IMPROVING LIVES BY TRANSFORMING THE SPACES WHERE PEOPLE LIVE, WORK AND MEET

# **BUILDING A BETTER WORLD**

#legrandimprovinglives

**Empowering Our Customers** 

4

UPS in Data Centers 4.0

12

How AI Is Forcing Organisations to Rethink the Data Center

14



### WELCOME TO OUR NEW COUNTRY MANAGER

We at Legrand South Africa, are delighted to extend a warm welcome to our new Country Manager, Denis Marangé.

Denis is a dedicated member of the Legrand Team and brings with him a wealth of experience. With notable accomplishments as Country/Zone Manager in the likes of Vietnam and Algeria, his worldly perspective, and self-evident adaptibility to different business cultures, is sure to prove benificial to the local subsidiary.

In addition to this, Denis also possesses vast knowledge of the data center field, having spent over 6 years as France & North Africa Country Manager for Ortronics and over three years as Manager Business Development for Minkels. With the burgeoning data center market, we are excited to see what ideas for future business growth he can bring to the table.

Denis, we are looking forward to working with you. We strongly believe in your skills and knowledge, and are confident in our ability, under your guidance, to accomplish many milestones together.

From all of us at Legrand South Africa





05

06

10

### **Empowering Our Customers**

Our recently launched ongoing training modules, designed to equip our valued customers with the knowledge and skills they need to excel.

#### Legrand's 6th CSR Roadmap

The investors CSR digital event held on March 25, 2025, was the opportunity for Legrand to launch its 6th CSR roadmap1 for the period 2025-2027.

#### **Celebrating Progress**

The first quarter of 2025 has been a period of exciting growth and renewed energy for the local chapters of our Employee Resource Groups (ERGs).

#### Powerless is not an Option

A look at the user-friendly Keor Compact unit. suitable for low-power three-phase applications.

### 04 UPS in Data Centers 4.0

The rapid growth in the volume of data driven by services requires solutions to respond just as quickly and flexibly, and also at low cost if possible.

### Redisigning the Data Center for AI Workloads

Al applications and their workloads demand a radically different approach to data center design, construction, and operation.

The Legrand NEWSLTR publication team would like to thank all the participants:

DIRECTOR OF PUBLICATION: Melanie Vosloo EDITORIAL STAFF: Shaun Dobbs , Lindy Morton, Kelisha Gungadeen LAYOUT: Shaun Dobbs PHOTOS: Legrand, Shutterstock, Adobe stock All rights reserved © Legrand March 2025

12

14



## **Empowering Our Customers** Ongoing Training Initiatives

We are thrilled to share the success of our recently launched ongoing training modules, designed to equip our valued customers with the knowledge and skills they need to excel.

### **Building Expertise, One Module at a Time**

In our commitment to providing exceptional support and fostering strong customer relationships, we have initiated a series of regular training sessions, both in our dedicated Innoval Training Centre at our Johannesburg offices, and online. These modules cover a range of critical topics, ensuring our customers have access to relevant and up-to-date information. So far, we have successfully delivered comprehensive training on:

• **Critical Power:** Understanding the fundamentals of Transformers, Busway, PDUs and Cabinets for Data Center, Commercial and Retail.

• **UPS Level 1 & 2:** Covering basic principles in Level 1, the differences between Inverter and UPS, plus a brief overview of our product range. Level 2 deep dives into Uninterruptible Power Supply (UPS) products.

• **Connected Home:** Introduction and Installation training for Connected Home Solutions (Arteor with Netatmo)

The excellent attendance and positive feedback we have received confirm the value of these sessions, and how much we are committed on expanding our offerings based on customer needs.

### Expanding Your Skillset: A Continuous Learning Opportunity

We strongly encourage all our customers to take advantage of these ongoing learning initiatives. Whether you are looking to broaden your technical skills or solidify your foundational knowledge, our training modules offer valuable insights and practical applications.

By participating in our training sessions, you will gain:

• Enhanced understanding of our products and services.

• Improved troubleshooting and problem-solving abilities.

- Increased confidence in utilizing our solutions.
- Access to industry best practices.

• Dedicated Support: Our team is readily available to answer your queries and address any concerns you may have. We are committed to providing clear and prompt responses.

### **Easy Access to Learning**

Legrand South Africa has made it easy for you to register for our training modules. Stay updated on monthly training modules on our Facebook and LinkedIn social media platforms or look out for our regular training mailers to book your spot.

Join us in this exciting journey of continuous learning!



**BUSINESS NEWS** 



# Legrand's 6th CSR Roadmap

### The Recently Launched Roadmap 2025 - 2027

The investors CSR digital event held on March 25, 2025, was the opportunity for Legrand to launch its 6th CSR roadmap<sup>1</sup> for the period 2025-2027. In the presence of Benoît Coquart, CEO, Virginie Gatin, EVP CSR and Franck Lemery, CFO, this event was broadcast live and is now available for replay on the Group's website www.legrandgroup. com.

### A commitment built on 5 pillars until 2027

Fully integrated into the Group's performance and value-creation strategy, and considered a decisive competitive advantage, this ambitious roadmap sets out Legrand's CSR priorities for the next 3 years. It is broken down into 5 pillars:

- **Promoting diversity and inclusion**, including aiming for:

a rate of 35% of management positions (Hay Grade 14 and above) held by women, i.e. an increase of almost 15% compared with 2024,
4,000 new opportunities offered annually to early-in-careers,

- **Mitigating climate change**, in line with the Group's SBTi commitment, through:

• a reduction of -10% in the Group's direct and indirect greenhouse gas (GHG) emissions (Scopes 1&2) compared to 2024 levels,

• an average reduction of -30% in the GHG emissions of our suppliers' operations representing 70% of emissions related to purchased goods (Scope 3),

- **Developing a more circular economy**, with initiatives such as:

focusing on product eco-design, to achieve 50% of projects of new or redesigned product ranges meeting Legrand's eco-design index criteria,
using over 1/3 of sustainable materials, including recycled materials, in products

manufactured by the Group,

- **Serving our customers**, with objectives including:
- enabling our customers to avoid the emission of 20 million tons of CO2 over the 3 years of the roadmap,

• providing a top-notch customer experience, with a satisfaction rate of 80% (CSAT) and a Net Promoter Score (NPS) of 50,

- Being a responsible business, including:
- committing to reducing the rate of accidents with and without stoppage by 20%, now also including

temporary workers (FR2t rate),

• increasing employability and developing skills, with 90% of employees receiving 10 hours of training by 2027.

### 2030 ambitions

Legrand's 6th CSR roadmap is fully aligned with its 2030 ambitions, which, in addition to the financial ambitions presented in September 2024<sup>2</sup>, aim to:

- **reach 1/3 of key management positions** (Hay Grade 20 and above) held by women (vs. 27.8% in 2024),

- reduce GHG emissions by -42% for Scopes 1&2 and by -25% for Scope 3<sup>3</sup>,

- eliminate 100% of plastics in primary and secondary Legrand packaging,

- enable its customers to avoid the emission of 70 million tons of CO2 through its energy efficiency products and services (Scope 4) between 2020 and 2030,

- ensure **80% of its revenue is generated from eco**responsible solutions<sup>4</sup>.

Mobilizing all its employees as well as its ecosystem of customers and suppliers, this new CSR roadmap reflects Legrand's determination to

<sup>&</sup>lt;sup>1</sup> CSR: Corporate Social Responsibility

<sup>&</sup>lt;sup>2</sup> For more information, see Legrand's documents published in the following section: Capital Markets Day 2024 on www.legrandgroup.com

<sup>&</sup>lt;sup>3</sup> At current scope compared to 2022

<sup>&</sup>lt;sup>4</sup> Sales of energy-efficient products and products covered by product sustainability profiles (PSP)



### **Celebrating Progress** #LegrandRainbow and Elle Legrand Kick Off a Powerful 2025

The first quarter of 2025 has been a period of exciting growth and renewed energy for the local chapters of our Employee **Resource Groups (ERGs)**, **#LegrandRainbow and** the newly relaunched Elle Legrand. Driven by a shared commitment to Diversity and **Inclusion**, both groups are making significant strides in fostering a more equitable and supportive workplace for all.

### #Legrand Rainbow South Africa Welcomes New Leadership and Sets Ambitious Goals

#LegrandRainbow South Africa has kicked off the year with enthusiasm, welcoming a new Executive Sponsor, Denis Marangé, who brings invaluable support and advocacy from the leadership team. This endorsement underscores the company's commitment to creating a safe and inclusive environment where LGBTQ+ employees feel valued and empowered.

Looking ahead, the ERG has a robust calendar of initiatives planned for 2025. These include:

### Enhanced Communications:

Regular updates and engaging content to raise awareness about

LGBTQ+ issues, terminology, and the importance of allyship within our organization.

### • Engaging Staff Activities:

Internal events designed to foster connection, build community, and celebrate the diversity of our LGBTQ+ colleagues. Plus, the ERG will be hosting a Pride Bingo in June with the opportunity for local staff to win one of three great prizes

### • Meaningful Community Outreach:

Initiatives to partner with local LGBTQ+ organizations, demonstrating our commitment to supporting the broader community and beyond. • Highlighting Key Events: The ERG will be actively recognizing and celebrating significant LGBTQ+ milestones, including International Pride Month in June and Johannesburg Pride in October, providing opportunities for education, and celebration across the company.



#LegrandRainbow South Africa Executive Sponsor - Denis Marangé



### **BUSINESS NEWS**



### Elle Legrand Relaunches with a Clear Vision for the Future

We are thrilled to announce the successful relaunch of our local chapter of Elle Legrand! This revitalized group is dedicated to fostering an environment where all women can thrive and reach their full potential. Their core pillars for 2025 are:

• **Celebrate Diversity:** Recognizing and valuing the unique experiences and perspectives of women from all backgrounds within our organization.

### Advocate for Equality:

Working to identify and address systemic barriers, promoting equal opportunities and fair treatment for women in the workplace.

• Develop Skills & Opportunities: The ERG will be hosting a range of initiatives focused on professional development, including workshops to enhance key skills, mentorship programs to provide guidance and support, and guest speakers to share inspiring stories and valuable insights.

• Build a Supportive Network: Creating a space for women to connect with colleagues who share a passion for empowerment, fostering a sense of community and mutual support.

### **Stronger Together: Collaboration for Greater Impact**

Recognizing the interconnectedness of diversity dimensions, both #LegrandRainbow and Elle Legrand are committed to collaborating on initiatives throughout the year. By working together, they aim to:

### Amplify Voices:

Create platforms that highlight the experiences of individuals who may belong to multiple underrepresented groups.

• Promote Intersectionality: Foster a deeper understanding of how different aspects of identity intersect and impact individuals' experiences in the workplace.

• Develop Inclusive Solutions: Collaborate on projects and policies that address the diverse needs of our entire employee base. The energy and commitment within both

#LegrandRainbow and Elle Legrand are truly inspiring. All employees are encouraged to get involved. learn more about their initiatives. and contribute to building a workplace where everyone feels valued, respected, and empowered to succeed.



Elle Legrand - Johannesburg Members



NEWSLTR #09 7

## **#LoveForLegrand** Celebrating Valentine's Day

Legrand South Africa staff all dressed up in their red Legrand T-Shirts to celebrate Valentine's Day.

And what is Valentine's Day without chocolate? Staff were all treated to some sweet treats, including chocolate hearts.



### Happy Birthday! Celebrating our Colleagues' Special Days



Hendrick - 1st February & Nurse - 2nd February



Kennita - 2nd February & Quinton - 7th February



Sibonelo - 10th February



Thomas - 15th February



Kelisha - 18th February



Anisa - 25th February

# **Powerless is not an Option** Keor Compact UPS



When the power goes out – as it continues to do regularly around the country - it is important for commercial and tertiary facilities to be able to keep essential electrical equipment running.

Uninterruptible Power Supply (UPS) systems are critical for transitioning and emergency backup power for a short period, until an alternative power source can be established, or the initial power source is restored.

Legrand's wide range of UPS systems include the userfriendly Keor Compact unit, which is suitable for low-power three-phase applications in offices, shops, health and educational establishments, hotels, sports facilities and public administration buildings.

Keor Compact - a three phase online double conversion that does not require a transformer - is available in three different power ratings – 10, 15 and 20 kVA. This compact device, with a 0.22 m<sup>2</sup> footprint, requires minimal floor space and is designed for easy installation, even in a small technical room. Wheels ensure effortless movement from one position to another.

The low noise Keor Compact UPS system is easy to configure and is controlled and managed via its colour touch screen with intuitive graphics and navigation windows.

Parallel connection for redundant configurations ensures high levels of availability for critical applications, while internal batteries provide typical standard autonomy. Longer autonomy is easily obtained by connecting external battery cabinets. A standard feature of this unit is embedded internal backfeed protection, which means there is no need to implement external protection in the upstream panel.

Communication features comprise a standard RS232, ModBus, programmable dry contacts, an EPO and GenSet and remote monitoring panel. Optional features include a USB converter and internal SNMP solutions.

Other characteristics of Legrand's Keor Compact online three-phase double conversion VFI include Power Factor Correction PFC (input PF>0.99) and a wide input voltage range and frequency. This system also offers dual input and cold start, as well as overload and short circuit protection and a powerful built-in charger.

An important benefit of Legrand's modular single and three-phase units UPS systems is the power supply is customised to exact requirements and can be modified at any time. Standard modules can be added to existing configurations to increase power or backup time.

The Legrand South Africa team offers a complete range of solutions and services throughout Southern Africa, including technical pre-sales support at the project design stage, supervision of the installation, testing and commissioning, site acceptance tests and audits, as well as operator training. Legrand technicians perform comprehensive checks of every UPS installation to ensure safety and fault-free operation.

The design team has incorporated advanced technologies into its UPS systems, to optimise energy-efficiency and an intelligent battery charging system extends the system's service life. In addition to significantly reducing UPS consumption and operating costs, these features also reduce the environmental impact of battery disposal.

Legrand's online site configurator www.ups.legrand.com assists with the selection of the correct UPS, by providing easy power selection and calculation of the necessary back-up time required.

# **Legrand Training**

In today's fast-paced technological landscape, staying ahead of the curve is crucial. Our technical team is committed to empowering you with the knowledge and skills needed to excel in the fields of **Uninterruptible Power Supply (UPS) systems, Critical Power solutions, and the innovative Arteor with Netatmo smart home system**. We offer a range of comprehensive training courses designed to elevate your expertise and unlock the full potential of these cutting-edge technologies.

Our training courses are delivered by experienced instructors who combine theoretical knowledge with practical, realworld examples. We offer the options of either classroom-based training at our Innoval Training Centre at the Legrand South Africa Johannesburg offices, or by joining online.

Invest in your future and enhance your technical skills. Equip yourself with the expertise needed to succeed in the dynamic world of UPS, Critical Power, and smart home technology.

For more information, follow us on Facebook and LinkedIn for each month's training schedule or contact our technical team:

Grant Colling: grant.colling@legrand.com

Sheldonne Du Toit: sheldonne.dutoit@legrand.com

Luan Wolmarans: luan.wolmarans@legrand.com



# **UPS in Data Centers 4.0** The Factors They Need to Respond To



Not just the data management and storage equipment, but the entire data center infrastructure is called upon to respond to this imminent growth. There are a number of factors that characterise the data center infrastructure of tomorrow.

#### **THE SPACE FACTOR**

modern technologies used in the servers to increase the calculation speed greater storage capacities combined with virtualization and the cloud - can considerably reduce the required data center space. This will allow the UPS. for example, to be placed in the same room as other equipment. This in turn will enable a drastic reduction in costs due to the reduced number of square feet occupied by the entire structure, the simplification of the electrical system, and the reduction of air conditioning. IT Managers are therefore putting

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in place some possible options to reduce the cost associated with their IT infrastructure. By adopting high-power-density UPS solutions, combined with high efficiency enclosed in small spaces, a mutual advantage will be obtained: the reduction of the physical dimension of the entire infrastructure of the data denter.

### THE RELIABILITY FACTOR

As with data equipment, a minimum level of redundancy is achieved by completely duplicating the servers. In the event of a hardware failure in a machine, its equivalent is ready to replace itimmediately, even to the plant or power supply. Therefore, the UPS is requested the same service. In fact only the modular solutions are able to offer this feature and this level of reliability. In a modular UPS, we try to avoid (or at least minimize) the single point of failure by dividing the the total power supplied between the various power modules that together make up the system. In the event of failure, the damaged module is simply switched off and/or replaced by a new one that is always available to be removed in the subsequent hours or even days.

### THE SIMPLICITY FACTOR

The direction that companies will take is to implement intelligent systems and machine learning to simplify operational processes, to support services, and to simplify maintenance, making data centers more predictive and efficient. In this way the standardization of the infrastructure components is taking on remarkable relevance. The possibility of using the same elements for the UPS simply by combinig them in different quantites is becoming a fundamental and strategic factor in reaching the targeted goals. The objective is to reduce infrastructure costs and speed up the implementation and provision of services, while also simplifying assistance and maintenance procedures.

### THE FLEXIBILITY AND TIME FACTOR

The speed with which the data

center is evolving has definintely incereased as compared to just a few years ago. The time factor is certainly decisive to the success of your project or application. In the past, increasing the size of the infrastructure and expanding the data center could take a long time. These days there is a serious need for flexibilit, and above all to reduce the time required for each individual activity. The increase in absorbed electrical power directly impacts the UPS, which mustbe able to adapt to the new situation. A modular UPS represents the ideal solution to these needs. A modular UPS enables scalability (both in terms of power and in extremely simple autonomy) without the necessity to adapt the electrical system. This operation is easily accomplished by adding new power modules or battery modules to systems already present in the infrastructure.

#### **THE GREEN FACTOR**

Along with the previous four factors, there is a fifth factor that is guite recurrent and still considered fundamental: the green factor. The theme of energy saving is present in every area, required for every element of the infrastructure. The reason why the efficiency requirements for equipment are increasing is not only out of respect for the environment. Achieving a significant economic saving is also a very important reason - the shared link to the consumption of electricity is the largest factor in the total costs. The UPS manufacturers are therefore constantly in search of increasingly efficient solutions, even from from the perspective of energy saving. The latest generation of UPSs has reached very levels of efficiency, thus minimizing the losses deriving

### LEGRAND SOLUTIONS

from self-consumption. A further contribution to the energy saving of the UPS can be provided indirectly by the colour of the cabinet. The light surfaces of the structures are more reflective with a consequent decrease in the lighting elements inside the data center.

### **THE LAST FACTOR**

The last factor, but certainly not a negligible one, is the aesthetics. Even the formal aspect, or rather the design. is becoming increasingly important. Data Centers have become the flagship of every company: beautiful to look at, clean, tidy, and very bright. All the devices that compose the data centers must reflect the same beauty, refinement in details, materials, and aesthetic asppects. The new UPSs on the market, as well as innovative technological features, must add an aesthetic value that repects the current trends and the convenience that we already find in more commonly used objects. The use of large touch displays, the simplicity of the Human/Machine Interface (HMI), and the intuitiveness of an "iconic language to allow quick access to the machine functions that simplify the ordinary and extraordinary activities of the internal infrastructure.

For more information on our various UPS ranges, as well commissioning and installation services, contact:

Sheldonne Du Toit -082 326 5153

Grant Colling -082 602 1287



### How Al Is Forcing Organisations to Rethink the Data Center Redisigning the Data Center for Al Workloads

The explosive advent of the AI universe is revolutionizing the data center industry in dozens of ways. From the smallest edge data closets to the largest hyperscale data centers from tech giants like Google and Meta, the power consumption, heat generation, and compute density of hardware powering AI applications and their workloads demand a radically different approach to data center design, construction, and operation.

There's no consensus, however, about the emerging needs of next-generation data centers. Dozens of vendors, from startups to Fortune 500 companies, all tout their perspectives. Though many views on the needs of data centers for accelerated computing overlap, they're often different and sometimes in conflict. It's important to take in diverse voices when attempting to make Al infrastructure design and procurement decisions with implications that will last a decade.

At Legrand, we're not just a supplier for and collaborator with the world's largest enterprise data centers, colocation companies, and hyperscalers. We are data center

insiders deeply embedded in the cutting edge of data center design. If you have a role in designing and building data centers supporting AI infrastructure, some of this paper's elements will be familiar. and others will be unfamiliar, but they're all proven in deployments worldwide and represent a new frontier in data center design. We're here to reveal these cutting-edge approaches, opening a world of possibilities for designing and building data centers for AI, machine learning, neural networks, deep learning, and generative AI applications.



### EXPLORING THE NEW LANDSCAPE

The introduction of nextgeneration generative AI platforms, such as the groundbreaking release of ChatGPT in 2022, has been a significant catalyst for change in the data center industry. It introduced a new class of IT workloads-generative AI with high computational demandsleading to countless new companies and explosive growth in a market that didn't exist a few years ago, transforming the data center space at an accelerated rate.

While existing data center capacity can support some generative AI applications, the most intensive workloads demand IT hardware that rivals high performance supercomputers. Compute capacity, specialized silicon, specialized networking, and the highest-performance storage are combined across hundreds or thousands of servers to deliver the performance needed to stay competitive in the rapidly evolving marketplace, where less efficient, less capable solutions are quickly left behind.

Because of the shift toward AI, the IT infrastructure needed to support these applications is increasingly hot, dense, and power-hungry. Deployed at a massive scale, the shift toward accelerated compute infrastructure brings both possibilities and challenges for organizations aiming to stay on the leading edge of innovation. To cope, data center providers are changing everything: designs, construction methods, cooling technologies, monitoring, and operations to meet these evolving needs. Legrand sees

this in the rate of data center construction; Dell'Oro Group has predicted data center CapEx will surge to a 24% compound annual growth rate (CAGR) by 2028 due to "surging demand in AI-related data center infrastructure."

Legrand works with companies of all sizes who have deployed or are about to deploy AI infrastructure to rethink what's possible in the data center. By supporting their distinctive approaches to AI with a mix of off-the-shelf and custom technologies, Legrand can help realize benefits and advantages while mitigating the complexities and risks of AI infrastructure. Starting with the rack, we can assist organizations in optimizing existing data center white and gray space while contributing ideas to nextgeneration data center designs.

The data center industry is experiencing an exciting transformation. This transformation presents a unique opportunity for data center professionals to collaborate and shape the future of this critical infrastructure in the age of generative AI. In this brief, we will share our unique. insider perspectives on how the data center industry is changing and how we've built new, distinctive products to help organizations move forward faster into the world of AI.

### DESIGN SHIFTS FOR AI INFRASTRUCTURE

As Legrand collaborates with leading organizations worldwide, we see shift after shift; old design assumptions and workflows are disappearing and being replaced by new ideas and technologies. Some of the trends we're seeing include:

### LEGRAND SOLUTIONS

#### **Rising Infrastructure Costs**

Before the advent of generative AI, the data center industry focused on efficiency at every stage, from design to deployment. Now, in today's AI world, while efficiency is still top priority, there is a focus on uptime and functionality for racks full of servers.

Suppose a company wants to power a leading-edge generative Al implementation. In that case. one rack fully populated with NVIDIA® DGX H100 AI servers, for example, can cost hundreds of thousands of dollars and may generate millions of dollars in revenue. Racks of these servers are integral to delivering AI-driven services and core assets for driving business revenues-if they can remain fully functional with minimal downtime. The old economies of the data center are evaporating in the face of these costs. Every element of the data center. from cabling to racks to power and cooling, must be the best available because if something simple fails, millions of dollars of sellable AI capability-and their ability to meet SLAs-is compromised. The costs of building a new data center can now reach \$6 to \$8 million per MW and continue to rise.

### **Data Center Size**

Three factors are driving the explosion in data center size:

- Most AI training clusters have thousands of servers, and data center providers are doing everything possible to maximize how many servers they can support within a given footprint.

- Because AI infrastructure designs exceeding 200kW per

### LEGRAND SOLUTIONS



rack are so hot and dense, new data centers require enormous amounts of real estate to accommodate power and cooling equipment.

- There's a worldwide shortage of data center capacity, and providers want to meet the need. Vacancy levels are at a record low.

Not that long ago, 50 MW data centers were enormous. Today, one prominent real estate company reports that its standard transaction size is 300 MW, and it is getting inquiries about building data centers up to 1GW. Much of this size is due to just how demanding these servers are and how much pressure they put on electrical supply, distribution, and heat management.

### **Power and Cooling**

One statistic illustrates how much power and cooling must change to support Al infrastructure. One NVIDIA DGX AI server is 10kW-one server. Al infrastructure power consumption is commonly over 60kW per rack, and some Legrand customers are deploying more than 100kW per rack. One colocation company even reports supporting up to 300kW per rack. These densities have many implications for design, including:

- **Power:** Today, the normal power design for an AI data hall is multiple drops of 400 Volts 60 Amp power in the US. and 400 Volts 63 Amp power in Europe. Having said that, Legrand has received requests from leading organizations in the AI, high performance computing, and cryptocurrency spaces to provide more than 125 Amps to the rack. Not all facility sites have the power access or power quality to reach these numbers, so power is becoming more of a factor in site selection. Legrand even consults with organizations with power challenges to ensure their power supply can support tomorrow's demanding AI hardware.

- **Power Distribution:** The intense power demands at the rack require additional power distribution. It is becoming normal to see three, four, or even six rack PDUs in each rack, which has implications for maintenance and serviceability. Overhead power distribution is also the new normal because Al infrastructure requires a lot of power and cabling, including new requirements for east-west cabling that cannot be supported with underfloor legacy wiring conduits.

- **Cooling:** Air cooling alone is insufficient to cool these racks. Cabinets must guarantee unimpeded airflow and optimal containment and facilitate close-coupled cooling. Many data centers augment air cooling with liquid cooling through in-row cooling/rear door heat exchangers or direct-to-chip.

These changes will force providers to reconsider how they power their data centers. Data-center-owned natural gas energy production, fuel cells, on-premises renewables, and even nuclear power are being evaluated and tested by market leaders.

### **THE NEW AI RACK**

In legacy data centers, racks were furniture, a commodity, or an afterthought. Today's racks and cabinets for AI infrastructure are very well thought out and engineered and must fit the demands of AI infrastructure. Some critical considerations include:

 Weight: A single NVIDIA DGX H100 server, for example, weighs nearly 300 lbs. Today's AI racks must support new weight distribution from components like rear door heat exchangers, in addition to the total weight, fully populated, of more than 3,000 lbs.
 Height: The old 42U racks are

fading; organizations want to leverage every vertical rack unit they can. 48U, 51U, even 52U racks are in demand. In legacy data centers, access and egress are challenges. Cabinets are typically 42, 47 and 52 U heights.

- Width & Depth: The old 24-inch (600mm) wide racks were built to fit standard 2 ft x 2 ft (600mm x 600mm) floor tile. With different flooring, we are seeing demand for different racks to maximize the number of chips in each rack unit. Some customers want a purpose built rack, with one customer requesting a 36-inch (914mm) width. Integrating wider, deeper racks alongside conventional racks can be challenging, as enterprises and colocation providers are in a difficult position due to their reliance on existing hall space. - Sensors: Al environments are so dense and hot, running at the limits of hypothetical performance, and must be operated within strict condition thresholds to maintain efficiency. Many data center providers use sensors to detect hot spots, airflow gaps, humidity problems, water/leaks, and vibrations. By consolidating sensor data through daisychained connections to intelligent rack PDUs, organizations can aggregate data to identify emerging problems, locate hot spots, and improve operational efficiency. - Floor designs: Depending on its pounds per square foot (PSF) rating, traditional raised flooring may not support the weight of today's racks. Many providers are putting AI infrastructure in greenfield containers or greenfield prefabricated halls because slab floors are becoming the default to handle hundreds of thousands of pounds of IT equipment. Not all slab floors. however, can handle the weight of a fully populated AI rack. We have seen racks cut trenches or divots into concrete slab floors. - Customization: Though many data center providers are satisfied with stock products. others have distinctive design

### LEGRAND SOLUTIONS

requirements that must be met. Legrand is experiencing a significant increase in demand for tailored data center products and solutions, particularly in customized containment. This rise is driven by the specific challenges faced by individual data centers, in that each location is different and requires a unique approach.

- Integration: Increasingly, specialized rack and stack integrators are building integrated rack-scale systems, cabling and testing them, and then crating and shipping fully populated racks to the data center. This helps reduce the time needed to deploy large installations.

### MARKET SEGMENT DIFFERENCES

It's also worth noting a few differences occurring by market segment. We're seeing that:

- Colocation companies are wrestling with demands for AI because much of their capacity can only support 12-15kW per rack, so for AI workloads, it's essentially not fit for purpose. They're actively driving greenfield builds for AI and are gradually repositioning themselves as AI-as-a-service providers. However, the economics of those AI data centers, and service provider businesses, radically differ from



### LEGRAND SOLUTIONS

what they're accustomed to.

- For now, many enterprise customers are sitting on the sidelines, waiting for a market consensus around infrastructure designs and operations management. If they do an AI project, they're likely partnering with a hyperscaler or colocation provider because a limited amount of talent and resource supply shortages compromise their ability to move quickly on their own.

- Hyperscalers are building everything they can build, as quickly as they can build it. They're also doing everything they can to tie up vendor supplies, because taking supply out of the market improves their position in the race toward universal Al.

### CONCLUSION

All these changes, taken together, paint a picture of a rapidly changing data center landscape. From power considerations and environmental challenges to new demands on racks, data center providers of all sizes are already exploring the future. To get where the world of AI is taking them, they're leveraging trusted partners who can help them move from legacy approaches to the leading edge of data center design.

Fortunately, Legrand is one of those trusted advisors. We work with the world's most successful data center providers, helping them to architect data centers for AI infrastructure that will support new capabilities for years to come. We've been designing and redesigning products that play a substantial role in data center innovation for decades. You can choose Legrand for:

- Overhead track busway
- Rack power distribution
- Server and network cabinets
- Fiber, cabling, and network
- Rack cooling, including rear door heat exchangers

### • Environmental and security sensors

Legrand offers a compelling value proposition for organizations that want the best.

To learn more about our capabilities to meet the demanding requirements of today's data center and industrial markets, contact our team on: 011 444 7971 or e-mail: legrand.south-africa@legrand. co.za



# Legrand UPS Services

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Commissioning, Installation and Servicing

or more information call +27 (0)11 444 7971

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### ATTRACTIVE APPEARANCE AND EASY TO USE







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