# Data centres brace for transformation amidst AI demands and sustainability regulations



In 2025, the data centre industry will undergo significant transformations as it grapples with increasing demands from artificial intelligence (AI) and stricter regulatory frameworks aimed at enhancing sustainability. David King, Product Engineering Architect at Cadence, suggests that adopting digital twin technology will be crucial for navigating these complex challenges, particularly in retrofitting older facilities and constructing new AI-optimised infrastructure.

As firms ramp up their AI capabilities, energy consumption in data centres is anticipated to surge, with some projections estimating a staggering 160% increase in power demand. This increase poses a critical challenge as many existing facilities may not have sufficient energy reserves to support AI advancements. Consequently, operators are tasked with upgrading their current infrastructures or investing in newly designed facilities adept at handling the energy-intensive nature of AI processing.

Digital twins, digital replicas of physical data centre environments, are emerging as vital tools. By simulating facility operations, these technologies allow operators to improve efficiency through better power management, enhanced cooling techniques, and avoidance of stranded capacity. King points out, “This technology not only makes the most out of existing space, it also supports sustainable growth, setting a new standard for energy-efficient, AI-capable data centres.”

As AI applications proliferate, data centres will face mounting pressure to meet these energy needs while adhering to emerging sustainability regulations. Companies that previously rushed into AI implementations may now need to reassess their strategies due to the high costs and significant energy implications associated with maintaining in-house systems, which can exceed £250,000 in hardware alone. This reassessment may prompt organisations to focus on selective AI applications that yield more beneficial operational outcomes, particularly within their data management scope.

Additionally, the introduction of the European Union's Energy Efficiency Directive in May 2025 will enforce new reporting standards for energy and water usage across the data centre sector. This directive is set to establish baseline data for industry performance, which could lead to more stringent regulations aimed at promoting energy efficiency. With public scrutiny increasing regarding data centres' resource consumption, facilities may find themselves under closer examination, especially if they are found to contribute excessively to local energy demands.

Data centre operators are expected to rise to the occasion, leveraging digital twin technology not only to meet compliance standards set by the EU but also to optimise resource use and integrate renewable energy sources. This dual focus on compliance and sustainability aims to enhance public accountability and bolster the sector's environmental credentials.

Moreover, the industry is on the brink of a generational shift as seasoned professionals exit the workforce, paving the way for younger, technologically adept talent. These emerging professionals are anticipated to drive sustainable innovations while managing the increasing complexity introduced by AI. Current data centre roles, typically focused on physical infrastructure, are evolving to demand advanced technical skills, particularly in digital twin simulation software, which is integral for modern energy management.

In conclusion, the data centre industry faces a pivotal moment as it prepares for the challenges and opportunities of the AI era. By harnessing emerging technologies and fostering a new generation of skilled professionals, the sector is poised to develop data centres that efficiently meet AI demands while adhering to growing expectations for sustainability.

Source: [Noah Wire Services](https://www.noahwire.com)

## References

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* <https://www.us.jll.com/en/trends-and-insights/research/data-center-outlook> - This source corroborates the significant increase in energy consumption due to AI advancements and the need for upgraded or new infrastructure to handle this demand.
* <https://datacentremagazine.com/top10/top-10-digital-twin-technologies-available-to-data-centres> - This article lists various digital twin technologies available for data centers, highlighting their role in optimizing operations, sustainability, and efficiency.
* <https://www.enersys.com/pl/blog-articles/data-centers-in-2025-5-key-trends-shaping-the-industry/> - This article discusses the importance of sustainability and compliance in data centers, aligning with the EU's Energy Efficiency Directive and the integration of renewable energy sources.
* <https://www.us.jll.com/en/trends-and-insights/research/data-center-outlook> - This report mentions the upcoming EU Energy Efficiency Directive and its impact on data center energy and water usage reporting standards.
* <https://www.raritan.com/blog/detail/solving-the-problem-of-the-data-center-digital-twin> - This article emphasizes the role of digital twin technology in meeting compliance standards and optimizing resource use, including the integration of renewable energy sources.
* <https://datacentremagazine.com/top10/top-10-digital-twin-technologies-available-to-data-centres> - This source supports the evolving roles in data center management, requiring advanced technical skills, particularly in digital twin simulation software.