, a lack of confidence in their ability to transition into the sector, and a lack of company funded education or training programs for those who wish to switch careers.

Various organisations offer free tuition programs, funded by grants and donations, which also provide students with a stipend. While this removes obstacles for the students, partner businesses typically must

pay a fee per intern – although recruitment fees may be waived if interns are hired. Many data centre hiring managers, however, consider this investment too risky.

RULES OF ENGAGEMENT
While operators often wish to expand their staffing efforts, many still prioritise confidentiality to the point where essential employment information is inaccessible. This practice may be rooted in misconceptions of what information is necessary to attract recruits and what information should remain confidential. Successful strategies include:

• Openly promoting opportunities to any given demographic but only providing access to background information on data centres and industry benefits.

• Partnering with a diverse array of pre-existing third-party development programs that cater to specific demographics. Facilitators involved are usually willing to sign nondisclosure agreements to safeguard company information.

• Assessing long-term and short-term placement rates. When choosing a third-party recruitment or training agency, consider the long-term retention rates in addition to the placement success rates.

• Focusing on near-term solutions. Organisations can focus on the data centre roles with the most vacancies and try to recruit appropriate employees as quickly and effectively as possible.

 While confidentiality concerns may sometimes be warranted, relying on assumed obscurity for data centre security is becoming less sustainable as public awareness of the industry grows. Most data centre employers embed security risk awareness into the culture of the organisation and communicate this to potential recruits.

TAKING A VIEW
Data centre managers are under pressure to attract additional talent to the workforce so that senior staff, many who are nearing retirement, can pass on their expertise. The industry has the necessary recruitment tools to resolve this but needs to reassess the extent to which it sacrifices privacy for growth. ∎

ROSE WEINSCHENK
Rose Weinschenk is a research associate for Uptime Institute Intelligence covering staffing and education. Her background includes 14 years in the psychology field, with an emphasis on ethics and cognitive behaviour.

National Data Centre Academy (NDCA)

The National Data Centre Academy (NDCA) is transforming data centre training, with a focus on hands-on, real world learning. Our training environments are crafted for professionals in the data centre industry who want to stay ahead of the curve.

We offer practical experiences that go beyond typical training courses. As a technician, you'll get the chance to dive deep into a real data centre environment, exploring its full potential and understanding all the interactions and dependencies at play. This means when you return to your own data centre, you'll have the latest knowledge and techniques to drive improvements and optimisations.

Plus, you'll be confident in how best to apply this knowledge.

At the NDCA, we go beyond the basics, ensuring you gain the skills and experience needed to truly excel in the industry. As an insightful and strategic leader at the cutting edge of industry advancements, we are committed to equipping you with the expertise and forward thinking approach necessary to thrive.

To find out more **CLICK HERE.**
www.nationaldatacentre.academy

HellermannTyton Academy

The HellermannTyton Academy runs a range of training courses for all levels of installer and engineer. Our courses cover both optical fibre and copper installation, with both practical and theory elements to most available training modules.

Our Cat 6A and Cat 6 Practitioners course has been specifically designed with our HTC product range in mind. This is a one-day course conducted at HellermannTyton Connectivity headquarters in Northampton. Completion of this course is an integral part of the HellermannTyton 25-year system warranty.

We offer other industry standard and certified training courses through our training partner, Lucid Optical Services.

These include a wide range of City & Guilds and Open Awards qualifications from fibre optic cabling through to optical network and design.

In addition to these face-to-face training courses, HellermannTyton is now CPD accredited for our A Guide to Shielded Systems, Power and Data Separation training course. This course is delivered as a short online module and, upon completion, CPD credits can be awarded to participants.

More information on our training courses, along with our comprehensive training course brochure, can be found by **CLICKING HERE.**
www.htdata.co.uk

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Boom or bust?

John Booth of the National Data Centre Academy (NDCA) discusses whether artificial intelligence (AI) is under threat from the ongoing skills shortage

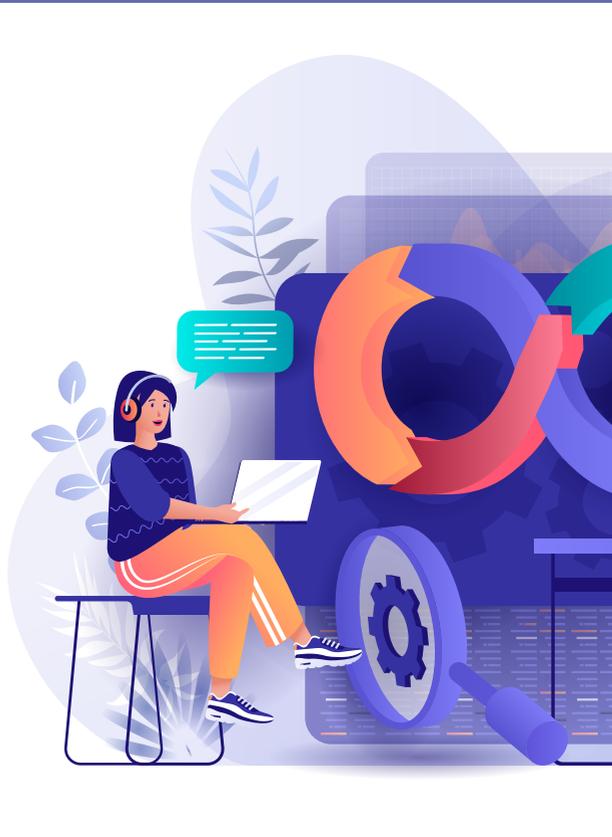▶ Designing and building data centres is a highly skilled profession. They provide a secure home for digital infrastructure – powering it, cooling it and housing lots of other services such as security systems, fire detection and suppression, leak detection, network infrastructure etc. There are very few individuals that can cover all the required elements, so we get specialists in each discipline that are needed to get a data centre from an initial concept to an operational facility. However, those skills are in short supply and have been for many years.

DISCUSSION POINT

Over the last 14 years almost every single event that I have attended has featured at least one panel session to discuss the shortage of both data centre construction and operational personnel. And it's not just in the construction and operation of a data centre, the skills shortage extends to the equipment manufacturers.

Due to the Covid-19 pandemic, equipment supply chains are still a lot longer than they used to be – a lot longer. We've been advised that transformers are around three years from order to installation, packaged LV/MV skids and chillers around 12 months, and computer room air conditioning (CRAC) units and computer room air handling (CRAH) units

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around six months. This means that data centres can take a long time to build!

OUR SURVEY SAYS...

The other and, in my opinion, more acute problem, is the electricity distribution grid. An article published by the Environment Journal in March 2024 covered Prospects' latest workforce survey.

The report stated, 'According to feedback from respondents, 82 per cent of workers believe staffing levels are now too low in their workplace. 69 per cent

to this, almost two-thirds (63 per cent) had current vacancies within their team, and three quarters (74 per cent) would describe their workload as "heavy" or "extremely heavy", and the biggest factor contributing to low morale.' Dire shortages, chronic understaffing and woefully under resourced were terms used to describe the situation.

The results paint a dire picture of how strained the UK's electricity sector now is, at a time when pressure is mounting to speed up net-zero transition. This backs-up the government commissioned Winser Report, which concluded that skills shortages were becoming a huge constraint on net-zero delivery.

CAUSE AND EFFECT

So, we have a specific data centre skills shortage in construction and operations, we have skills shortages in the supply chain, and we have significant skills shortages in the electricity sector, which is key to the delivery of digital infrastructure. This has been apparent for many years – long before the arrival of AI.

There is no doubt that data centre growth has been boosted by the growth of AI, almost every day there is an article announcing a new AI capable data centre to be built. These facilities are truly mindboggling – what was once considered to be a large data centre at 20MW is now small fry.

One other thing is the nature of the announcements. A few appear to be hugely speculative projects, suffering from, in my opinion, a lack of data centre construction experience, vague knowledge of planning process and procedure, no engagement with data centre design and build professionals, and

report tangible skills shortages and gaps in their organisation, with lack of experienced engineers a particular concern. Further
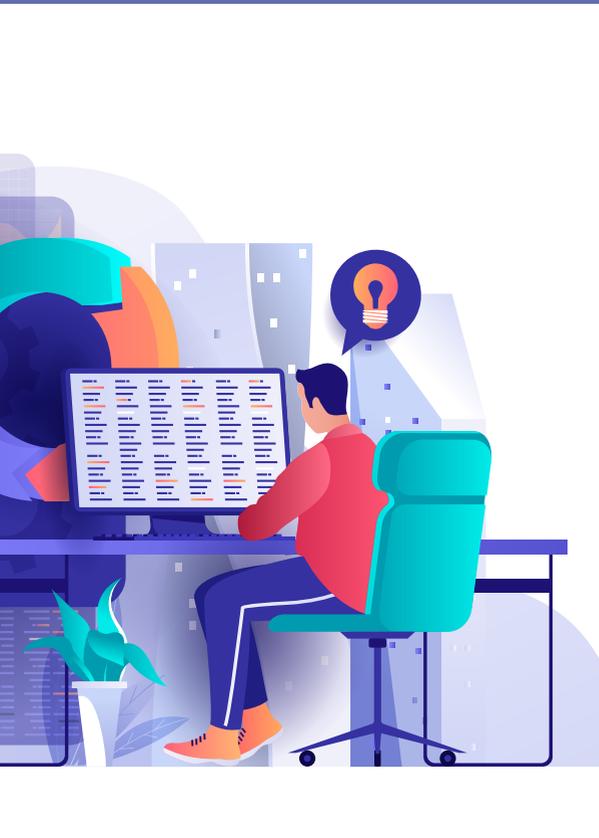
'We need, as an industry, to face up to these challenges. For too long we've put our collective heads in the sand and it's time for action.'

a lack of finance. It is helpful that the new proposed National Grid gateway process may weed out these projects early on.

PERFECT STORM

We are facing a perfect storm of increased growth and a shortage of skilled professionals who can deliver high quality digital and other infrastructure. The problem is multifaceted but at its core is a lack of science, technology, engineering and mathematics (STEM) education and training in schools, colleges and universities. There is also a lack of in-house apprenticeships and other training opportunities within the workplace.

But there is also something wrong with society. All these vocational careers are looked down upon by other professions, at least until a very real practical problem
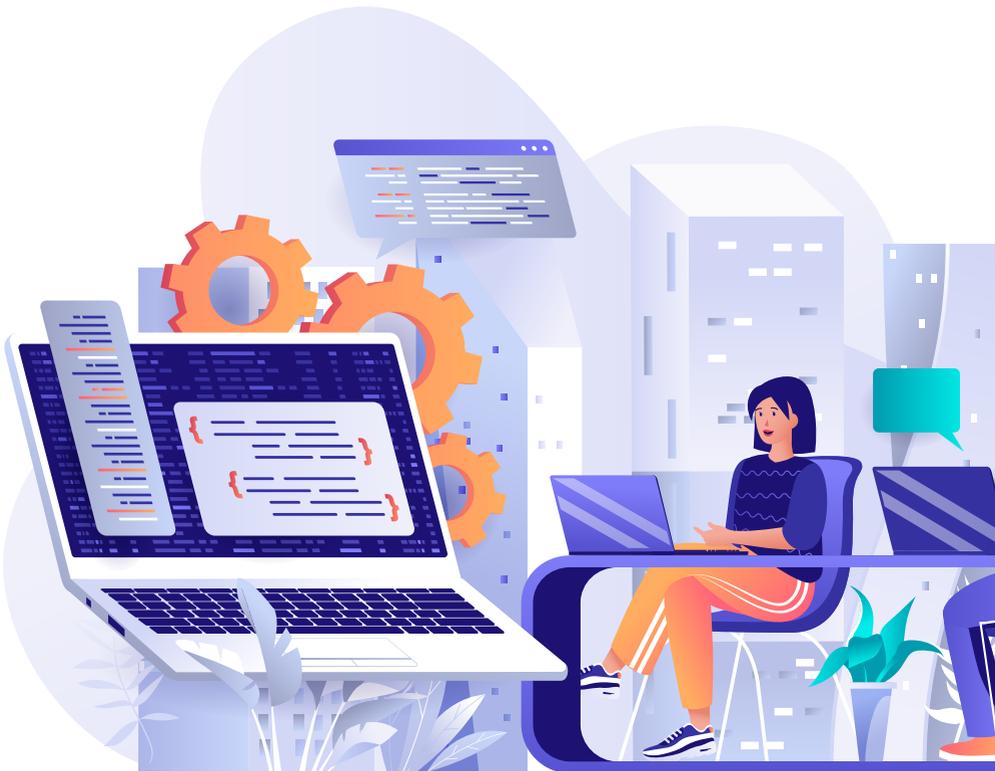
arises that cannot be solved using a spreadsheet or Googling a solution – one where someone must get their hands dirty, or use a special tool, or must have real practical solution applied by a trained professional. Then it's OK to amend the attitude, reassess behaviour and treat the individual with the respect that their career and training deserves.

I'm minded of the TV engineer who taps the side of the television, fixes the fault and then charges £100, only for the customer to kick back saying 'You only tapped the side of the TV, I'm not paying £100 for that!' only to be told, 'Well it's a £1 for the tap and £99 for knowing where to tap.'

This is all before we even start to consider data centre construction and operational personnel. This has become very acute, and we are just a few short years away from the 'grey tsunami', where experienced data centre professionals will retire in droves.

GET REAL

We need, as an industry, to face up to these challenges. For too long we've put our collective heads in the sand and it's time for action. I'm pleased to say that action is happening and there are some initiatives in the pipeline that will go a long way to address the problems. ∎
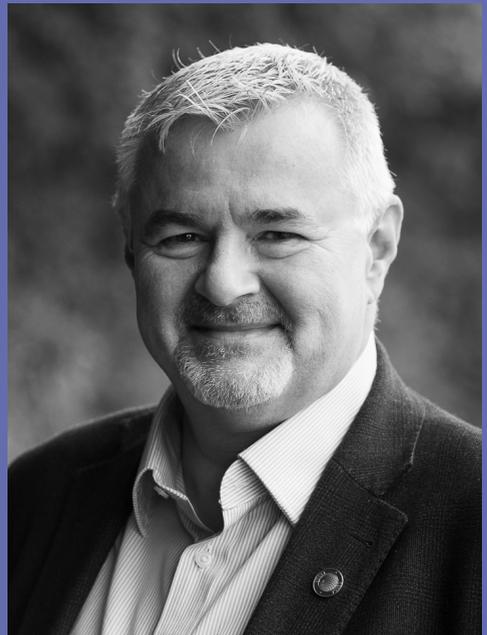
UNDER THREAT?

It's all very well announcing new massive data centre projects but sooner rather than later developers are going to run into the brick wall of reality. Despite the recent publication of the National Grid's RIIO-T3 Business Plan, which features data centres no less than 14 times, the electrical grid upgrades will take a lot of time to build-out. As mentioned earlier, the National Grid, its partners, as well as its supply chain, are also having staffing problems.

JOHN BOOTH

John Booth is managing director at the NDCA, which aims to transform data centre training, with a focus on hands-on, real-world learning. He is also managing director of Carbon3IT.

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Speculate to accumulate

Anna Marriott of Virtus Data Centres looks at how investing in people can create operational excellence

▶ Data centres are critical national infrastructure and essential in our connected world. The evolution of artificial intelligence (AI) is increasing the demands of customers who want operators to build data centres faster and more efficiently, and with more advanced systems. While we are already operating 24/7 365 days a year to keep the digital world running, this rise in demand brings a further set of challenges.

BUILDING RESILIENCE

The global boom means we must build facilities faster and employ more people with the right expertise – but this must not be at human cost and can only be achieved with people who are functioning healthily. So, ensuring everyone involved in our industry remains safe, healthy and happy throughout their working lives is fundamental to its success.

Physical safety in data centres is a well-established requirement and prioritised throughout the entire value chain. Large hyperscalers publish league tables of the safety statistics of their operators and leading data centre providers have multiple industry standard accreditations such as ISO and RoSPA. However, resilience is not just about responding to failures but also preventing them through preparedness. Training, scenario testing, and health and safety initiatives help employees feel more equipped and confident during unexpected situations.

Thousands of hours a year are dedicated to a wide variety of training and awareness activities such as toolbox talks, risk assessment method statement (RAMS) training, first aid training, reporting safety observations and near misses, leadership site visits, incident management, lone working protocols and scenario tests, as well as more role specific, high risk

activities such as high voltage switching and authorised person protocols. To ensure processes are always followed safely, a two-party verification (TPV) process introduces another level of vigilance, where each step of a change is verified by an overseeing engineer.

VISITING TIME

Outside of data centre operations, I recently visited a data centre construction site, which highlighted the scale and complexity of the project, as well as the high risk activities involved in construction. The sheer volume of tasks being undertaken simultaneously by different contractors was striking, with numerous people operating a wide variety of machinery.

The site operates in a 360° world, demanding continuous spatial awareness and unwavering concentration. This high pressure environment, combined with the risk of potential serious injury, often uncomfortable working conditions and the natural human tendency to take the easiest – but not necessarily safest – path under time constraints, underscores the importance of maintaining safety. I left with a strong feeling of sensory overload because so much was happening at once. Reflecting on these challenges, it became even clearer that a commitment to ensuring the workforce remains safe, healthy and happy throughout their working lives requires constant attention.

HOLISTIC APPROACH

To take this to the next level, it is essential to address workforce wellbeing as a whole and take an approach that encompasses wellbeing, health and safety holistically.

We can have the highest quality, safest processes in the world but what if the person following them loses concentration for a moment because they're tired, distracted or feeling unable to say that they need to stop work?

Mental wellbeing and psychological safety are key aspects of operational excellence. Organisations benefit from creating an environment where colleagues can raise issues openly and share personal challenges that might be affecting their work. An argument with a partner or financial difficulties are both examples of situations that could lead to emotional distraction and a lack of concentration at a crucial moment.

Here, management skill plays a vital role. Training in mental health first aid is important, but more so awareness on a human level, caring personally about colleagues and taking the time to check in beyond just work related tasks. A culture of care and curiosity creates the conditions for safety.

SAFETY FIRST

A generative safety culture goes beyond compliance, embedding safety into the fabric of the organisation. It is self-generating, meaning there is collective ownership for wellbeing, health and safety at all levels and it's everyone's responsibility to make sure that they and their colleagues are safe – nobody walks past an unsafe situation, whether a physical or mental one.

Establishing organisational protocols can be vital, such as a 'stop' process, which empowers all colleagues to stop work and review what is being done to ensure it is safe. Introducing 'safety moments' at the start of meetings offers an opportunity to reflect and learn and embed this kind of behaviour, as well as celebrating these

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'Mental wellbeing and psychological safety are key aspects of operational excellence. Organisations benefit from creating an environment where colleagues can raise issues openly and share personal challenges that might be affecting their work.'

issues being called out.

Regular surveys are crucial to gauge workforce sentiment. Asking colleagues if the company looks after their wellbeing and whether they feel safe, as well as asking the well-established Health & Safety Executive stress-factor questions, give insights on these areas and highlight areas to target, such as manager support, workload and job control. Providing tools to manage stress, given the high pressure nature of the industry across the board and the wide variety of professionals whom we support, are also critical.

WHAT SKILLS WILL WE NEED?

Organisations must lead in wellbeing, health and safety and extend this ambition throughout their

entire supply chains. With a limited talent pool, companies with strong safety and wellbeing records will attract employees. A culture of care that goes beyond financial incentives positions the industry as a desirable workplace.

What does this look like on an individual level? What can we do to move the needle? I believe we all need to further develop our human skills of curiosity (asking insightful questions), empathy (listening to the answer and putting oneself in the other person's shoes), and building relationships (focusing on the other person before ourselves). In an increasingly individualistic and polarised world, remembering that we operate within a system where our personal actions or inactions make a difference to others is vital to maintaining a sense of community and care.

IGNORANCE ISN'T BLISS
This is an invitation not to be ignored.

We can reflect on the wellbeing, health and safety culture that we all create with our daily interactions and seize the opportunity to have a positive personal impact. ∎

ANNA MARRIOTT
As well as being senior vice president people and organisation at Virtus Data Centres, Anna Marriott is a chartered fellow of the Chartered Institute of Personnel and Development (CIPD), executive coach and agile human resources (HR) trainer. She has worked at Virtus for four years and has over 20 years of HR and leadership development experience. She has also worked as an HR consultant with one of the country's leading employment law firms, working mainly in the tech and creative sectors.

ASTRON selects Juniper Networks' AI-native networking solutions to pave new frontiers in radio astronomy

Juniper Networks has announced a landmark project with the Netherlands Institute for Radio Astronomy (ASTRON) to upgrade its core, access, WLAN and WAN network infrastructure, supporting the development of its LOFAR 2.0 upgraded telescope. LOFAR is currently the largest radio telescope in the world, operating at the lowest frequencies that can be observed from Earth.

Juniper's networking solutions will upgrade the existing LOFAR telescope's overall performance with 800Gb/s capabilities to enable increased data processing scale, throughput speed and reliability using a robust architecture that will connect across nine of ASTRON's operating countries. The upgraded LOFAR 2.0 telescope will give ASTRON a factor 10 increase in the network bandwidth available at each LOFAR station.

The network will enable access to all LOFAR antennae 24/7, a doubling of the simultaneous bandwidth for more efficient surveys, synchronised antennae to within nanosecond precision, and an overall improvement to LOFAR's sensitivity and accuracy. The existing LOFAR 1.0 telescope operations have led to the publication of more than 750 scientific papers to date, placing LOFAR in the top 10 per cent of all astronomical facilities worldwide.

Atlas Renewable Energy and ODATA partner to drive the data centre renewable energy transition in Chile

Atlas Renewable Energy has formed an agreement with ODATA to power Chilean data centres with 100 per cent renewable energy. This partnership demonstrates Atlas' commitment to driving innovation in sustainable energy solutions for the rapidly growing Chilean data centre sector, and supports ODATA's strategic objectives and sustainability initiatives in the country.

The agreement leverages diverse renewable energy sources to deliver I-REC certifiable renewable energy to ODATA, empowering the organisation with the flexibility to pursue sustainable growth and expansion. It also fosters innovation and a sustainable energy transition in Chile to pave the way for an expanding data centre industry.

Driven by the surge of cloud and artificial intelligence (AI), the data centre industry has emerged as one of Latin America's fastest growing sectors. This rapid growth is expected to continue as demand for new technologies accelerates. In Latin America, demand is particularly high in cities such as São Paulo in Brazil and Santiago in Chile, where capacity is still limited compared to the growing need for digital infrastructure.

Telehouse launches pioneering liquid cooling lab with Accelsius, EkkoSense, JetCool and Legrand

Addressing the thermal challenges of today's high performance computing and artificial intelligence (AI) workloads, Telehouse Europe has launched its liquid cooling lab, following the development of strategic partnerships with four of the world's most advanced liquid cooling technology providers. Accelsius, EkkoSense, JetCool and Legrand will showcase their advanced cooling technologies at the new, state-of-the-art liquid cooling lab at Telehouse South.

This pioneering project will enable Telehouse customers to explore cutting edge liquid cooling solutions and find a solution that works best for their needs. Accelsius is bringing its NeuCool platform, JetCool will provide its cutting edge smartplate system and Legrand will install its USystems ColdLogik CL20 rear door heat exchanger (RDHx). EkkoSense will deploy its EkkoSim scenario simulations, air-side and liquid-side monitoring sensors, and EkkoSoft Critical 3D software.

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PROJECTS & CONTRACTS IN BRIEF

nLighten has formed a strategic partnership with Megaport. As part of the agreement Megaport will operate a point of presence (PoP) at two of nLighten's edge data centres, located in Milton Keynes and Sophia Antipolis.

East Midlands Ambulance Service NHS Trust (EMAS) has renewed MLL Telecom's WAN services for a further three years. MLL's contract, valued at £1.7m, provides connectivity to 68 EMAS ambulance stations and two data centres.

Nokia has been chosen by Openreach to build its One Network Platform, an open access optical fibre network to serve millions of homes and businesses. Built using Nokia's Altiplano and NSP network domain controllers, the network will help Openreach grow from 17 million connected premises today to 25 million by the end of 2026, responding to the increasing demand for high speed broadband all over the UK.

Maincubes' newly constructed FRA02 data centre in Frankfurt aligns with the EU Taxonomy standard. This milestone underscores Maincubes' commitment to stringent environmental stewardship, regulatory compliance and creating long-term value for investors and clients alike.

CityFibre has begun work to connect more than 57,000 homes and businesses across hard to reach areas of East and West Sussex to next generation, full fibre broadband as part of the government's Project Gigabit.

All you need
to know

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THE NETWORK INFRASTRUCTURE E-MAGAZINE WWW.INSIDENETWORKS.CO.UK

MEDIA KIT 25

Building blocks
of success

Fred Rio of Trackunit explains the role network connectivity is playing in data centre construction to help projects come in on-budget and on-time
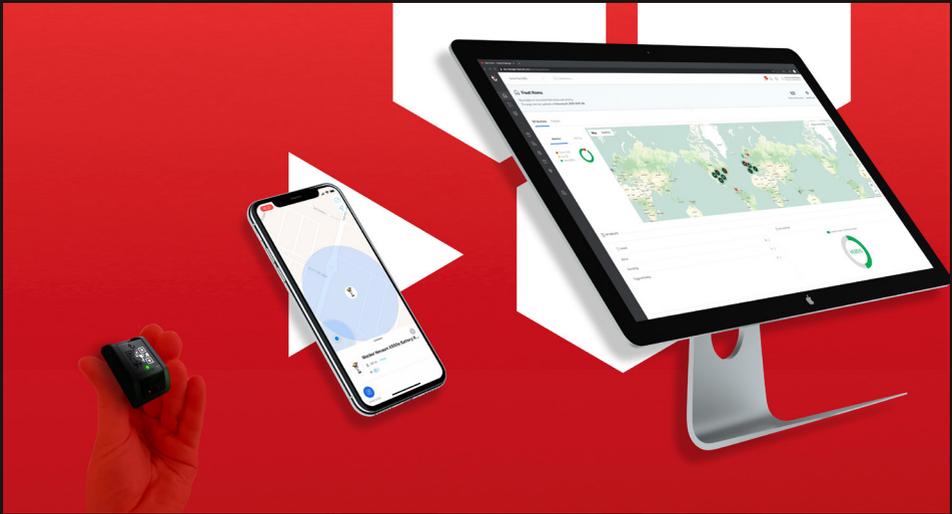
Data centres have become as essential to construction as construction is to the continued growth of data centres. In July 2024 alone, over $30bn in new data centre projects was announced globally, from the largest cloud providers to medium and small data centre operators. However, both industries constantly work against being crippled by the same problem – downtime.

GET AHEAD

After years of hype, the level of data connectivity is still relatively immature in construction, but increasingly it is becoming embedded and will strengthen the ecosystem considerably, providing the data required to get ahead of the game by tracking sites, logistics, materials and machines, and using that capability to analyse and predict any eventuality. This is already helping to reduce downtime, increase productivity, safety and complete projects on-budget and on-time.

This change is happening, and greater levels of data and analysis will help align the owners and builders' objectives, which are usually different. Owners want a data centre that best matches cost, schedule and overall business needs, which includes data centre availability. However, the builder wants to meet project targets and schedules, while preserving its margin.

Construction is a fiendishly complicated industry, and that very complexity is a barrier to efficiency. There is often no network on jobsites, and only those that have the resource and capital can create

their own gateway hardware, which is the foundation of a network on-site. It's estimated that currently as few as five per cent of sites in Europe have an effective set-up, three per cent of job sites in North America, and 1.5 per cent in South America, which demonstrates the problem and the opportunity.

'McKinsey has reported that construction projects typically take 20 per cent longer to finish than scheduled and up to 80 per cent of them run over budget. That, it says, is partly attributable to the slow uptake of digitisation.'
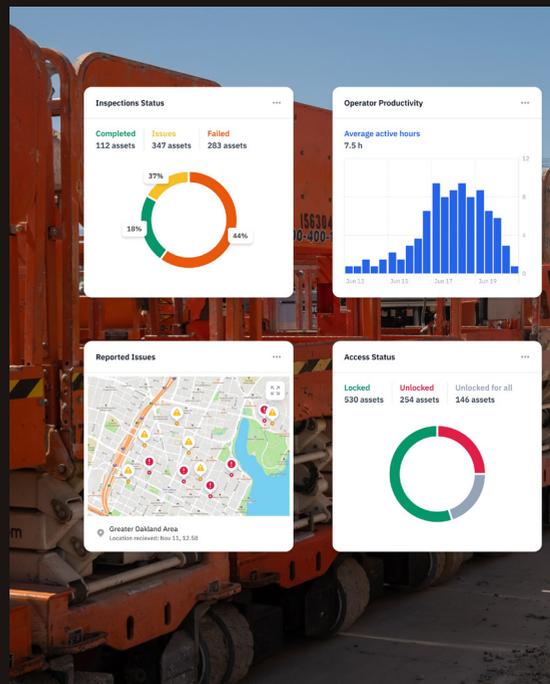
realised that if you're invested in the industry-wide struggle to eliminate downtime, then such connectivity could become the single most impactful development.

DIGITAL WATCH
McKinsey has reported that construction projects typically take 20 per cent longer to finish than scheduled and up to 80 per cent of them run over budget. That, it says, is partly attributable to the slow uptake of digitisation in the industry, meaning it is missing out on the ensuing connectivity benefits that would optimise projects and make delays less inevitable.

With that in mind, the case for

AUTOMATED CONNECTIVITY
There is so much focus on networks as the conduit for connected jobsites. Currently, just being some distance away from a portacabin, with its shaky Wi-Fi connection, and having to step back to stay in data or video contact with headquarters, demonstrates exactly what it is that networks can offer and why this functionality is potentially such a boon to construction. Furthermore, there's more than just offering a degree of connectivity that Wi-Fi can't support. It would also enable workers to quickly locate tools and equipment and not waste time searching for misplaced or stolen items.

Place a network within a construction context with its tunnels, floors, walls and numerous other obstacles that would make a Wi-Fi signal virtually impossible, and the implications start to become obvious. Add to that the beneficial implications of a greater understanding of the network requirements of the finished structure, and it is not only construction that gains, but also the building owners and users. That's why the construction industry has

connectivity seems obvious. Except it isn't. And there are some key reasons for this. Firstly, there is the cost. Networks – be they mesh, star or another topological set-up – are not cheap. Putting in place one that effectively gives you working connectivity on a large construction site with vertical, subterranean and scale challenges is going to require a considerable investment.

That said, network pricing is trending down as competition increases and for large companies this type of expenditure is easily manageable. That's reflected, for example, in the proliferation of mesh networks in industries like oil and gas, technology and chemicals. At the top end of the internet of things (IoT) solutions sector, this has been partly solved with a star topology where data, in essence, bounces back and forth from a central node. That's where it differs from a mesh network, which bypasses this centrifugal step.

SUSPICIOUS MINDS

Aside from the technological and cost limits, there is one other principal factor that is also capping connectivity in construction. Overpromising and underperforming have gone on for decades, where technologists have promised a magic wand to solve the technology problems in construction, which has created a suspicion towards tech innovation.

It's here that the role of standard bearers is becoming increasingly important. Big construction players like Bechtel, Mortensen, Kiewit and Skanska, which alone turnover around $48.4bn, are already invested heavily in connectivity. The case in favour therefore strengthens incrementally, as there is a tendency across the industry to watch what industry leaders do, learn the lessons and follow.

The requirement for specialised IT support, whether internal or external, is another element that must be understood, as organisations' requirements will scale up and down as projects start and finish. Therefore, contracts that flex with the work are essential.

SAFETY FIRST

The heavy machinery segment has a level of connectivity in place, effectively eliminating or greatly reducing any cost considerations and breaking down cultural resistance to technology. It has become a matter of familiarity, as the same dynamics filter through to medium-sized construction equipment and further down the pyramid.

There's a safety aspect here too that is very evidently a downtime issue and is compelling. Every time there is an incident on a jobsite that requires an investigation team to be engaged, work must stop,
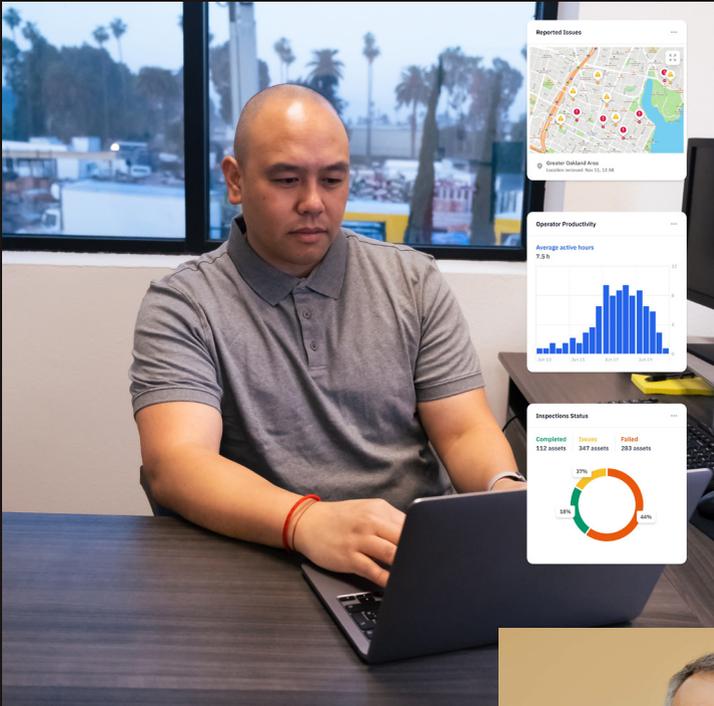
This will allow an ecosystem to effectively develop. This is 'when' rather than 'if' territory and the movement towards a networked solution will be irrevocable. When it's made, it could make processes and communication on the jobsite almost unrecognisable from what we see today. ■

and often the whole project grinds to a halt while the investigators review the incident. People's safety is of course a non-negotiable, but as connectivity reduces the likelihood of incidents, then we're winning the argument on a cost basis, a downtime basis and on a safety basis. It effectively means harmony between worker, machine and process that will become as near to seamless, taking us ever more smoothly from the production phase to the results which are data centres, schools, hospitals, roads and other infrastructure on which we all depend.

MOVING ON UP

We are in effect transitioning towards a powerful combination of the bandwidth we get with 5G enabling video, satellite technologies like Starlink, and interacting with mesh and star topology networks.

FEDERICO RIO
Federico Rio is a 25-year construction veteran, having cut his teeth in the heavy equipment industry with Caterpillar. Specialising in machine design, digital and technology, and sales and marketing, he joined Trackunit in 2023 where he is senior vice president of original equipment manufacturer (OEM) sales.

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