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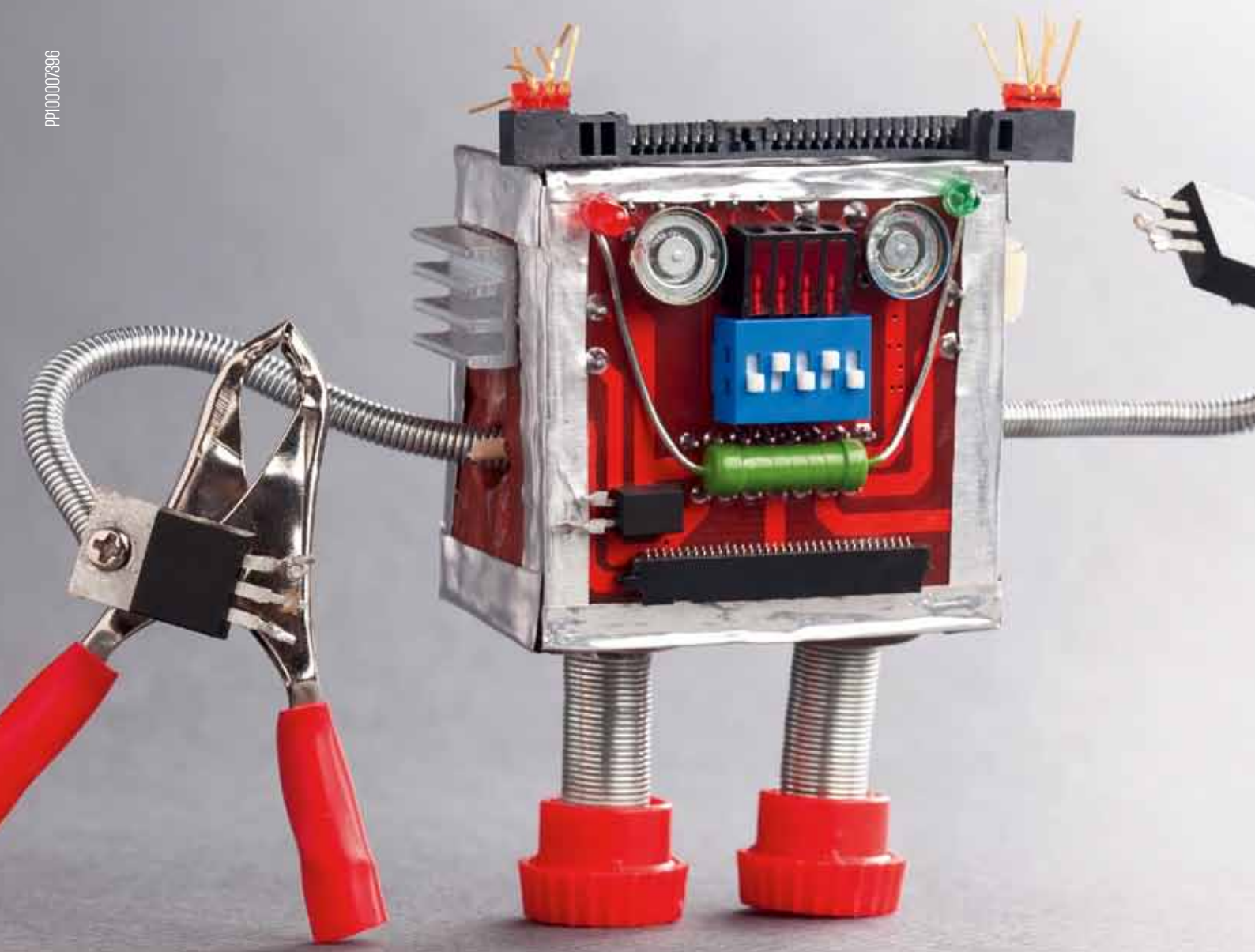

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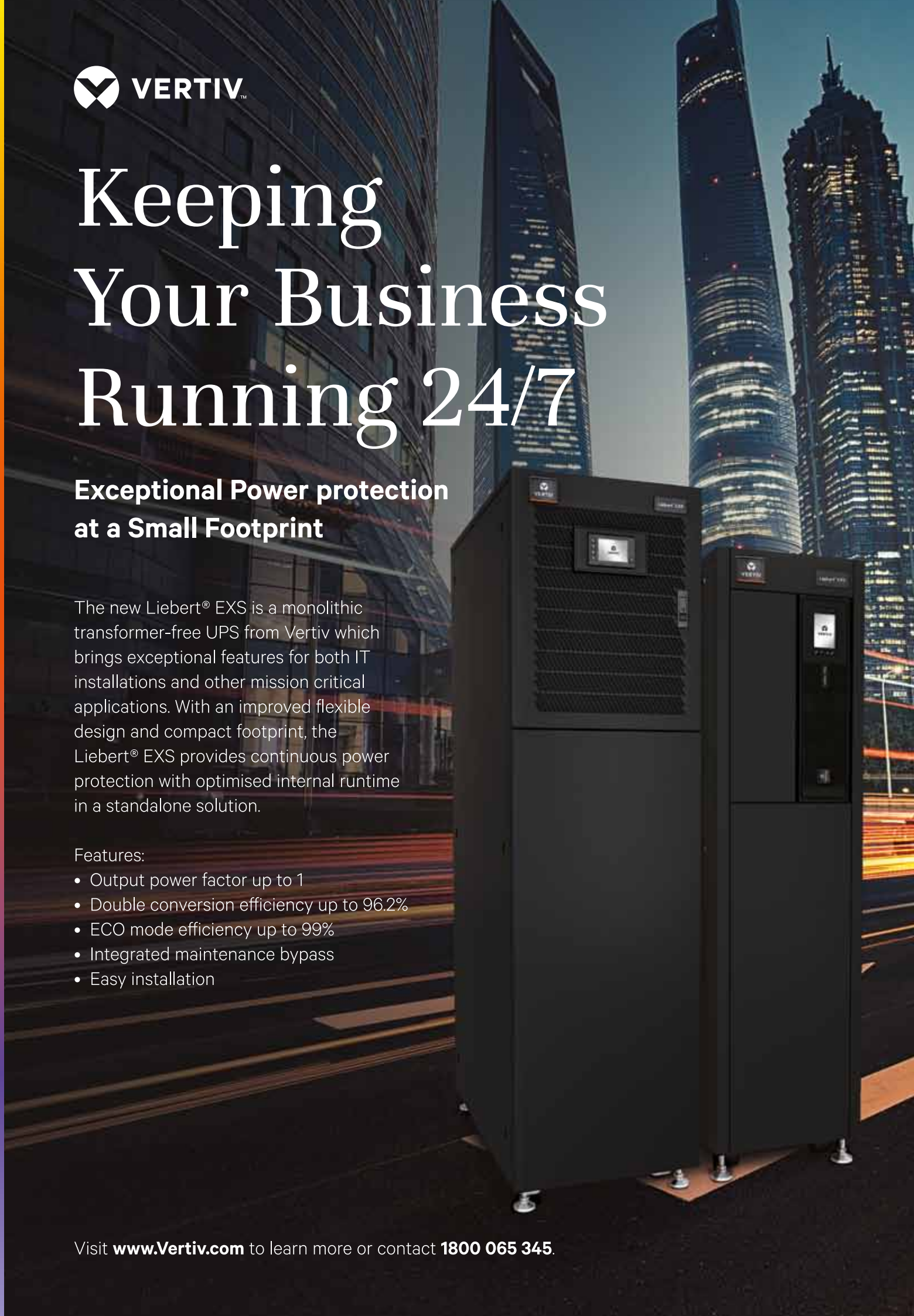

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FROM THE EDITOR

The Internet of Things (IoT), artificial intelligence, automation and digital transformation are all key terms that relate to the technological revolution that has impacted all industries over the last few years, and the electrical, comms and data industry is no exception.

Australia ranks second last on the Digital Maturity Index with a score of 53.1 compared to the global average of 57.4, according to a report by Infosys. This highlights the importance of adapting to change, which is a common theme in this issue.

A recent exclusive networking breakfast discussed how distributors can implement ERP systems to compete with digital disruptors (page 24), and IFS President of Service Management Marne Martin explains the need for field service organisations to digitise to remain competitive (page 16).

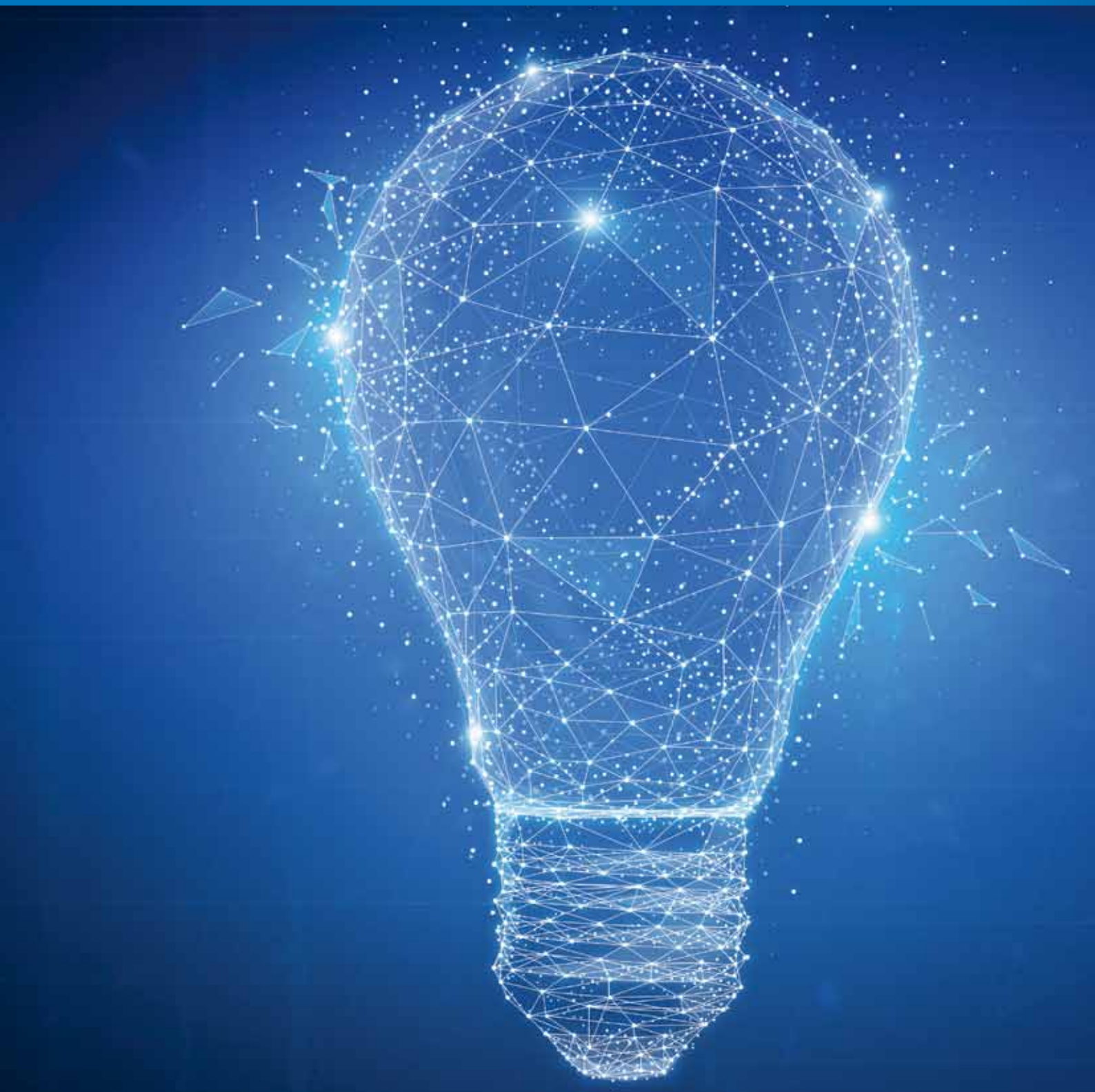
Regulations are often criticised for stifling progress and failing to keep up with technological change. Although this may be hindering the transition to artificially intelligent electricity networks (page 27), it is not always the case. In the first of a two-part article, BICSI South Pacific CEO Paul Stathis explores the potential risks associated with remote powering and the standards, regulations and technology to mitigate these new risks (page 4).

The future is now, whether government, regulatory bodies or organisations are ready or not.

Nichola Murphy – Editor
ecd@wfmedia.com.au

DIGITAL POWER — A NEW SAFETY FRONTIER

Paul Stathis, CEO



Everyone knows electricity is dangerous — we have strict laws for product compliance and strict regulations for installation to protect lives and property. Communications, on the other hand, was considered relatively safe — "no-one ever got killed by milliamps" was a common sentiment for years.

That's all about to change. The migration to 'smart buildings' is moving virtually every building service to digital, with the Internet of Things (IoT) 'looming large' as the great digital disruptor over the next few years, deploying billions of low-cost devices in an ever-increasing range of unique locations and applications. With that proliferation of low power consumption devices, we are seeing a trend, albeit small at present, towards remote powering. Advocates for remote powering claim that one day, everything that is mains-powered in today's buildings will be remotely powered over communications infrastructure in the not-too-distant future. Riding on the wave of remote powering is the relatively new technology of 'digital power'. It's not to be confused with remote powering, but both technologies bring with them a whole new outlook for safety in communications infrastructure.

Consequently, no-one can just assume communications cabling is safe anymore.

Thankfully local and international standards and regulatory bodies are keeping up with these technologies and providing valuable regulation and guidance for our protection. This two-part article explores potential risks associated with remote powering (Part 1) and digital power (Part 2) and the methodologies applied to them through standards, regulations and technology to mitigate these new risks.

Note: The risks discussed here primarily relate to heat and electrocution. There are far more safety risks related to IoT and smart buildings such as life-safety, security and medical systems connected via ICT infrastructure, but that is a completely different risk topic, outside the scope of these articles.

Some people will claim that wireless communications (eg, Wi-Fi, 5G) and wireless power are the future, negating the need for remote powering. But we'll debunk that myth in Part 2.

Remote powering

We're seeing a surge in demand for technologies like Power over Ethernet (PoE), Power over HDBaseT (PoH) and new concepts labelled "Digital Ceiling" and "Intrinsically safe office" from the market. As a result, the lines between electrical and communications services are becoming blurred — what was considered safe could now be potentially hazardous and what was considered hazardous could now be potentially safe.

Remote power — of which PoE is a subset — isn't new. Analog telephones have been remotely powered for over 100 years. Plenty of telephone technicians will tell you of the 'tingle' they'd get from the 50 VDC ringtone while working on communications cabling. Today, however, remote power is a very different methodology that safely uses digital communications between the power source equipment (PSE) and the powered device (PD) to control power delivery.

In some cases, PoE is replacing mains power, primarily as a means to converge building services, but with a by-product of reducing the risk of electrocution. Cisco's Digital Ceiling, for example, promotes an "intrinsically safe" ceiling-grid to power services like lighting and HVAC with extra low voltage (ELV) from an Ethernet switch over communications cabling, rather than mains power from an electrical switchboard. Removing hazardous voltages in the ceiling therefore significantly reduces the risk of electrocution.

Central to remote powering are PoE switches that deliver both data and power over two or four pairs in communications cabling. PoE switches are now the norm — you get the capability whether you want it or not.

And there are plenty of readily available remote-powered products: CCTV surveillance cameras; VoIP phone handsets; LED lighting; wireless access points, HVAC sensors and controllers; PA speakers; access control; audiovisual; and sensors for temperature, light levels, occupancy, motion, moisture, pressure, etc. That's just the beginning. As IoT matures, we'll see new remote-powered devices for industrial, agricultural, environmental, scientific, commercial and every sector imaginable flood the market to the point where remote powering becomes the norm. According to a recent MarketsandMarkets report, the PoE market will exceed US$1 billion by 2022.

While manufacturers like Cisco have been promoting PoE for years, industry associations like IEEE have been tempering the rush with standards for interoperability, connectivity and safety. There are several IEEE standards addressing the migration of

> THE SOON-TO-BE-PUBLISHED CABLING REGULATIONS — AS/CA S008:2019 (PRODUCT) AND AS/CA S009:2019 (INSTALLATION) — HAVE EXTENSIVELY ADDRESSED REMOTE POWERING, ACKNOWLEDGING ITS GROWING ADOPTION.

remote power technologies, the most recent being IEEE802.3bt. It expands the power range up to 90 W, qualifying the power levels and number of pairs used:

- Type 1 – 15.4 W over two pairs (defined by IEEE802.3at)
- Type 2 – 30 W over two pairs (defined by IEEE802.3at)
- Type 3 – 30 W over two pairs
- Type 3 – 60 W over four pairs
- Type 4 – 90 W over four pairs

Ninety watts may not seem hazardous, but low voltage levels on the cabling means the current will be high and could therefore be hazardous. Most cabling standards bodies around the world (ISO, IEC, AS/NZS, TIA, NFPA) are limiting current for remote powering to around 1000 mA per pair. So a PoE system delivering 90 W over all four pairs could likely carry a total of 4 A. That's significant, not just because of the high current, but because communications cabling wasn't designed to carry such levels constantly. It was only designed to carry burst energy. And as every electrician and electrical engineer knows, heavy current on small conductors means heat.

So we now have to take steps to mitigate the risks associated with excessive heat in cables, which could be in the vicinity of 15 to 50°C rise above ambient, depending on conductor and cable-bundles. Remote powering also brings many other safety-related issues including arcing at connectors, long-term cable degradation, reduced energy efficiency and reduced transmission performance (especially important in life-safety, security and medical applications). These are very real dangers that are well documented by standards organisations, safety bodies like Underwriters Laboratories (UL) and reputable manufacturers.

To help mitigate safety risks, standards bodies stipulate temperature-rise parameters that, if exceeded, could result in combustion and permanent deformation of cables that would render them permanently inoperable. Maximum cable-bundle sizes; cable routing in catenaries, trays and conduits; cable construction; and conductor diameter to name a few.

The soon-to-be-published cabling regulations — AS/CA S008:2019 (product) and AS/CA S009:2019 (installation) — have extensively addressed remote powering, acknowledging its growing adoption. They're currently both out for public comment with an accompanying background paper that provides guidance on dealing with remote powering and digital power (referred to as "energy sources" in these and other standards). These documents can be downloaded from www.commsalliance.com.au.

Key points relating to remote powering and digital power in these documents include:

- New requirements for cables, connectors and installation methods to factor greater energies being delivered on the cabling.
- Maximum conductor resistance for cables to ensure their ability to support remote powering. If this cannot be complied with, an 'engineered solution' must to be used.
- Cables not to be installed in a manner that would cause a cable's maximum operating temperature to be exceeded.
- Appendix F in AS/CA S009 describes ES1, ES2 and ES3 energy source classifications, the implications for cablers working on ES1, ES2 and ES3 circuits and the demise of the LV telecommunications circuit classification.

These safety issues were also addressed in numerous presentations at the recent 2019 BICSI conference in Florida. From them, a common thread of recommended practical measures to mitigate risk with remote powering emerged:

- Maximum of 24 cables in a bundle.
- For new PoE-capable cabling installations, use cables with minimum 0.57 mm diameter (23 AWG) conductors.
- For existing cabling being considered for PoE, qualify the cables to have minimum 0.5 mm diameter (24 AWG) conductors as well as other PoE-related characteristics such as minimal DC-resistance unbalance.
- Ensure suppliers provide cable and connectors that are certified for PoE, with substantiating documentation.
- Apply cable-derating for long cable-runs potentially carrying PoE.

In the US, the National Electrical Code (NEC) strictly regulates remote powering for cabling intended to carry more than 60 W. For such situations, the NEC specifies cable criteria (conductor size, current capacity, temperature rating) and installation criteria (cable pathways, bundle sizes, ambient temperatures). These are similar to AS/CA S008 and AS/CA S009, including an engineered solution being required if the prescribed system cannot be practicably delivered.

Recognising the impact of IoT on ICT infrastructure, BICSI has published an Intelligent Buildings standard — BICSI 007-2017 — that provides comprehensive guidance on designing and installing ICT infrastructure to reliably support remote powering. Adding to the requirements of other standards, this document recommends:

- Equipment cords and fixed cables used for data and power transmission have a minimum conductor diameter of 0.51 mm (24 AWG).
- For new installations, uses cables with 0.64 mm diameter (22 AWG) conductors if:
  - Specific building system (eg, audio video systems) is expected to require power exceeding 50 W; and
  - Flexibility is required for future systems that could be remote powered.

This brings us to the topic of digital power. Last year, the ACMA mandated a new safety AV and ICT equipment standard (AS/NZS 62368.1:2018). This was a massive change for the communications cabling industry as it introduced energy source classifications ES1, ES2 and ES3 — a key factor in determining safety in digital power. This topic will be discussed in Part 2.

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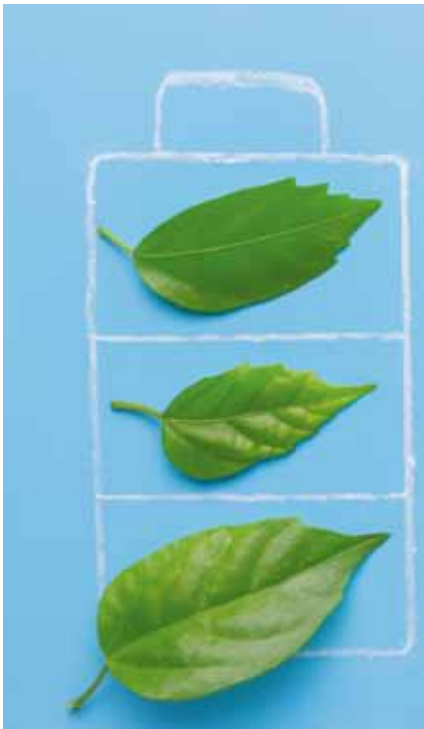

ZINC-BROMIDE BATTERY TO POWER SYDNEY UNI LIGHTS

University of Sydney spin-off Gelion Technologies has launched an energy storage platform that could offer a cheaper and safer alternative to lithium ion batteries.

The company's battery cells will be used to power mobile light towers at the university, which will help "improve safety after dark, helping to build the foundation for a more sustainable campus", explained Professor Thomas Maschmeyer, Gelion's Founding Chairman.

The Gelion Endure energy storage platform is based on safe, low-cost zinc-bromide battery technology which Maschmeyer and his team started developing in 2014.

It does not need active cooling, can be fully discharged and its electrode surfaces can be rejuvenated remotely using battery management systems. According to the company, the liquid-to-gel battery platform means it can be adapted for different applications, including support for remote power infrastructure, utility storage and distributed storage in homes and offices.

While the University of Sydney is the company's first commercial endeavour, it plans to capture a share of the $70 billion global energy storage market.

"The global battery market is currently valued at $60bn to $70bn and yet, if we were to take all current batteries produced in one year, they would only have the capability to store around 11 minutes of annual electrical power use. Gelion has set out to fill the overwhelming market need with an inexpensive, robust, safe, fully recyclable and scalable battery — the Gelion Endure system," Gelion's Chief Executive Rob Fitzpatrick said.

KEEPING TABS ON UNTERMINATED CABLES

Electrical workers are being urged to perform a detailed visual inspection and walkthrough to reduce the risks of undetected live unterminated cables, which can cause an electric shock. These cables are often the result of someone failing to ensure all electrical equipment in an installation has been connected.

The Queensland Electrical Safety Office (ESO) warned that live unterminated cables pose a serious risk to everyone and can often remain undetected as the usual electrical tests may not always identify them. It highlighted the importance of performing a visual inspection before conducting further tests, as required by the Wiring Rules.

The inspection needs to be conducted using a well-developed site plan that identifies all equipment. Drawings must be updated when changes are made to reflect the actual final installation, and if the client asks for another socket-outlet, ESO said it should be included on the plan immediately.

When conducting a walkthrough of the completed job, workers should mark off each item to ensure nothing has been overlooked. If something listed on the plan is missing, the site likely has an unterminated cable.

If unterminated cables are found, workers are encouraged to treat them as live until proven otherwise, and either remove them if they are no longer required or disconnect them from supply and enclose them in a suitable enclosure such as a junction box.

The ESO has a zero-tolerance approach to live unterminated cables, and stated it will take action regardless of whether an electric shock has occurred.

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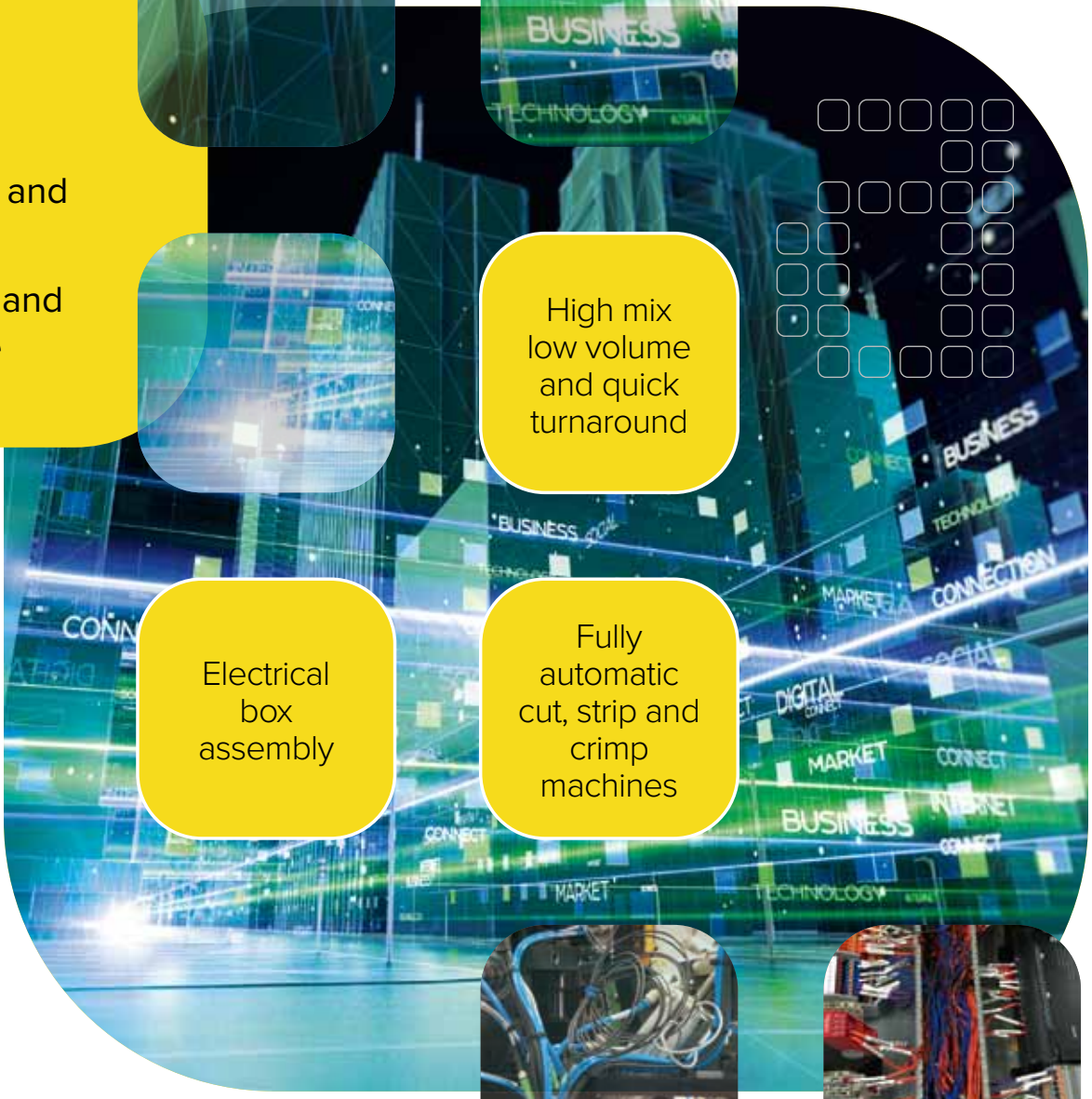

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BICSI & WF MEDIA JOIN FORCES FOR 2019 CONFERENCE & EXHIBITION

BICSI South Pacific, the peak industry body representing designers and installers of information and communications technology (ICT) systems, has entered into a partnership with specialist technology media business WF Media, with the aim to enhance and develop their national conference and expo.

The 2019 BICSI conference and exhibition will co-locate with WF Media's flagship event, Comms Connect, at the Melbourne Convention & Exhibition Centre on 27–28 November. Comms Connect Melbourne is recognised as the leading event for the critical communications sector in the APAC region.

Taking on overall responsibility for the exhibition and sponsorship sales, along with marketing and event logistics, WFevents will work closely with BICSI to deliver a focused audience and quality experience for all. The event will be heavily marketed via market-leading WF Media brands including ECD, Technology Decisions and GovTech Review. The dual-stream conference will be organised and run by BICSI, ensuring delegates continue to hear from local and international thought leaders.

"We see this as an excellent opportunity to take the BICSI Conference and Exhibition to another level," commented BICSI South Pacific CEO Paul Stathis.

"Running BICSI conferences with just our own limited resources for several years impeded our desire to expand their scale. Teaming up with WF Media greatly increases our resources to effect such an expansion, while maintaining our focus on high-quality education and guidance. Comms Connect is a world-class event and WF Media bring will quality, targeted media channels to the mix, which we believe will result in an energised event for our members and the broader ICT infrastructure sector. The fit is a good one," Stathis added.

WFevents Director Paul Davis welcomed the opportunity to work with BICSI to develop their event: "We're looking forward to working closely with BICSI on this project, with a view to a mutually beneficial, long-term alliance. Communications infrastructure, whether wireless or wired, is critically important and the co-location of these two events will give those responsible for all aspects access to a broad range of world-class providers."

Further event details to follow — for interim exhibition enquiries email bicsi@wfmedia.com.au.

VICTORIAN WIND FARM TO GENERATE JOBS

Construction has begun on the $275 million Mortlake South Wind Farm in Victoria, which will include the state's first underground transmission line and create over 100 jobs.

The 157.5 MW wind farm, being built by ACCIONA, will include 35 Nordex wind turbines and an energy storage installation with a capacity of 4–5 MW. It will generate enough clean energy to power 115,000 homes and avoid 532,000 tonnes of CO_2 emissions every year from coal-fired power stations.

Energy Minister Lily D'Ambrosio said the project will create over 90 new jobs during construction and 34 ongoing jobs. Another 20 jobs could also be created in metropolitan and regional areas with Nordex planning to establish a regional hub in Victoria, which will service Australian, New Zealand and Southeast Asian markets.

ACCIONA will lay a 15 km-long underground power line of 220 kV as far as the substation at Terang. The underground transmission route will be finalised based on environmental, cultural heritage and engineering considerations aimed at minimising the impact of the wind farm's construction and ongoing presence. A planning permit will be required for the new power line.

"This fifth wind farm in Australia shows our long-term commitment in a country whose energy future is increasingly linked to the development of clean and renewable sources — a process to which ACCIONA wants to make a significant contribution," said Brett Wickham, ACCIONA Energy Australia's Managing Director.

The Mortlake South Wind Farm will help the state meet its target of generating 50% renewable energy by 2030.

Construction is expected to be completed in October 2020.

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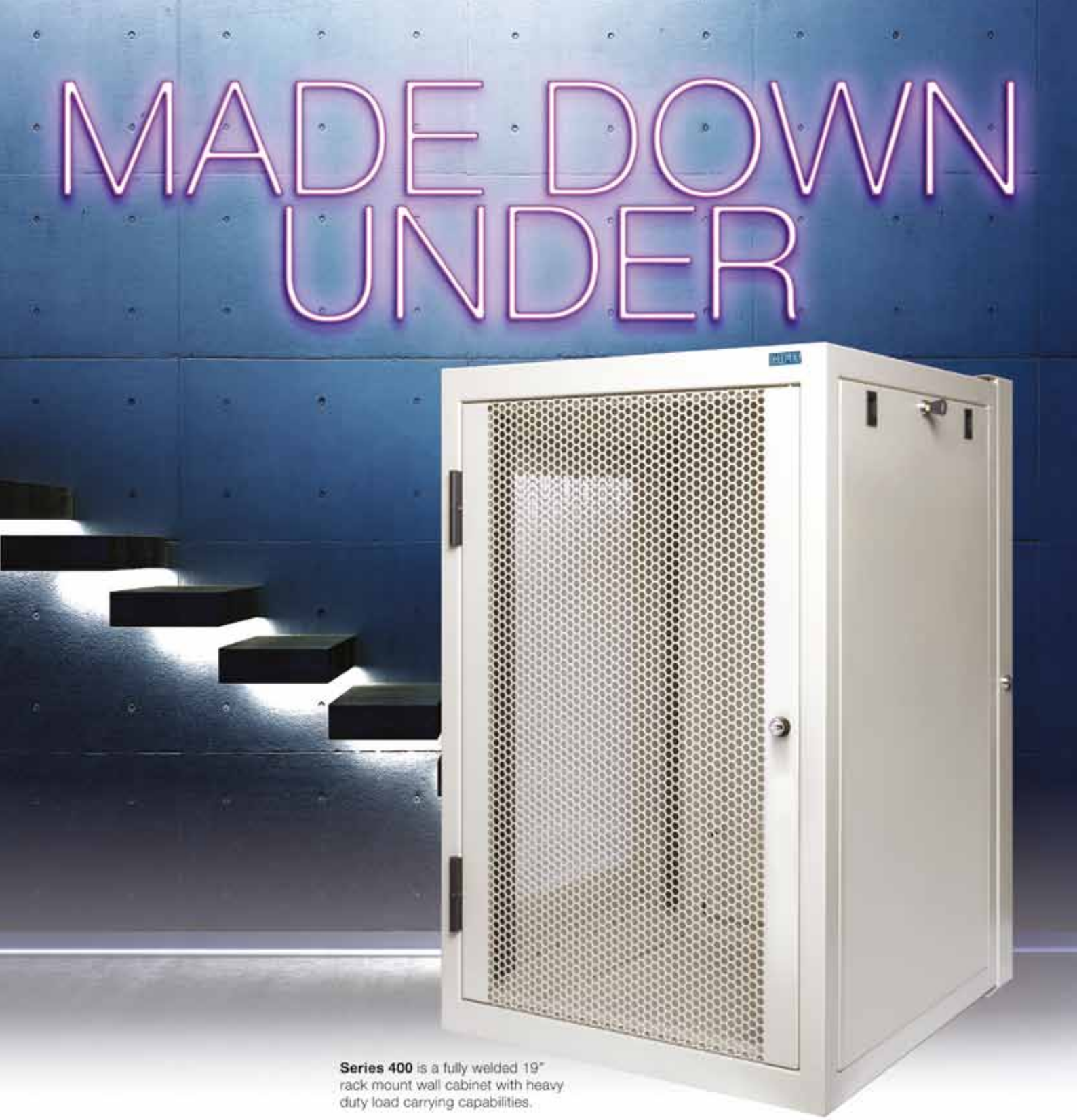

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CABLING CONSIDERATIONS FOR FASTER DATA CENTRE DEPLOYMENT

Clive Hogg, Technical Manager

If data is the world's most valuable currency, then speed is the market force that makes or breaks data centre deployments.

The growth in data demand has increased the focus on speed and efficiency to market for data centre operators. In order to achieve a shorter turnaround time and go to market more quickly, data centres rely on a speed-driven supply chain — partners and providers who are able to support faster, yet scalable builds. In working with data centres to take on this challenge, infrastructure partners face immense pressure to deliver quickly while ensuring their clients' facilities are enabled with high-speed and ultra-density capabilities, and remain fully optimised in the face of ever-increasing transmission speeds and capacity demand.

There are multiple key success factors when approaching data centre infrastructure design. For Syndeticom, a specialist in the design, engineering and installation of complete ICT infrastructure solutions, the choice of cabling infrastructure is the critical foundation for enabling rapid deployment, superior performance and great end-user experience.

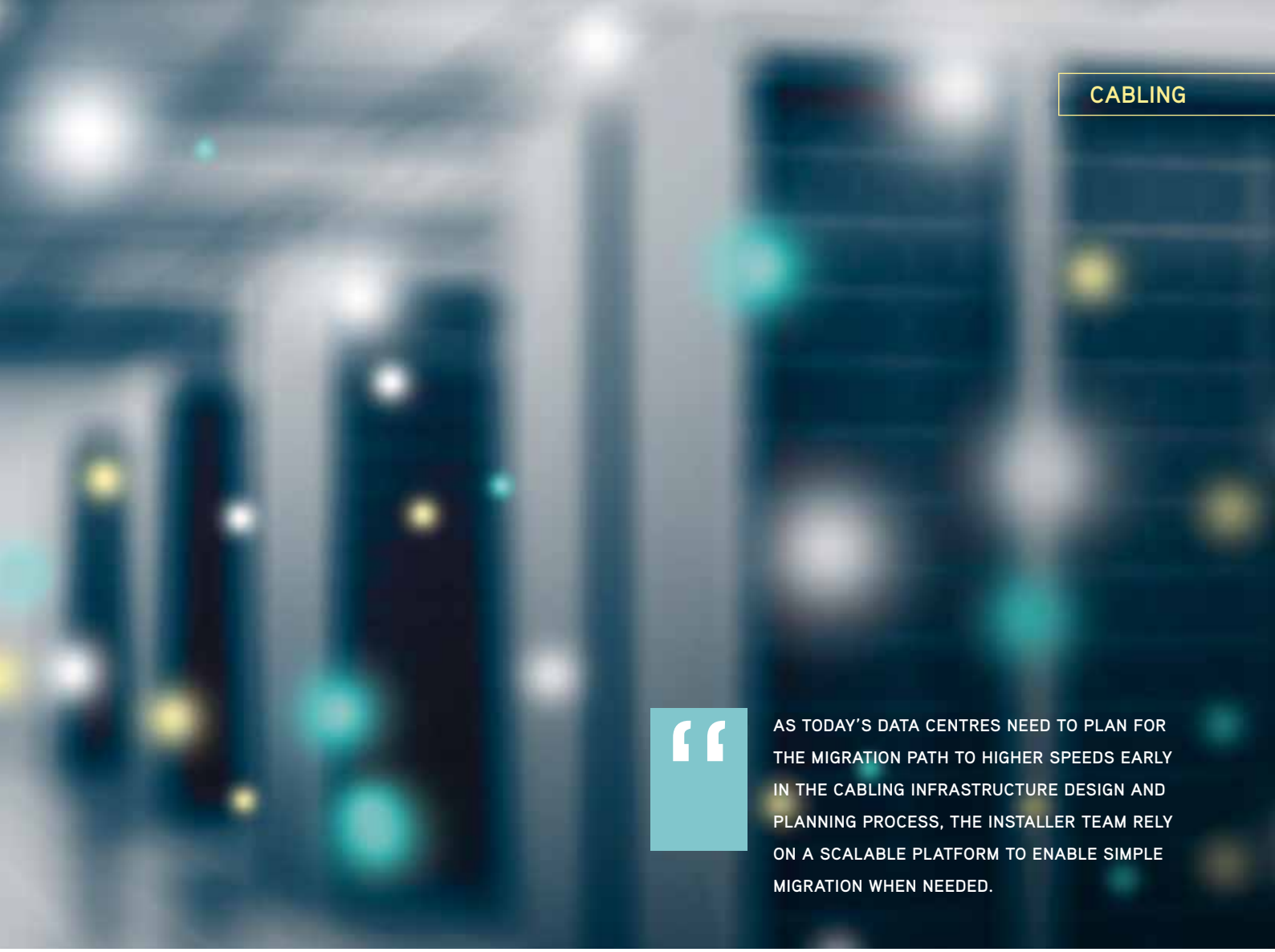
Three key cabling considerations to enable future-ready connectivity are:

1. Rapid connections, fast

The operator's ability to reduce the time to 'go live' within a new data centre cannot be emphasised enough. Selecting a high-density pre-terminated cabling system helps simplify installation and enable superior performance in the data centre, laying the foundation of connectivity from the fibre distribution rooms, fast.

Syndeticom began deploying Corning's EDGE data centre solution to support the NSW GovDC program in 2012. GovDC is the first data centre and private cloud environment in Australia built specifically to meet the ICT needs of public bodies. The program mandates the consolidation of 130 New South Wales government agency data centres into two purpose-built certified facilities that meet recognised global standards of security, availability and efficiency.

A pre-terminated optical cabling system specifically designed for the data centre environment, Corning EDGE enabled faster



> AS TODAY'S DATA CENTRES NEED TO PLAN FOR THE MIGRATION PATH TO HIGHER SPEEDS EARLY IN THE CABLING INFRASTRUCTURE DESIGN AND PLANNING PROCESS, THE INSTALLER TEAM RELY ON A SCALABLE PLATFORM TO ENABLE SIMPLE MIGRATION WHEN NEEDED.

deployment, flexibility in supporting migration paths, speed, network uptime and is the only high-performance product to support the government's high-speed networking requirements. The solution allowed the installation team to meet GovDC's requirements for an ultra-dense, scalable, flexible and reliable cabling infrastructure.

By deploying an all-optical pre-terminated solution, the Syndeticom team is able to install up to 35% faster than traditional cabling systems. GovDC's network was capable of quickly servicing the needs of end users. Custom-engineered components enable simple integration into common SAN directors, while the pre-terminated components allow for reduced installation time and faster moves, adds and changes (MACs).

2. Flexibility and scalability for tomorrow's speeds

High-performance connectivity for customers' needs today and into the future is key to success, and for Syndeticom, the choice of structured cabling solution is critical. As today's data centres need to plan for the migration path to higher speeds early in the cabling infrastructure design and planning process, the installer team rely on a scalable platform to enable simple migration when needed.

For Syndeticom, Corning's EDGE was a suite of end-to-end connectivity products that allowed native migration from current network transceivers and optics to be expanded into using 40, 100 and 200G network speeds and transceivers.

Syndeticom's customers, ranging from large, complex organisations, including financial services firms, to state and federal government agencies, expect data centre infrastructure to have sufficient built-in redundancy. If one element fails, there will be another to take its place without affecting service. The infrastructure put in place today must be able to scale seamlessly as the needs evolve.

3. Reliable, seamless experience

Data centre operators need a reliable solution to provide an ultra-dense, scalable and flexible cabling infrastructure — from interconnection through to meet-me-room, distribution and cage or hall environments. The ability to deliver faster, simpler installation, higher density and more flexible migration paths for customers is crucial in delivering an uncompromised connectivity experience.

With timing pressures common to any project for data centres, the cabling infrastructure must enable maximum flexibility and improved lead times, and contribute to a reduction in the total cost of ownership (TCO).

As 5G and IoT applications begin to take shape, data centres are challenged to scale to meet growing need for higher-speed connections. The choice of pre-terminated optical cabling from the onset means a faster performing network to meet the requirements for today's and future data rates.

Data centre operators and their partners who design their infrastructure to meet tomorrow's capacity needs will deliver continuous, seamless communication and data processing, with low latency and disruption to the end user. Installing the right cabling infrastructure solution now will enable data centre operators to reap greater financial benefits from the outset, retain and attract more customers and offer the flexibility to meet every demand.

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$56 MILLION FOR POWER LINK BETWEEN TASMANIA AND VICTORIA

The Morrison Government will provide $56 million to accelerate the second Bass Strait interconnector, called 'Marinus Link'. This comes after the initial feasibility report found it would be a strategic interconnection investment providing economic benefits across the National Electricity Market (NEM).

TasNetworks is investigating how Marinus Link could be designed, built and form a key part of Australia's future electricity and telecommunications grid. The report found the interconnector will unlock new generation and storage in Tasmania helping lower prices, increase reliability in the NEM, boost the Tasmanian and Victorian economies by $1.6 billion and create 1400 jobs. It would also help reduce Australia's emissions by 25 million tonnes by 2030.

The report found the Marinus Link could be technically feasible as either a 600 MW link, with an estimated capital cost of $1.3 to $1.7 billion or 1200 MW link delivered in two stages as 600 MW cables, costing about $1.9 to $3.1 billion.

TasNetworks also identified favourable routes that would be likely to achieve environmental and planning approvals and land access. These routes connect a converter station in the Sheffield or Burnie area in north-west Tasmania by high-voltage direct current (HVDC) cable to a converter station in Victoria's Latrobe Valley. The favoured route will be identified in early 2019 and is subject to community consultation.

The economic feasibility of the second interconnector depends on when existing coal-fired power stations retire, the report said, with potential timings as early as the mid-2020s or in the early 2030s.

Energy Minister Angus Taylor said approximately 400 MW of available dispatchable generation cannot currently be delivered to the mainland, due to constraints on Basslink, the first Tasmania-Victoria interconnector.

ARENA CEO Darren Miller said: "Tasmania has vast potential renewable energy resources — including wind and pumped hydro — ready to be developed, and in order to maximise the potential of Tasmania we need to ensure that there is enough interconnection to the mainland.

"There is a lot of work still to be done, but the initial findings are promising and demonstrate how a second interconnector could help unlock Tasmania's potential as the battery of the nation while also provide grid security and reliable supply to both Tasmania and Victoria."

The government's funding builds on the $20 million already invested by the Australian and Tasmanian Governments, through the ARENA and TasNetworks, into the initial feasibility report.

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LIVING LAB TO TRIAL SMART HOME TECHNOLOGY

Quantify Technology has partnered with Curtin University of Technology to install its products in a living lab in Fremantle, Western Australia.

The Legacy Living Lab (L3), which is set to be commissioned on 18 April 2019, will include Quantify's adaptable products which can transform traditionally wired houses into smart homes using a flexible wall switch connected to the Wi-Fi network. This will enable building automation and energy consumption monitoring within the building.

The space will be an interactive research, prototyping and test facility and will be used for people to collaborate and engage directly with the building, to explore performance and data, while serving as a case study for a PhD fellowship with Quantify Technology.

"The venture will explore how Quantify's Internet of Things technology can add value by reducing the energy used by the home, saving emissions and energy," explained Quantify's CEO Brett Savill.

According to Quantify, the building will have the ability to undergo transformations throughout its lifetime without the need for demolition, catering for further research.

The PhD project will be completed through the Curtin University Sustainability Policy (CUSP) Institute, and CUSP Director Professor Greg Morrison said it will address the need for home automation technology.

"There is a gap in understanding the benefits that can be gained by the integration of home automation and the energy and subsequent cost saving that can be attributed to the adoption of automation," Morrison stated.

Quantify will also work alongside Fleetwood Australia and LandCorp in the construction of the living lab.

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FUTURE OF FIELD SERVICE: ARE YOU READY?

Marne Martin, President of Service Management

In 2016, big data and analytics, ERP and software as a service were top investment areas for digital transformation in Australia, but only half of Australia/NZ businesses had a strategy in place, according to the IFS Digital Transformation Survey. So has this changed over the last few years? IFS President of Service Management Marne Martin shared her insights on the changing landscape of field service and how organisations need to digitise to drive efficiency and remain competitive.

How do you view the state of digital transformation among service organisations?

While we see service organisations at various stages of the digital transformation journey, I would say there is an overall recognition across the industry of the need for a digital transformation strategy and initiative. If you really think about it, there isn't a choice — customers are demanding service organisations level up and provide new experiences. As organisations work to evolve to the world of servitisation, digital transformation is a necessary element to be able to deliver on those mounting expectations.

Despite the recognition for digital transformation, many companies are struggling to put an effective strategy in place that enables true progress and results. There are exceptions to this, of course, and we see certain best-in-class companies really embracing servitisation and leveraging today's digital tools in a cohesive, intentional way — but it certainly isn't the norm yet.

What are the challenges companies face in achieving digital transformation success?

I see three primary challenges. The first is that companies that have made some level of technology investment that hasn't gone well get paralysed in determining what comes next. I've heard IDC refer to this as "digital deadlock". Those companies get hung up on what went wrong and fail to realise that they can't allow that sunk cost to hold them back from the actions they need to move forward. So, we must move past what has been — good, bad or indifferent — to embrace what this servitisation-led future holds.

Second, companies lack cohesiveness in their objectives. You see almost 'mini digital transformation journeys' occurring in silos, and this is the opposite of the true essence of digital transformation. For real progress to take place, a company has to look at the strategy and effort collectively. This means alignment among leadership, a pragmatic approach to technology selection and deployment, as well as ample attention on the fact that these efforts are really part of a broader business transformation rather than just the introduction of new tools.

Finally, we commonly see companies ignore the cultural implications that digital transformation has on their workforce. To derive real value from digital transformation investments, acceptance and adoption of those tools are critical. This means seeking the feedback of your employees, investing time and energy into communication and change management, and ensuring you select tools that will actually benefit them so that you build a positive digital reputation. If you think about how much the field technician's role has changed with the introduction of so many digital options, it only makes sense to be thoughtful about how you introduce technology that will boost employee engagement, performance and satisfaction.

What advice do you have for organisations that still have a fair amount of digital transformation work to do?

As well as ensuring you explore and address those top three challenges, I would offer three more points for consideration:

- Recognise the impact of not acting now. Service is more competitive than ever before — servitisation is not going away; it's the new way of providing service. You have to adapt to stay relevant — hesitation is hindering your company's ability to thrive in the future and resistance is futile.
- Your efforts should be led by customer expectations. Don't make the mistake of defining a strategy based on where you think the future is headed or what you think your customers want. Do the work to get a solid, firsthand understanding of what those wants and needs look like. Use this insight to guide both your digital and broader business transformation efforts so that you can be sure your time and money invested will yield the impact you want.
- Digital transformation is a journey, not a destination. The progress of the service industry is exciting, but it requires a constant state of innovation. Gone are the days that a service organisation was 'cutting edge' because they made a technology investment every five years. So, don't set a finish line for yourself, because you'll never reach it. Instead, put systems in place that nourish that sense of continual innovation — embrace the fact that you'll always be refining this digital transformation strategy and evaluating new tools that can add more value.

What are the must-have technologies for a service organisation's digital transformation?

Digital transformation should be viewed by the broader lens of a company-wide effort, and therefore this would include thinking through how every system and function will work together. From a strictly service perspective, you have to start with a strong foundation — a service management system. This acts as the hub for other technologies such as customer engagement, IoT, business intelligence, advanced AI and AR.

Keep in mind that digital transformation is hierarchical, so you need to determine your organisation's starting point depending on the level of sophistication you're beginning at and what you want to achieve, and then build your strategy from there. You need that strong foundation upon which to layer — you can't run before you walk. One of the mistakes we see companies make is to get enamored by the more cutting-edge, 'cool-shiny' technologies and rushing to implement those tools without first ensuring that a cohesive strategy and the essential foundational elements are in place.

What your must-have technology is depends on what your present-day looks like. If you lack that strong foundation, you must start there. Once your service management system is functioning well, you can work to add all the functionality you need to achieve the business transformation outcomes you're working towards. For instance, in moving to an outcomes-based service model, you will need to be layering on IoT so that you can move away from break-fix service and begin to offer new, predictive services. With IoT in place, you may want to look at incorporating advanced AI and ML to achieve even greater levels of autonomy in that new predictive model. You should think about how tools like AR and knowledge management can help to alleviate the pressures of organisations that are losing experienced technicians and bringing on new talent. These tools can be powerful in not only getting incoming talent up to speed quickly and efficiently, but also in equipping your technicians with the information they need to do their jobs well, which has a positive impact on employee satisfaction. The opportunities for digital transformation are limitless, but you must start at your own beginning — focus on achieving wins with each level of progression so that you are layering onto a strong foundation rather than a house of cards.

As both President of IFS Service Management and CEO of WorkWave, Marne Martin's focus is to continue to elevate the strategic importance of service management to the success of the overall IFS business. Martin works strategically to ensure the entire portfolio of IFS's service management solutions provides customers with the business value they expect from a global industry leader in field service management (FSM). She will be speaking more about digital transformation in service management at the 2019 Field Service Management Summit.

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High-density cabling platform for ODF

R&M's PRIME is a high-density cabling platform for optical distribution frames (ODF). At maximum capacity, 5376 optical fibres can be connected in an ODF with the modules.

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UTP modular outlet

The Warren & Brown HY series category 6A UTP modular outlet has been designed to simplify and accelerate network deployment. These modular jacks include a number of features which allow them to be easily installed in modular patch panels, wall outlets and floor distributors, such as easy visual inspection of the wiring colour code to ensure every connection is correct.

These unshielded jacks are easy and fast to terminate without the use of a termination tool and are simple to install. They can be used with unshielded cable (U/UTP) and are available in black or white.

Meeting or exceeding ISO/IEC 11801 Ed.2.2 system performance for Class EA networks (10G, 500 MHz), the HY series CAT6A shielded jacks are suitable for PoE and PoE+ applications, and their secure metal contact provides earthing integrity at the patch panel.

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Clamp meter

The Fluke 376 true RMS AC/DC clamp meter with iFlex offers improved solutions for a wide range of current measurement situations. It can read up to 1000 V and 1000 A in both AC and DC modes with its true RMS AC voltage and current measurements. It is available to rent from TechRentals.

The iFlex flexible current probe included with the device expands the measurement range to 2500 A AC while providing increased display flexibility for various sized conductors. With both the jaw and iFlex, the Fluke 376 has frequency measurement capability to 500 Hz.

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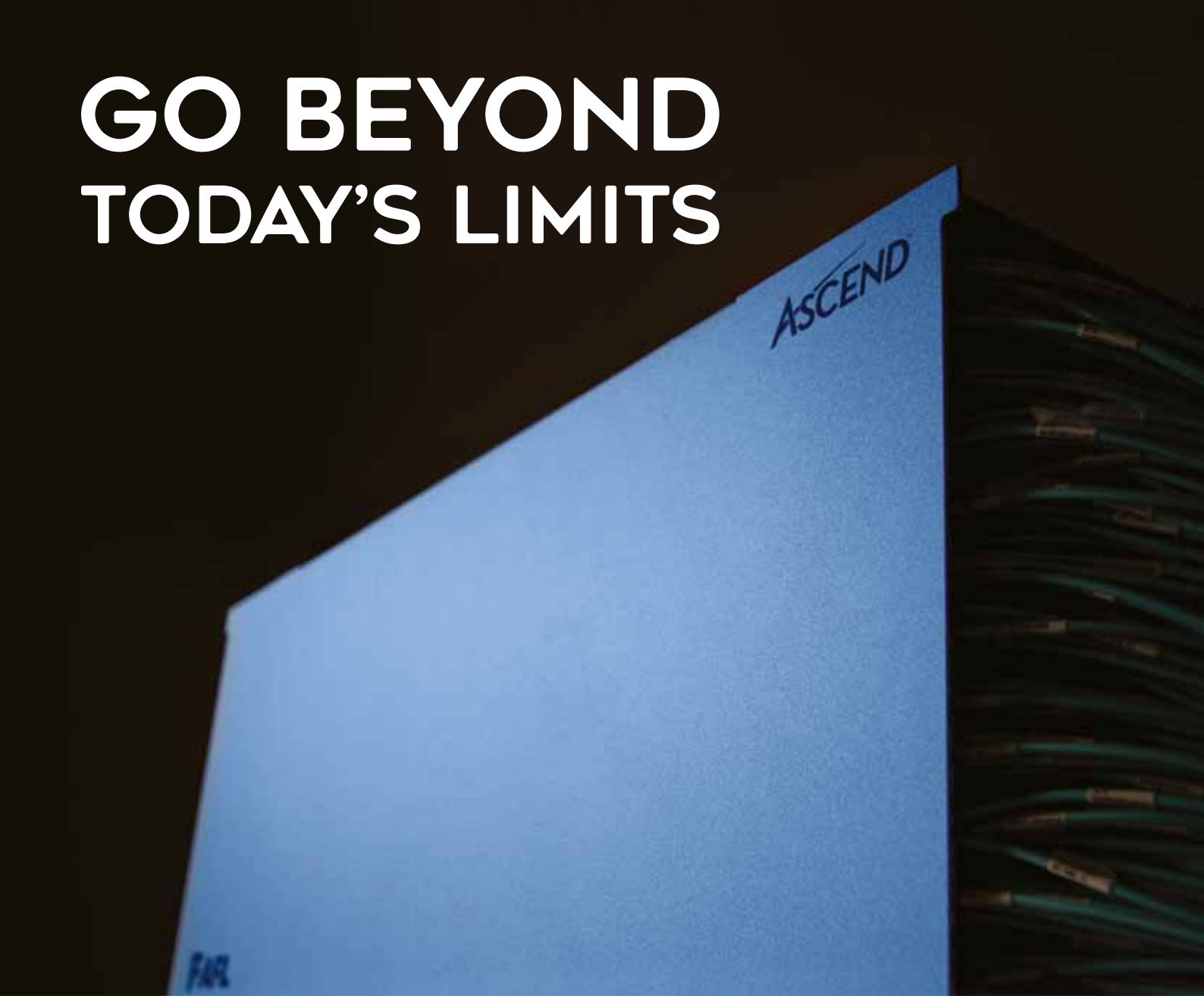

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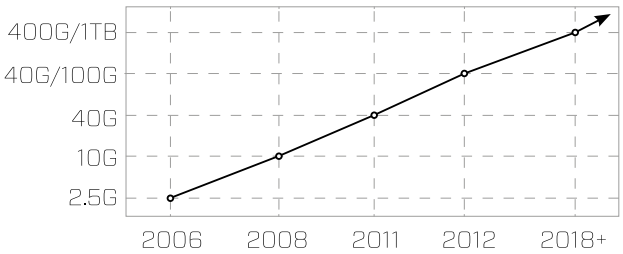

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Metallic changeable skins for electrical accessories

The Iconic Styl range from Clipsal by Schneider Electric allows users to safely change the look of switches and sockets by swapping out the skin. The skin pivots and clicks out, and a new one can be clipped on in its place.

The new skin design clips onto standard, previously installed Iconic grids, which means electricians only need to carry one base range of mechs and grids and mix-and-match skin options to suit customers' preferences.

The range offers smartphone or tablet app-controlled dimming, time control and energy-saving options, with Bluetooth-enabled switches.

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Clipsal by Schneider Electric
www.clipsal.com

Energy chains for small installation spaces

The E2 micro e-chains from igus are small, lightweight one- and two-piece e-chains, making them suitable for highly dynamic applications. The e-chains are strong and available in many different versions.

The latest generation of E2.1 micro e-chains are said to offer a strong stop-dog system and up to 25% longer unsupported lengths as well as 100% more fill weight compared to similar igus e-chains. The e-chains have an inner height of up to 15 mm, and are suitable for virtually all simple applications in small installation spaces.

They are lightweight, robust and easy to open. An e-chain opener is included that enables lengths of e-chain to be opened in one go. A range of accessories, such as interior separation and mounting brackets, is available.

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CALL FOR BETTER EV CHARGING INFRASTRUCTURE IN AUSTRALIA

Nichola Murphy

Infrastructure Australia (IA) has identified the delivery of a national electric vehicle (EV) fast-charging network as a top priority, which may help address concerns about driving range and increase EV adoption.

Infrastructure Australia Chair Julieanne Alroe said the 2019 Priority List is the largest and most diverse list of investments to date, with 121 nationally significant proposals and a $58 billion project pipeline. It will help guide the next 15 years of Australian infrastructure investment, and it listed an EV fast-charging network as one of 29 High Priority Initiatives.

She stated it comes at a pivotal time for infrastructure decision-making in Australia, considering the pressure population growth is putting on infrastructure networks and the impact of new technology on the transport and energy market.

"Technological change is driving significant shifts in infrastructure demand. The advent of electric vehicles, along with automation, growth in the 'sharing economy' and technological connectivity, could bring the largest transformation the transport sector has seen since the shift from steam to diesel locomotives," Alroe said. "The increase in electric vehicle uptake will forge links between the energy and transport network that did not previously exist, placing additional demands on the grid and pressure on consumer costs. The 2019 Priority List highlights the need for investment in the connectivity and reliability of our National Electricity Market (NEM) in the medium to long term, and optimisation in the near term."

An inquiry by the Senate Select Committee on Electric Vehicles found that Australia is still lagging behind other countries due to "a relative absence of overarching policy direction from Australian Governments". EVs will make up 70% of new vehicle sales and 30% of the vehicle fleet in Australia by 2040, but there are currently fewer than 800 charging stations, 70 of which are fast-charging. Concerns about driving range and the lack of recharging infrastructure are just some of the barriers to EV adoption, but the rollout of the fast-charging network will help address these fears.

Although a high-speed charging network has been developed in some states, particularly on the east coast, there is no national network and both IA and the committee agree more needs to be done to make sure EVs have a future in Australia.

The committee made 17 recommendations to accelerate EV uptake in Australia, including the development of a national strategy. "Addressing these risks and challenges will require effective national standards and regulation in regards to charging infrastructure and electricity grid integration, building and construction, public safety, consumer protection, processes for disposal and/or re-use of batteries, and skills training."

The committee recommended that the Australian Government should partner with business to manage and facilitate the rollout of charging infrastructure. The report cited a survey by the Royal Automobile Club of Victoria which found 80% of respondents are influenced by the availability of public fast-charging (15 minutes to full charge) when considering buying an EV, and over half of respondents believe government should implement subsidies to reduce the cost of installing home charging, and provide public charging infrastructure. The committee also called on state and federal governments to amend the National Construction Code to make sure all new dwellings are 'EV charger ready'.

To manage the demand of EVs on the electricity network, the committee recommended that the government work with electricity

market agencies to develop a 10-year plan detailing priority network infrastructure upgrades. It also said it should develop a strategy for the Australian Energy Market Operator (AEMO) to access and direct distributed energy resources (DER) to charge or provide electricity to the grid. This ties in with two other initiatives outlined by IA regarding the NEM.

Alongside Standards Australia, the committee recommended the government should establish a series of national standards in relation to EVs, and amend the *AS/NZS3000:2018 Electrical installations: Wiring Rules*. The suggested amendment is: "Where a smart load management system is not implemented, assume all the electric vehicle chargers will be running at full capacity all the time. Where a smart load management system is implemented, assume electric vehicle charging load will be effectively limited by the parameters of this system."

Overall, the EV landscape in Australia is stuck in a chicken-and-egg situation, in which increasing the number of charging stations can increase EV uptake, but without high enough numbers, there is less incentive to invest in the infrastructure to support them.

The Senate report suggested that if EVs made up 57% of new car sales in 2030, there would be an increase in real GDP of $2.9 billion, an increase in net employment of 13,400 jobs and an additional $3.2 billion investment in charging infrastructure. Commenting on the report, Electric Vehicle Council Chief Executive Behyad Jafari said: "We should seize this momentum and push forward. With a federal election looming, both major parties have the opportunity to embrace these recommendations as part of their platform."

According to Alroe, increased EV adoption has both environmental and productivity benefits for Australia, but only if supported by strategic infrastructure investment. Jafari continued to put the onus on political parties to act on the information presented by IA and seize the opportunities of a mass transition to EVs, including reduced carbon emissions, pollution in cities and dependence on foreign oil.

"Infrastructure Australia is the objective authority on what the nation needs to start building. If their experts recognise a national fast-charging network as a high priority, then governments should heed the call," Jafari said.

"As Infrastructure Australia correctly points out, the price of EVs is dropping and range is rising. But our leaders are pumping the brakes by not adequately supporting new charging infrastructure.

"A century ago, when the potential of the automobile was recognised, previous generations spent a fortune creating infrastructure to support it. The transition to EVs requires just a small fraction of that boldness and vision.

"With Infrastructure Australia's imprimatur now in black and white, we need to just get on and make it happen."

INCREASED EV ADOPTION HAS BOTH ENVIRONMENTAL AND PRODUCTIVITY BENEFITS FOR AUSTRALIA, BUT ONLY IF SUPPORTED BY STRATEGIC INFRASTRUCTURE INVESTMENT.

DIGITAL DISRUPTION IN THE DISTRIBUTION INDUSTRY

Nichola Murphy

Over 30 supply chain leaders recently gathered for an executive networking breakfast at Cafe Sydney to discuss the impact of digital transformation on the industrial distribution sector.

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Moderated by Westwick-Farrow Media Publisher Geoff Hird, a panel consisting of Ivan Imparato, Chief Executive Officer at the Australasian Supply Chain Institute (ASCI), Tony Corley, Senior Global Product Manager – Distribution at Epicor Software Corporation and Craig Ogilvie, IT Manager at P&R Electrical, shared local and international perspectives on supply chain disruption.

The Amazon effect

Digital transformation has been widely discussed over the past few years, with the rise of technology and increasing customer expectations driving change in virtually every industry.

The emergence of large overseas-based online distributors, such as Amazon, has presented challenges in the supply chain industry. For example, Amazon introduced the Dash button in 2015, which is a small wall-mounted or digital button that offers users a quick and convenient way to restock commonly used products. Each button can be configured to order a specific product and quantity, and pressing the button orders new stock via the Amazon app.

"Dash buttons are viewed as a highly convenient way for consumers to purchase goods. Similar technology has been deployed to automate consumer purchasing in devices such as fridges and other home environments," Corley explained.

So how can other distributors compete? One fundamental flaw of the Dash button is the lack of information around pricing. Dash buttons do not display prices and they often fluctuate, meaning users may pay more for the same product. Germany recently deemed them illegal on the basis that they fail to provide consumers with up-to-date pricing information, which violates consumer protection laws.

Although they are not yet available in Australia, it is likely they would be hindered by similar laws. However, Corley suggested this may not be the case in the long term. "Government compliance can sometimes lag behind the technology while the authorities determine the impact on their constituents. Typically governments catch up when the fear of change or risk has been assessed and the benefits outweigh the risks."

The event noted that the increasing trend of smaller order quantities puts stress on supply chains, but all three panellists agreed that understanding customer requirements was the top priority when tackling this issue. Ogilvie added that in the electrical services industry, products such as light switches can be considered as a fashion item, and consumers often order smaller quantities. As a result, incentivising the purchase of more than one product is a better solution than penalising customers for smaller quantities.

ERP systems

One way distributors have been adapting to compete with digital disruptors and meet customer expectations is by implementing enterprise resource planning (ERP) solutions.

Epicor recently launched its ERP system Prophet 21 in Australia, which Corley said "helps distributors automate processes, reduce complexities, improve productivity and deepen customer loyalty by offering value-added services.

"Additionally, actionable data and analytics help distributors to identify growth opportunities and meet customer demand."

P&R Electrical was one company that was quick to adapt, becoming an early adopter of Prophet 21 in Australia. Ogilvie explained the change was driven by the company owners who value technology as an important tool in the successful operation of the business.

"Successful implementation can only be achieved with buy-in from all levels of the company," he said. "After many years of running the previous platform [the owners] could see the need for a new solution with a fresh modern look and feel, improved access to information and a proven support network."

Since P&R's successful implementation of the ERP system, it has seen a number of benefits, including: access to accurate and up-to-date information that can inform decision-making; the ability to support user feedback with real data, allowing for faster resolution of issues; and improved access to BI and reporting, which allows for faster analysis of the information it captures.

ERP and employees

However, Ogilvie said there are potential challenges associated with access to this information, and he explained how the company overcame these issues.

"Balancing access to data for good decision-making with security/data leakage is always an issue, but with access controls and clearly defined company directions we believe we have the balance right," he said. "Finding the level so as not to overload managers with information, we have taken the approach where possible to provide exception reporting and give them the tools to dive into this information when required."

He continued by explaining that ERP implementation is not always an easy process, and many companies underestimate the time it will take and its impact on staff.

"While the installation of the software is a definable time, staff training and data mapping for transition are variables and need to be constantly reviewed and if necessary adjusted in the timeline," he said. "Successful staff training and review cannot be underestimated."

Corley agreed, stating that change management is one of the biggest challenges facing electrical wholesalers when implementing a new system.

"They have current systems and processes that may not be optimised to take advantage of automated workflows and processes, or address new opportunities with mobility, visibility and faster decision-making for their key stakeholders and employees."

ASCI aims to foster professionalism in the supply chain and has positioned itself as the formal professional accreditation body for supply chain management in Australasia. To this end, Imparato highlighted the importance of training employees. He drew on a recent Hays survey which revealed some of the top talent trends for 2019, including the balance between technological integration and human skills, the importance of digital upskilling, and taking employees on the AI change management journey.

"What we can all do now is immerse ourselves in learning to become masters of solutions such as powerful ERPs," Imparato said. This includes offering APICS certifications to build capacity to support ERP transformation.

When asked what tips Ogilvie would give to others in terms of selecting the right ERP system, he noted that being open to new ideas and processes, understanding what is 'baseline' in any solution and getting feedback from other companies in your industry that are running the proposed system are crucial.

Looking to the future

The overarching message is that technological change will continue to happen, but this can present opportunities for distributors.

Corley said a successful ERP implementation will enable growth for electrical wholesalers. "An improvement to their customers' experience can be gained from ensuring they speed up delivery and service through improved systems and better information handling. A system that is designed around the electrical wholesaler's business practices, such as Prophet 21, will provide a greater chance of growth, improved margins and an increase in customer satisfaction."

One aspect that remained consistent throughout the panel discussion was that the customer is king. Supply chains that learn to harness the power of technology and use insights provided by data can become more responsive, demand-driven and customer-centric.

This is what drove P&R's ERP implementation, but the panel suggested that a certain level of human interaction will continue to be important. In the electrical industry, Corley said many contractors have difficulty using online services and appreciate the ability to discuss products with sales representatives.

With learning opportunities and change driven from above, distributors can adapt to better serve customers and keep up with digital disruption.

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AI IN AUSTRALIA'S ELECTRICITY SECTOR

Giovanni Polizzi and Associate Professor Ariel Liebman^*

Australia is in the midst of a major political debate over energy policy, pricing and surety of supply to meet residential and business demand. One of many levers to achieve this — which appears to hold the most promise — is the rise of the microgrid and of artificially intelligent generation and distribution systems.

It's hard to mention artificial intelligence (AI) without some reference to long-running efforts around the smart grid. But where smart grids have been largely focused on creating intelligent energy distribution and flows within the existing grid structure, the focus of the industry is now shifting to use intelligence to restructure the grid completely by bringing in new, diverse and decentralised energy sources.

The likely future state is a complex network of generation and distribution assets that can intelligently match demand and supply and operate in a semi-autonomous fashion. A network that is capable of measuring, balancing and acting on the individual needs of customers, whether the customer is residential, commercial or industrial.

Australia is already stepping towards this future, but there is a real need to remove barriers to adoption — notably regulation, legacy thinking and entrenched business models — that could stifle progress.

Microgrids rise up

The rise of microgrids and other types of embedded energy networks is a clear sign of progress on this front.

A microgrid is a smart private energy-producing network for a commercial, industrial or residential precinct. It consists of some form of renewable energy generation (usually solar), an energy storage system, and a network distributing that power to users. It is designed to work in collaboration with the regular electricity grid, allowing communities to draw upon a mix of their own and other energy resources.

Microgrids are popping up across Australia, from the Pilbara mining town of Onslow to South Australia's Yorke Peninsula and the far north coast of New South Wales.

For communities and organisations served by microgrids, it is envisioned that they will draw power from both their microgrid and the regular grid. Which source they favour at any one time will depend on a number of factors, such as price, and balance of supply and demand. This will be managed dynamically, and is likely to involve an increasing amount of AI. AI will be used to manage much of the orchestration, both of components within the microgrid and the interaction between different microgrids and the grid itself.

Adding AI to coordinate the pieces

New AI tools are expected to be created to aid this orchestration and management. In this context, AI refers to a convergence of the several key computer science trends and, in particular, machine learning, optimisation, forecasting and operations reseach.

By building on its global leadership in this space, Monash University's key grid research centre, the Monash Grid Innovation Hub, and Indra hope to contribute to this through the Smart Energy City project, which will see the development of a microgrid at Monash's Clayton campus. Using Indra's InGRID Active Grid Management (AGM) software platform, the microgrid will enable control of various distributed energy resources (DER), including a minimum of 1 MW of solar panels, 20 buildings, electric vehicle charging stations and 1 MWh of energy storage. No single command and control system will schedule all of these different components to work together. The project aims to use applied AI and optimisation techniques to make that work.

While we know how this should be done, we're now working out how best to do it in practice. This includes the kind of price signals that might be required to mediate optimisation decisions — for example, how does the market reward those who are more flexible with their energy load requirements than others and are willing to dial their use down in periods of high value to the grid?

These kinds of questions sometimes fall under a subset of smart grid research known as transactive energy, which aims to find ways for energy producers and consumers to balance supply and demand, and for each side to be appropriately compensated. Analyst firm Navigant Research expects Australia to be one of only a handful of markets worldwide to be in the position to shift from trials to large-scale deployments in this area.

Beyond transactive energy, Monash University plans to use its microgrid to create more novel uses of AI to aid converged grid-microgrid operations.

If the future of Australia's electricity supply is going to involve a higher amount of solar and other renewable resource inputs, it will be critical to accurately forecast how much power can be produced by these sources, improving significantly on what is currently possible. We also need to be able to forecast the output of renewables better, as well as optimise the scheduling of the energy resources in a way that is robust to the residual uncertainty. It is these optimisation and forecasting methodologies that are still being developed.

Monash University is hoping to aggregate data from a variety of different places to improve forecasting and operational planning. These places may include satellite data as well as a network of cameras pointed towards the sky to track cloud cover, and estimate what impact this will have on the output of nearby renewable energy sources. This kind of intelligence could allow participants to optimise the energy mix at any one point. A similar sky camera set-up is already in use for the University of California San Diego's (UCSD) microgrid, and Monash University is keen to test a similar set-up in Australia on its own microgrid.

The capacity to forecast renewable generation with a 24–48 h lead time and a high degree of precision, and then to dynamically adapt this forecast and optimise operation decisions to changing conditions, would represent a major breakthrough for the sector, and for the rise of Australia's intelligent grid.

It's past time for industry to get behind the research

To shorten the odds further of Australia achieving this endgame and maintaining its recognised lead in the transactive energy space and the orchestration of DER, it is critical that more parts of the electricity sector get behind such research efforts and test different approaches to reach the same destination. It will be important for all players to keep an open mind and enthusiastically embrace the progress of the technology.

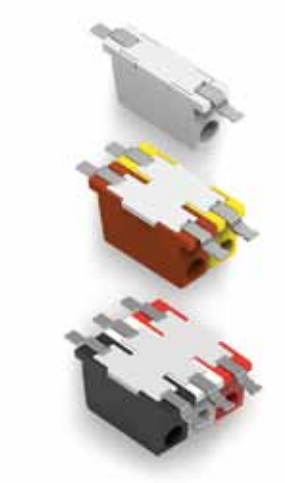
While there is clear evidence of some operators trying to engineer any transition to suit their existing models (and sunk investments), this approach is fraught with risk, particularly as it is difficult to anticipate all possible effects as industry evolves.

In the same way, backing a single path to embedding intelligence in the electricity network is currently problematic; operators that succeed will likely be those that are open to multiple paths and flexible in allowing pivoting in response to critical changes in technology, since it is not at all clear which of the many available and often overlapping technologies will go on to make the biggest mark.

The shift to artificially intelligent electricity networks is underway and it will totally transform the way value is shared between consumers, producers and transporters of energy. Like any disruptive change, it is unlikely to be as orderly a transition as most of us would like it to be. However, the sooner the industry can begin fully embracing the technology and the changes, and the sooner regulations are loosened, the more an orderly transition to Australia's energy future is likely to be possible.

**Giovanni Polizzi is Energy Solutions Manager and Business Development – Energy at Indra Australia.*
^Dr Ariel Liebman is Deputy Director of the Monash Energy Materials and Systems Institute (MEMSI) and Associate Professor of Energy Practice at the Faculty of IT, Monash University.

Copper cabling system



The Siemon TERA Category 8.2 copper cabling system delivers transmission performance up to 2 GHz. It supports emerging high-speed 25 and 40 Gb (25/40GBASE-T) applications in data centre switch-to-server applications.

The system includes cable, patch cords, connectors and pre-terminated cable assemblies. Combining the TERA connector with category 8.2 S/FTP 2000 MHz cable and patch cords delivers a complete end-to-end system that meets ISO/IEC category 8.2/Class II specifications for 2-connector, 30-metre Class II channels in the data centre.

It provides enhanced insertion loss and crosstalk performance over RJ45-based Category 8 systems while offering the reach to support a broad range of switch-to-server architectures.

TERA-to-RJ45 patch cords are suitable for 2-connector switch-to-server connections in middle-of-row (MoR) and end-of-row (EoR) configurations, while available Category 8-compatible RJ45-to-RJ45 patch cords enable direct attach switch-to-server connections in top-of-rack (ToR) configurations. The TERA outlet and plug are backwards compatible with Category 7A/Class FA cabling systems, which allows for both flexibility and futureproof performance.

Siemon Australia

www.siemon.com.au

Connectors for LED lighting

TE Connectivity's BUCHANAN WireMate ITB (Inverted Thru-Board) wire-to-board connectors are for use in linear and circular LED modules found in commercial and industrial lighting systems.

With their easy-to-use poke-in and wire release features, the connectors help shorten installation times and provide flexibility for re-use and wire replacement. No crimping or soldering is needed when attaching wires; once inserted, wires are retained and will not inadvertently pull out. A robust integral release feature allows rework, if required.

The reduced profile of the connectors takes 2 mm in height above the PCB top surface while horizontal wire insertion minimises space usage beneath the PCB.

The wire-to-board connectors have a maximum voltage rating of 320 V and a current rating of 6 A (for 18 AWG wiring) or 5 A (20 and 22 AWG). They are moulded in a high-temperature-resistant nylon casing that withstands high SMT soldering temperatures. The connectors are modular in design, available for up to five wire connections and in different colours to help installers avoid mistakes when inserting wires.

TE Connectivity

www.te.com

Plant device management

Emerson's updated AMS Device Manager is designed to provide better organised data for the management of field devices. Embedded tools allow project and operations teams to customise plant device hierarchies, project tracking and device alerts.

The product's enhanced bulk transfer functionality provides the tools to configure whole systems automatically — including set-up of device alert monitoring and plant hierarchies. Users can export a tag list and open it in a spreadsheet application to enter a location and alert group for each device. Then, using bulk transfer, users can instantly set up the system with an accurately populated hierarchy and alert monitor. With a correctly defined plant hierarchy, maintenance teams can visualise device data in targeted views, allowing them to better evaluate and manage the reliability of specific areas of the plant.

With the updated AMS Device View, the browser-based interface, maintenance can assign devices to specific projects and track them on separate project dashboards. This organised alert delivery allows more efficient response during periods with significant changes like shutdowns, turnarounds and outages.

The latest version also increases safety and security with system-wide automated locking of devices.

Emerson Automation Solutions
www.emerson.com/au/automation

Remote-controlled power supply

The PULS CP20.241-V1 DIN rail power supply is equipped with an additional remote-controlled ON/OFF feature, allowing users to switch on or off the power supply output with a signal switch or transistor. This remote feature makes the centralised control of multiple components easy and fast.

The compact design of the CP20 unit (48 mm width) is possible due to an efficiency of 95.6%. The devices have been optimised not only for high peak efficiency at full load, but also high efficiencies in the partial load range. High efficiency levels across the entire load range mean low energy costs. The devices also achieve a service lifetime of at least 94,000 h, at up to 40°C ambient temperature, 100% load and 230 VAC.

In addition to the high power density, users benefit from a comprehensive approvals package and useful features. These features include a power reserve of 20% (up to 45°C continuously and between 45 and 60°C short term), an small input inrush current, full output power between -25 and +60°C (with derating up to 70°C) and high immunity to transients.

Control Logic Pty Ltd
www.controllogic.com.au

Power quality analyser

The Elspec G4500 is a power quality analyser that utilises the PQZIP algorithm, enabling users to continuously measure, store and analyse waveform signals regardless of their size. The device complies with standards for aggregations, time clock uncertainty, flagging and transient influence quantities. It is available to rent from TechRentals.

The unit measures and records 5000 power parameters continuously at resolutions of ½ cycles, 10/12 cycles and 150/180 cycles. The instrument features I/O ports, a web-based interface, Wi-Fi, and voltage and current inputs.

The G4500 is IEC6100-4-40 Class A compliant and features a plug-and-play probe interface for automatic detection of probes and clamps, configurable report module for the creation of your own report templates and an external battery (2 h life) which allows for continuous recording in the event of a power loss.

TechRentals
www.techrentals.com.au

The next level of broadcast and harsh environment fibre optic connectivity

Warren & Brown Technologies (WBT) is a wholly Australian owned and operated designer and manufacturer of telecommunications network connectivity infrastructure that takes pride in developing solutions for challenging environments and helping customers establish and maintain reliable fibre optic networks. WBT offers a range of expanded beam fibre optic connectors that have been engineered for harsh environments, broadcast and industrial applications.

The technology used in expanded beam connectors offers a powerful and flexible solution designed for use in harsh environments including mining, oil and gas, and defence, where reliability and optical performance can sometimes be hard to achieve. This solution is also one of the most common types of connectivity used for broadcast applications and can easily be adopted in traditional networking applications that require a higher bandwidth, ruggedised form factor and pre-terminated, plug and play connectivity.

Unlike typical fibre optic connectors, there is no physical contact between the connectors. Expanded beam fibre optic connectors use a precision lens on one mating end to expand and collimate the light emitting from an optical fibre, with a matching lens on the other mating end collecting and refocusing the optical beam into the core of the receiving fibre.

Expanding and collimating the light beam results in a much larger active area than the original optical fibre core, rendering the connector less sensitive to contaminants that could easily disrupt transmission between standard type connectors. The non-contact connectors enable high accuracy connections over thousands of mating cycles without affecting optical performance.

While the connector design plays an important part in the reliability of a harsh environment fibre optic connector, the most critical factor is its ability to withstand the conditions in harsh environments. The robust construction of WBT expanded beam connectors provides resistance to dirt, dust, mud, water, oil and other contaminants.

This ruggedised design also minimises the effects of shock, mechanical vibration and environmental issues. You could even run over the connectors with a truck and be assured that it would not affect the optimal performance!

When comparing expanded beam connectors to traditional optical connectors, there are many factors that need to be considered. Traditional optical connectors require regular cleaning and maintenance that can only be performed by specially trained technicians in order to maintain optical performance. And even with regular maintenance, traditional connectors performance will still degrade over the product life, eventually leading to signal failure.

While the non-contact design in expanded beam connectors can result in higher insertion losses than standard connectors, the optical performance of expanded beam connectors is constant throughout the product life and the likelihood of product failure is greatly reduced.

WBT expanded beam connectors have a protective window so that the connector is easy to clean, without the need for special servicing or cleaning equipment, and have been proven to withstand extreme environment conditions. The protective lenses ensure that no damage or degradation can occur, making them ideal for field use in severe conditions.

Another benefit of expanded beam connectors is the use of a hermaphroditic design rather than traditional male and female connectors. This allows multiple cables to be directly connected without adaptors (daisy chaining), allowing for simple and flexible connections. These connectors minimise the logistical problems of handling changing requirements within various applications.

WBT has partnered with QPC to provide pre-assembled off the shelf connectors in both singlemode and multimode as well as offering fully custom designed and manufactured product solutions to meet your network requirements.

One of the major advantages that WBT offers in the local market, is its ability to quickly terminate and repair existing cables, as well as support new deployments.

Product and connector options include:

- QBeam expanded beam connector — 4 channel
- QFOCA enhanced hermaphroditic tactical connector — based on the MIL-C-83526/16 specification
- Qplex 2 — 16 channel expanded beam connector
- QPC Qmini expanded beam fibre optic connector — 2 and 4 channels, meets requirements of MIL-PRF-83526
- QPC Qmicro expanded beam fibre optic connector — 2 and 4 channels, intermateable with Tyco pro beam mini and Telecast MX connectors
- Suitable military and broadcast cable to suit various connector options in multimode or singlemode.

For more information, visit: https://wbnetworks.com.au/products/harsh-environment.html

WARREN & BROWN NETWORKS

Warren & Brown Technologies
www.wbnetworks.com.au

FIELD SERVICE MANAGEMENT 2019

More than 75% of field service organisations are set to deploy mobile apps that will offer better data collection and add capabilities that help technicians succeed by 2020, a Gartner study has found. A recent survey of Asia Pacific companies by Enterprise Mobility Exchange has also found that manual/paper-based processes (55%), siloed teams and processes (52%) and inefficient resource allocation (48%) are the biggest challenges enterprises are encountering with mobile workers. As a result, 36% are planning to build a higher budget for enterprise mobility initiatives and 31% want to acquire more resources to focus on improving enterprise mobility goals.

These are just some of the topics that will be covered at the 11th Field Service Management Summit, to be held from 15–17 April at the Hilton Sydney. Over 100 senior-level professionals from industries including government, utilities, health, telcos and construction will come together to discuss improving the customer centricity and productivity of field service staff through technology, workforce optimisation and change management. The 2019 event will also have a greater focus on technology, AR/VR, cloud-based solutions, GIS, UAVs, telematics, data and analytics, and real-time tracking.

Attendees can hear from over 45 speakers and network with professionals via three interactive workshops and a number of roundtables. The event will also feature two on-floor stages focusing on field services for trade service excellence and asset management, and an exhibition including ClickSoftware, Salesforce and IFS.

More than 30 case studies across six streams on dynamic scheduling, customer experience, operational excellence, enterprise mobility, workforce optimisation and disruptive technology will be discussed, including:

- Queensland Urban Utilities: Decreasing operational cost by 25%, increasing staff engagement by 25% and improving process safety by 300% with a new field delivery model
- Energy Queensland: Reducing resolution times by 4–6 hours by increasing employee engagement and transparency
- Aroona Alliance: Reducing CapEx by 3% by developing an in-house FSM solution
- ServiceMax: Creative approaches on how to retain and evolve your mobile workforce, how to deal with the 'silver tsunami' and how to effectively leverage third-party contractors.

Melbourne Water

Melbourne Water will also discuss how it created a fit-for-purpose in-house mobility platform for realised performance improvements of 90%. Ahead of FSM 2019, Melbourne Water Principal – Technology Enablement Frank Courtney spoke to event organiser IQPC about the main challenges the company faced and how it used collaboration to develop a solution that benefited everyone.

He said performance and ease of use were the main issues with the old mobility solution and, while the app theoretically had the features it required at the time, it was not timely enough for real-world use. For example, the speed at which it synchronised data and presented that information back was simply not fast enough. The system was functional but it wasn't in a form that was fit for daily use.

"This quickly led to a sense of frustration from the user base, and they found their own ways around that. We had a lot of people in the field who were working around the system and this meant the data we needed wasn't being collected."

To address the growing dissatisfaction from both the field context and the business context, the company created a collaborative partnership with asset management and IT and ensured that everyone's problems were taken into account.

"For example, one of our maintenance teams works at a level where every individual technician has their own workload; it's a very specific dissemination of a job to a person. Whereas the other side of the maintenance delivery business work in crews and work is distributed across four or five people. The app needed to work and manage people's time and availability in very different ways," he explained.

As well as speeding up transactional flow and building trust with its users, Courtney said the solution was beneficial for technicians. "At an interpersonal level, we've significantly lowered the time technicians spend on their timesheets and administration. From their perspective, we've taken away a tool which was broken and provided them something that works and aligns with how their work is actually conducted."

To hear more about Melbourne Water's journey, register for FSM 2019.

IQPC
www.iqpc.com.au

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#forthechallengers

IFS

CONTROLLING THE OUTPUT OF LED STREETLIGHTS

Local and international street lighting fixtures have been steadily transitioning from halogen to LED lights. This initial rollout has allowed councils to experience varying lighting temperatures within a contained residential environment, gauge the community's response, and better adjust to the needs of residents through trial and error.

When initially launched in the United States in 2006, bright 'blue' lights faced serious backlash due to their harsh nature in comparison to previous street lighting. Now, municipalities have adjusted colour temperature and improved the way they serve their citizens.

Along the west coast of the United States, the City of Los Angeles has 30,000 Philip City Touch units that monitor the operational status of streetlights, explained Kerney R Marine, Assistant Director of LA's Bureau of Street Lighting. Although still in the testing phase of smart city technologies, the fixtures possess monitoring capabilities and the ability to remotely increase and decrease the illumination levels.

Marine explained that in terms of current LED conversions in LA, designs have been based on the IESNA recommended illumination levels. While LA does not currently dim streetlights below those recommended levels, they are investigating the possibility of doing so through their local utility, LA Department of Water & Power, during power-saving and/or emergency situations.

Marine will explore this topic at the 2019 Australian Smart Lighting Summit, the annual event for urban, outdoor, public and street lighting. Held from 28–29 August at the Melbourne Convention & Exhibition Centre, the event will feature over 35 Australian and international speakers and attract more than 200 attendees.

Exploring the effects of 'overly bright' LED street lighting on drivers at night and within residential areas, Dr Gillian Isoardi, Lighting Scientist at Light Naturally, and Professor Joanne Wood, Faculty of Health, School – Optometry and Vision Science at QUT, will discuss the overarching concerns of installing new fixtures.

They identify three key areas that must be addressed when designing and installing LED road and residential lighting:

- Too much light directed towards the view of road users (including drivers) — "Excessive light in the field of view can cause glare, which either reduces or degrades visual function (disability glare) as a result of the light scatter or can result in symptoms of discomfort and distraction (discomfort glare) but don't affect vision," said Isoardi and Wood.
- Too much light in the wrong direction, away from the street and towards residential areas — This is often termed 'obtrusive light' and has the tendency to interrupt people's lifestyles within their homes; however, this is not limited to LED lighting. The speakers note that it is important to recognise "that obtrusive light can occur with any street lighting technology, regardless of whether it is LED or a conventional street light source".
- Too much light in the wrong colour — This "can have negative environmental impacts", Isoardi and Wood explained. When lighting near environmentally sensitive areas, "careful consideration is required of both spectrum and intensity"; however, "this is true for all light sources, regardless of whether they are LED or conventional sources".

Marine, Isoardi and Wood will present at the 7th Annual Australian Smart Lighting Summit later this year in Melbourne.

Expotrade Australia Pty Ltd
www.expotrade.net.au

ENERGY STORAGE
— THE GREAT ENABLER

The 2019 Australian Energy Storage Conference and Exhibition (AES), held 13–14 June, will bring together industry professionals to analyse the projects and transformative technologies powering the global energy transition.

Australian and international speakers will cover:

- Large-scale/utility applications of a variety of energy storage technologies
- Distributed energy resources for grid applications
- Mining and microgrid case studies from across the world
- Economics for commercial and grid scale energy storage investment
- Installed commercial energy storage projects
- The future of energy storage in Australia

For example, Alan Louis, Principal Engineer Technology Innovation at Energy Queensland, will discuss 'Protection Challenges in the Design and Operation of LV Microgrid Systems'. Specifically, his presentation will cover Energy Queensland's experience in the implementation of commercial-scale microgrid via battery energy storage systems (BESS).

Clean Horizon Analyst Samantha Hilliard will also explore how to improve the interactions between vendors and buyers when it comes to buying large-scale BESS, while Brenton Laws, Business Development Principal at Western Power, will delve into the PowerBank project in which Western Power & Synergy connected a 420 kWh community battery in Mandurah, Western Australia.

Other speakers include: Ian Kay, Chief Financial Officer, ARENA; Robert G Morgan, CEO, Energy Storage, GE Power; Fiona Orton, Future Grid Manager, Trans Grid; and Juregen Zimmermann, Business Development and Technology Manager, ABB's Global Centre of Competence for Microgrids.

AES 2019 will also provide attendees with the opportunity to network with other delegates, speakers and exhibitors via free networking drinks followed by an optional dinner cruise on Sydney Harbour on the evening of 13 June.

Exhibitions & Trade Fairs Pty Ltd
www.etf.com.au

Event details

What: Australian Energy Storage Conference and Exhibition
When: 13–14 June 2019
Where: International Convention Centre, Sydney
Register: www.australianenergystorage.com.au

Luminaires with integrated sensors

Gerard Lighting has introduced a range of fixtures with integrated sensors that respond to movement to provide light where and when it is needed, enhancing efficiency and safety across a multitude of applications.

The Pierlite Eco LED Colour Select Batten and Orion Eco LED Oyster use in-built high-frequency (HF) technology sensors that allow the luminaire to switch on when movement is detected, and off after an adjustable hold time. Featuring sensors that are either 'plug and go' or pre-wired into the fixture, the range is designed to reduce installation time and associated costs, as well as offering potential energy savings in the future.

The Pierlite Eco LED Colour Select Batten is suitable for use in storage rooms, covered car parks and commercial, retail and residential applications. The Pierlite Orion Eco LED Oyster is suitable for surface mounting in residential and commercial interior spaces, where there is limited space in the ceilings.

Both products contain a built-in sensor with adjustable detection ranges (100%/75%/50/10%) and hold times (from 5 s to 15 min).

Gerard Lighting Group

www.gerardlighting.com.au

Substation emergency charger

The Australian-made Emergency Charger by Magellan Power helps keep substation batteries in a charged state and keep downtime to zero.

In case of a substation charger failure, users can connect the emergency DC power supply to the batteries and the charger can be repaired without time pressure.

Features include: high-efficiency switchmode technology, unity power factor, maintenance-free, analog voltmeter and ammeter, adjustable output voltage, and compact and lightweight.

It is available in 24, 32, 48 and 110 V, and can be used with lead acid and NiCad batteries.

Magellan Power

www.magellan-power.com.au

Modular high-density platform

The AFL ASCEND platform is a high-density AFL global solution aimed at the enterprise/data centre market.

The platform comprises 144F/1RU MTP cassettes, splice and patch modules, as well as WDM/passive connectivity.

In addition to the above, the solution will include 1, 2 and 4RU enclosures/housings, platform specific MTP cable assemblies and new AFL branded LC Uniboot patch leads.

It is used in data centres, central offices, headends and structured cabling networks.

Main features include high-density 1RU/144F, 2RU/288F and 4RU/576F; 19/23″ rack-mountable; galvannealed steel construction; and hinged front and rear doors and removable back cover.

AFL Telecommunications Pty Ltd

www.aflglobal.com

Distributed energy integration by digital twin

Bentley Systems has announced the OpenUtilities DER Planning & Design Assessment Solutions, the latest of its electric utility software offerings that provide decision support and cost-based models and simulations for distributed energy resources (DER) integration. In partnership with Siemens' Digital Grid business unit, OpenUtilities Solutions for DER empowers electric utilities, electricity suppliers and distribution network operators (DSO) with software applications to analyse, design and evaluate DER interconnection requests through desktop and cloud-based services, while supporting the resilience of network operations.

The solutions generate an electrical digital twin for utilities — a GIS digital twin that enables owner/operators to more efficiently model the grid for decentralised energy without compromising safety.

OpenUtilities DER Optioneering offers a cloud-based decision support initial screening and supplemental screening mechanism to evaluate DER interconnection requests using validation checkpoints and hosting capacity analysis. Utilities can benefit from this fast-tracked interconnection procedure to approve DER applications or to defer them to power systems planners to conduct further studies and impact analysis.

In cases where more detailed system impact studies are needed before an interconnection request can be approved, OpenUtilities Analysis gives power system engineers a mechanism to reduce the amount of manual work required at each step of an impact analysis study. This means good forecasting, state-of-the-art models and the ability to efficiently study many power flow scenarios within the network.

Bentley Systems Pty Ltd
www.bentley.com/en-AU/

Optical fibre patch cords

Increasing density in patching fields provides many benefits, including optimising and reducing rack and floor space in data centres and other network facilities.

But due to the progression of high-density data networks, managing cabling within data racks and optical distribution frames (ODFs) has become more challenging than ever before.

The increased cable congestion, as well as the close proximity of optical ports, can lead to difficulties when connecting and disconnecting services. In order to meet the challenges, LC patch cords have evolved to provide greater accessibility and outstanding performance.

Warren & Brown LC-LC duplex uniboot optical fibre patch cords have been specially designed for high-density applications to provide greater accessibility within congested patch areas. These cords feature a slim cable design of Ø2 mm OD, halving the traditional duplex (figure 8) cable diameter.

Benefits and features include LC-LC duplex uniboot design; LSZH outer sheath; Ø2 mm round OD optical fibre cord; available in Multimode OM4 aqua and violet; easy connection and disconnection; low insertion loss; and complies with ANSI, Bellcore, TIA/EIA and IEC standards.

Warren & Brown Technologies
www.wbnetworks.com.au

Network appliance for security applications

The FWA8600 1U rackmount network security appliance, from iBASE, is based on the Intel Xeon Processor D-2100 Series and features up to 29x GbE ports. The scalable system is designed for managing data-driven workloads and enabling robust levels of performance in enterprise network security, unified threat management and WAN optimisation applications.

The sleek network appliance supports up to 128 GB RDIMM, with 4x DDR4-2666 DIMM sockets and an Intel I210-AT Ethernet controller. It comes with network interface card (NIC) slots to accommodate up to three IBN cards with 8x GbE ports each, and one IBN-P401Q card for a maximum of 29x GbE ports. It offers flexible I/O connectivity and expansion features with a PCIe x8 slot, an M.2 expansion slot to interface with SATA 3.0 and PCIe x4 bus for high data throughput, 2x USB 3.0 and an RJ45 serial console with LCM display for easy operation. LAN bypass is also available in certain configurations.

The product features Intelligent Platform Management Interface (IPMI) 2.0 with the iBASE IDN100 module, allowing users to remotely manage and monitor systems even without an operating system. A suitable platform for cloud computing and data centres, it also supports Trusted Platform Module (TPM 2.0) to provide hardware-based security, easily encrypting the user's data and protecting their authentication credentials from hackers.

Backplane Systems Technology Pty Ltd
www.backplane.com.au

LED bunkers

The Atom Lighting range of LED Bunkers offers contemporary designs with corridor lighting sensor and emergency driver technologies available on selected models.

The lights feature insect-resistant seals and selectable TRI colour LEDs to provide customers with the option of cool white, warm white and daylight colour temperatures. Lighting technologies deliver energy efficiency and essential light levels.

Corridor function model AT5709/CF includes three-step dimming function, and motion and light level sensors. The motion sensor is activated when movement is detected and insufficient natural light is available. When no motion is detected over a programmable period of time, light output dims to a low level and can also be set to switch off. Both hold and standby times are adjustable. All key parameters of corridor lighting, such as detection area, hold-time, daylight sensors and standby dimming levels can be customised to suit each environment.

The AT5709/EM is a single point unit (SPU) and non-monitored using environmentally friendly lithium iron batteries ($LiFePO_4$). It is easy to install and is suitable for residential, commercial and decorative lighting applications.

The AT5709 lights are waterproof with an ingress protection of IP65.

ATOM Lighting Pty Ltd
www.atomlighting.com.au

FIVE REASONS WHY CONTRACTORS SHOULD USE A FIELD SERVICE APP

Elroy Desmond Dsouza

If you're a veteran in the electrical industry, you're probably already aware that customers are getting more demanding, especially when it comes to integrating technology value-adds to your field service offerings. More and more, companies are making the most of digital touchpoints and building a solid foundation for customer relationships.

So how can your electrical field service company take advantage of the latest technology trends, like artificial intelligence and cloud-based software services?

Quicker response times

In the service industry, having a speedy response time can be the difference between a successful job and a disgruntled customer. Customers expect instant assistance and are less inclined to stick with companies who make them wait, no matter how good their quality of service. Having a quick response time shows that you value your customer's time and are willing to go the extra mile to ensure efficiency is prioritised over everything else. Here's when scheduling software comes in handy, as it allows managers and back-office teams to better coordinate with in-field technicians, dynamically adjusting schedules based on variables like the time the ticket is raised, the nearest technician's location, their availability and even their skillset.

> FIELD SERVICE COMPANIES THAT ARE AHEAD OF THE CURVE ARE LOOKING AT SMARTER WAYS TO IMPLEMENT SELF-SERVICE OPTIONS AND REDUCE THE FREQUENCY OF CUSTOMER INTERACTIONS, AS IT ULTIMATELY REDUCES THE STRAIN ON THEIR WORKFORCE.

Implement preventative measures

One of the biggest mistakes electrical tradies make when starting their own field service organisation is aligning it to be more reactive than proactive. By focusing on fixing failures rather than preventing them, organisations are committing themselves to a long and prolonged relationship with a customer that might not end on a positive note. Training your workforce to actively fix problems that can occur in the future can save you time and money in the long run, which is a considerable advantage for your clients and your technicians. To help stay more proactive, field service companies, including those in the electrical space, are looking at ways to adopt predictive maintenance technologies which harness the processing power of advanced AI algorithms.

Empower your customers

Ask any customer what their biggest gripe with having to hire a field service professional is and they will likely say: "I wish I knew how to do this myself." This trend of self-service is popular in mainstream service offerings and is gradually creeping its way into the field service industry. Field service companies that are ahead of the curve are looking at smarter ways to implement self-service options and reduce the frequency of customer interactions, as it ultimately reduces the strain on their workforce.

Harness the tools of automation

On the topic of reducing customer interactions, it's important to highlight how technology — particularly automation tools — is making companies rely less on a physical workforce. For instance, cloud-based technology is eliminating the need for client-servicing personnel by employing software to quote and invoice customers. Employees are also able to get more work done remotely, instructing customers to get simple fixes done themselves through job management apps with built-in messaging and video communication tools. This helps reduce the time spent by technicians travelling from job to job, allowing them to focus on tasks that require their complete attention.

Take advantage of sales insights

In the field service industry, the sales team has a crucial job as they have the best insights into what a customer's needs are. Field service sales teams can take advantage of their customer-facing time by asking the right questions and keeping their eyes open to problems and possible improvements in the organisation's portfolio of service offerings. Through the use of centralised management system software, your sales team can pass on this information to technician teams, who are now better equipped at closing jobs quicker and with a better chance of the issue reoccurring.

These are just a few insights into how you and your electricians can take advantage of technology trends to service clients better. Through the proper use of smart software like team management and scheduling apps, you can optimise your service offering to offer faster turnaround times, increasing the likelihood of retaining valuable customers. However, this is just the starting point. It's important to understand what processes need to be automated, as investing in an enterprise software solution (especially the right one) can be a sizeable investment. So make sure you make your decision after careful deliberation of all the pros and cons.

Created in 2011, Loc8 is smart software for field service, asset management, quoting and invoicing. Thought up for small and considerably large businesses, Loc8 is a scalable solution that allows its users to modernise their business operations, simplify processes and deliver better service.

Loc8.com Pty Ltd
www.loc8.com

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- The future of energy storage in Australia

KEYNOTE SPEAKER

ROBERT G. MORGAN
CEO, Energy Storage
GE Power

IAN KAY
CFO
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CASE STUDY

Five-star hotel cuts energy usage with ABB technology

Images supplied by ABB.

The InterContinental Madrid has reduced its energy consumption by 40% after equipping its heating, ventilation and air conditioning (HVAC) systems with ABB drives and high-efficiency motors.

Through the InterContinental Hotels Group (IHG) Green Engage system, IHG has reduced its carbon footprint per occupied room by 15% between 2013 and 2017. A key area of focus in energy reduction was the HVAC systems, which can be responsible for 60–80% of all the energy consumed by a hotel.

"Through the IHG Green Engage program, every hotel has to achieve defined environmental goals. But there can never be any compromise on comfort or convenience for our guests," explained Esteban Rodriguez, Chief Engineer of the InterContinental Hotel Madrid.

Located on the Paseo de la Castellana, the InterContinental Madrid was found to use a lot of energy in the eight pump groups that serve its HVAC systems and hot water supply for guest rooms, kitchens and other facilities, according to an energy survey conducted by Exel Industrial.

Based on these findings, the pumping systems were equipped with 13 ABB ACH550 variable speed drives (VSDs) and 16 electric motors with IE3 energy efficiency classification, and integrated into building management systems. This upgrade provides the overall system with greater stability and higher energy efficiency, as the motor speeds are adjusted to match the precise demand at any given time.

ABB's intelligent motion solutions helped the five-star hotel exceed its IHG Green Engage system goals. It reduced its energy usage by 445,000 kWh a year, cutting the hotel's annual energy bill by $37,000.

As a result of IHG's Green Engage program, the hotel's carbon footprint has been cut by 253 tonnes of carbon dioxide (CO_2) a year. STR Global said if similar energy savings could be replicated at just one in four of the world's estimated 187,000 hotels, global CO_2 emissions could be reduced by nearly 12 million tonnes a year.

Research published by the International Tourism Partnership (ITP) shows that the hotel industry currently accounts for 1% of all global emissions, but this is expected to increase, with the total number of hotel rooms worldwide set to grow from 17.5 million to over 25 million by 2050.

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Subscriptions:
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Audited Media Association of Australia cab

March 2018 Total CAB Audited Circulation
4,673 (80% personally requested)

ECD [ELECTRICAL+COMMS+DATA]: ISSN 2201-2702
Printed and bound by SOS Print & Media

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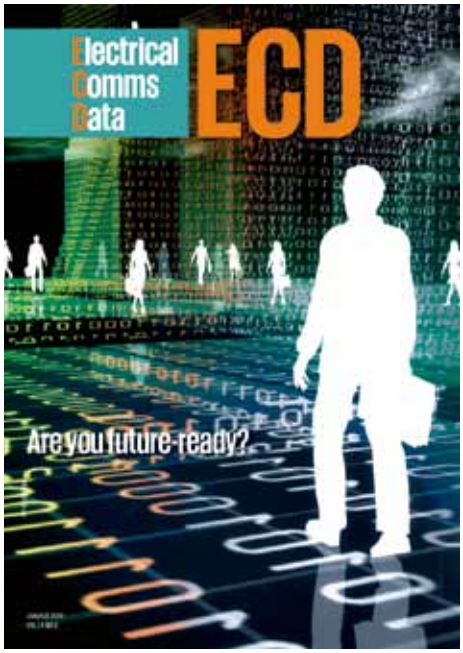

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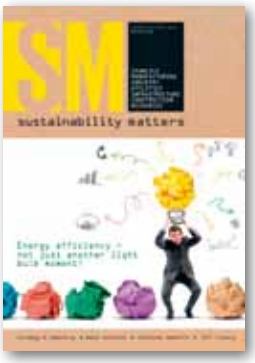

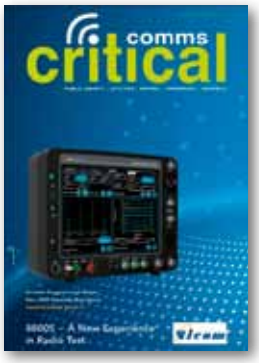

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