Technical infrastructure for Europe’s data centers

Why power, cooling and operations are bringing component suppliers closer together

Europe’s data centers are expanding primarily in power capacity. Larger sites and denser computing loads connect electrical supply, cooling, automation and service into one system. Component suppliers therefore need to understand the whole facility as well as their own product.



Concept image created for Conversio by AI

More power changes the facility

Installed capacity in Europe is growing faster than the number of sites. New capacity is concentrating in large colocation campuses and hyperscale projects, while AI workloads raise rack density. The International Energy Agency expects global data center electricity use to rise from 485 TWh in 2025 to about 950 TWh in 2030. At AI-focused facilities, it could triple.[1]

Higher loads affect transformers, switchgear, UPS systems, energy storage, busways, fire protection and controls. Rapid power swings require the grid connection, power electronics and storage to respond as one system. Components need documented performance under dynamic conditions.

Cooling becomes a fluid systems challenge

As heat flux rises, air-based cooling is evolving towards hybrid architectures. Liquid cooling removes heat closer to processors, while air systems still condition rooms, power equipment and residual loads. The result is an interconnected system of chillers, fluid loops, heat exchangers, pumps, valves, connectors and sensors.[5]

Material compatibility, pressure stability and hydraulic coordination become more important. Small interface deviations can affect flow, heat transfer and maintenance. Value comes from defined connection conditions, tested combinations and modular assemblies that integrate easily into OEM platforms.

Standardisation meets regional conditions

Operators want to standardise equipment across sites, but grid access, water availability, climate, permitting and heat reuse vary by region. Successful architectures therefore combine a stable platform core with documented options for climate, fluids, power and service.

KEY FINDING **Technical components are increasingly judged by their contribution to overall facility operations. Proven availability, energy efficiency and maintainability determine their value.**

Technical infrastructure as an interconnected system

Power and resilience | Thermal and fluid systems | Automation and data | Safety | Operations and service

Measurability becomes a product feature

European regulation is increasing the demand for evidence. Operators with at least 500 kW of installed IT power must report indicators including energy, temperature set points, cooling, water and waste heat. Facilities above 1 MW total rated energy input must use waste heat where technically and economically feasible. Further EU requirements are being developed.[2][3][4]

Technical documentation is becoming a sales asset. Operators need part-load curves, measurement points, interface descriptions, and energy and water data. Components gain value when their information feeds directly into operating models, building automation and sustainability reporting.

Market access starts before the tender

Conversio's market analysis indicates that owners set the framework, while engineers and system OEMs define the solution. Internal standards, vendor lists and platform agreements often narrow the choice before a tender is published.

Operational resilience becomes a service promise

Components must be maintained or replaced without interrupting critical loads. Redundancy, accessibility, clear replacement procedures and condition monitoring therefore belong in product development. Conversio's analysis shows that consistent quality and reliable delivery matter more than the lowest purchase price.

Two routes matter: platform business through qualification with Tier1's, and operational business through local availability, spare parts and service. Product families that connect both routes are particularly well positioned.

Five implications for component suppliers

- **Prove system performance** Document curves, part-load behaviour and system interfaces.
- **Design for platforms** Offer modular sizes, standard connections and documented variants.
- **Provide operating data** Make energy, water, condition and maintenance data reusable.
- **Influence specifications early** Support engineers and OEMs with BIM data and integration expertise.
- **Secure European service** Organise spare parts, response times and long-term support.

CONVERSIO MARKET & STRATEGY

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www.conversio-gmbh.com

THORSTEN REINHARDT
Managing Director +49 (0) 6021 15067-02
t.reinhardt@conversio-gmbh.com

PASCAL OPATERNY
Project Manager +49 (0) 6021 15067-11
p.opaterny@conversio-gmbh.com

Sources [1] IEA Energy and AI 2025 and Key Questions on Energy and AI 2026 [2] EU Delegated Regulation 2024/1364 [3] EU Energy Efficiency Directive 2023/1791 [4] European Commission study on minimum performance standards [5] ASHRAE TC 9.9 technical input on liquid cooling