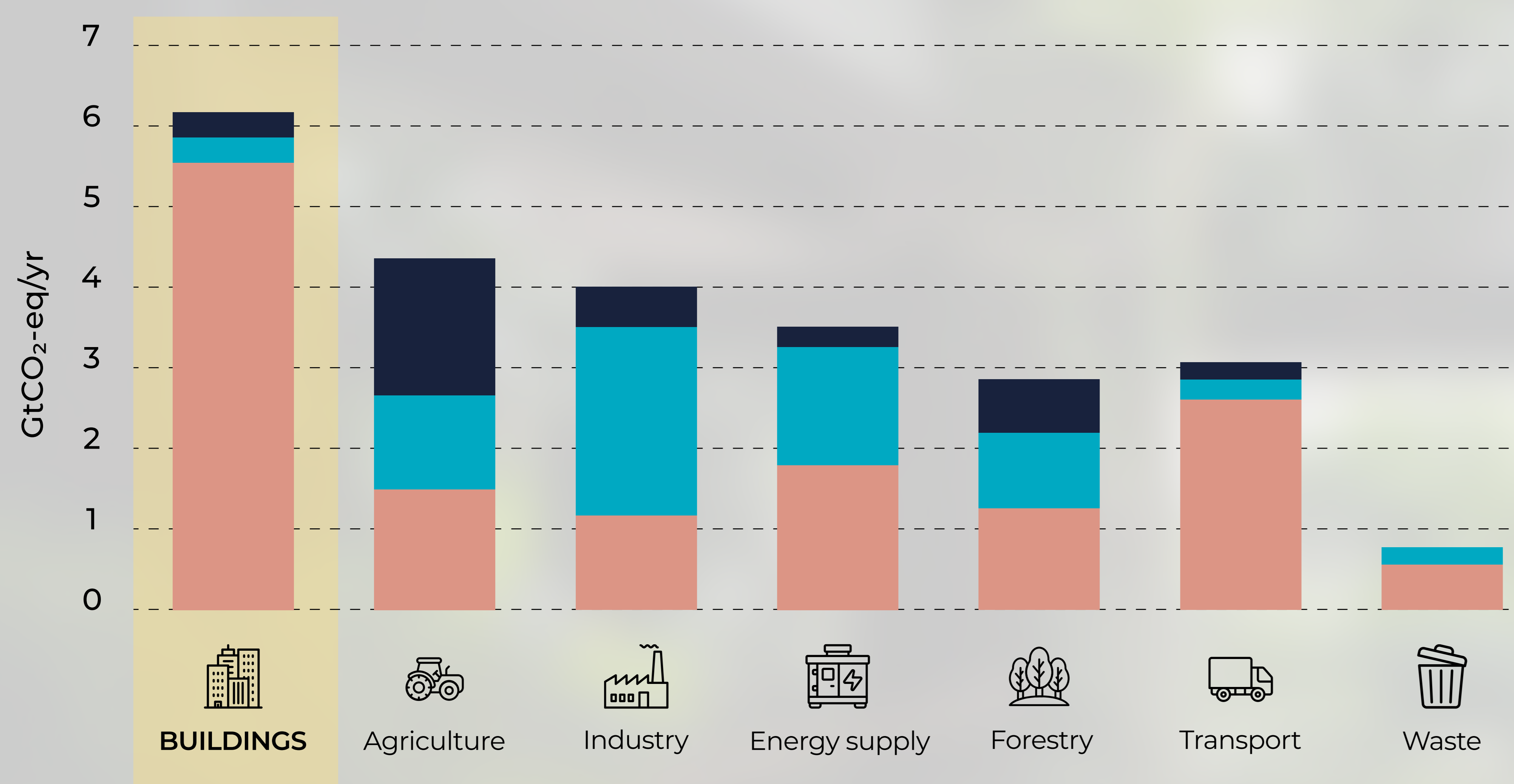# Transform Your Building's Energy Management for a Greener Tomorrow

Harnessing AI for Smarter, Greener Buildings

In the current eco-conscious business environment, building owners and facility managers confront significant challenges in energy efficiency, regulatory compliance, and market competition. The global shift towards renewable energy, set to dominate the energy landscape by 2040, intensifies the need for improved energy efficiency in commercial buildings. In the UK, with renewables accounting for over 47% of electricity generation, this shift underscores a changing pattern in energy consumption. For commercial properties, responsible for 43% of the UK's energy use, this transition is particularly challenging

Buildings efficiency is one of the most affordable emissions reduction measures

■ 'Low cost' emission reduction   ■ 'Medium cost' emission reduction   ■ 'High cost' emission reduction

Note: 'Low cost' emission reduction=carbon price <20 US$/tCO$_2$ -eq. 'Medium cost' emission reduction=carbon price <50 US$/tCO$_2$ -eq. 'High cost' emission reduction=carbon price <100 US$/tCO$_2$ -eq.

Source: IPCC 2007. IPCC Fourth Assessment Report: Climate Change 2007: Synthesis Report. "4.3 Mitigation options".

Commercial buildings face the dual task of adopting efficient energy practices while adhering to evolving environmental regulations. A significant portion of energy usage, around 67%, goes towards building services such as lighting and HVAC, with inefficiencies leading to about 30% of energy wastage. Businesses are facing the complex challenges of reducing energy footprint and cost while navigating an increasingly competitive and regulated market.

Leading the Way in
AI-Driven Building Management

The Future of Sustainable Building is Here

D-XPERT redefines the potential for energy efficiency in the building management systems sector and commercial real estate, promoting substantial energy savings and facilitating the shift toward decarbonisation. Through its deployment, entities can look forward to up to 30% reductions in HVAC energy costs, a figure that translates into significant financial and environmental benefits year after year. This is not just a projection but a tangible outcome of D-XPERT's sophisticated AI-driven technology, designed to meet the escalating demand for energy optimisation and sustainability in a market that is projected to reach a global value of $30.9 billion by 2026. In the UK alone, the AI-optimised energy systems market could see a value of £2.7 billion by 2030, signifying a vast scope for D-XPERT's impact in the years to come.

Our Mission at DIREK

At DIREK, we are committed to redefining the essence of modern habitats and workplaces through our Smart Building Management (SBM) solutions. Our mission is to harness the transformative power of IoT, AI, and data analytics to create intelligent environments that prioritise energy efficiency, security, and optimal resource utilisation. We strive to deliver innovative systems that enhance occupant well-being, streamline operational performance, and foster sustainable practices.
Through our commitment to excellence and a visionary approach to technology, we aim to empower businesses and individuals with the tools to make informed decisions, elevate experiences, and contribute to a healthier planet.
DIREK is not just about smart technology; it's about creating smarter ecosystems for life and working to thrive in harmony with the environment.

Contact Us

🌐 www.direk.io
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DIREK's Smart Building Management Solution

D-XPERT

D-XPERT is a game-changing technology at the forefront of energy-efficient building management. This innovative solution harnesses the power of advanced artificial intelligence (AI) and cutting-edge data analytics to revolutionise the way we manage energy consumption in buildings. The key features of this technology include:

Advanced-Data Analysis for Precision Control

Leveraging deep learning, D-XPERT meticulously analyses various parameters like airflow dynamics, indoor air quality, and user preferences to enable precise control over the building's HVAC systems.

Uncompromised Data Security with Eco-Efficiency

At the heart of D-XPERT is a commitment to data security, backed by state-of-the-art protocols, and an eco-conscious approach to data management, striking the perfect balance between protecting the user's information and the environment.

Significant Energy Savings with Real-Time Monitoring

D-XPERT's cutting-edge technology swiftly identifies energy inefficiencies, potentially reducing HVAC energy costs by up to 30%, translating into considerable financial and environmental benefits.

Intelligent Learning and Backup Systems

With its smart learning capabilities, D-XPERT not only complements existing BMS but also provides a reliable backup, always ensuring seamless operation and system integrity.

Automated Data Collection for Streamlined Operations

Embracing automation, D-XPERT simplifies data gathering, reducing operational costs. Its advanced mobile app facilitates sensor identification and builds a comprehensive 3D model of the space, enhancing overall system efficiency.

Cutting-Edge AI Engine for Enhanced Adaptability

Equipped with an innovative Adversarial Autoencoder AI model, D-XPERT excels in adapting to new data, optimising HVAC performance, and building on the latest advancements in thermal insulation technology.

Seamless System Integration

Designed for flexibility, D-XPERT effortlessly integrates with a range of Building Management Systems, ensuring smooth compatibility and cost-effective implementation across diverse infrastructures.

Intuitive and Accessible Deployment

Redefining user convenience, D-XPERT eliminates complex setup processes, offering an intuitive mobile app for easy sensor deployment and 3D space modelling - a perfect fit for modern, large-scale commercial environments.

D-XPERT Comprises 3 Major Components

Indoor Radar System

Premiering our proprietary, patent-pending Smart Indoor Radar Technology, an award-winning breakthrough that meticulously tracks occupant location, orientation, and activity on a comprehensive scale. Privacy is paramount; our technology guarantees zero intrusion, offering peace of mind without sacrificing precision

Deep AI Engine

Utilising advanced algorithms, this AI engine analyses extensive data for accurate resource allocation, optimising environments for comfort and productivity. It integrates real-time analytics from weather, building conditions, and occupancy to efficiently balance comfort with sustainability. This approach enables smart, adaptive resource management, improving user experience and environmental impact.

Smart Agent Module

The actionable arm of our system executes the delivery of resources seamlessly and intelligently, adjusting in real time to the dynamic needs of the building's inhabitants. This system provides effortless management of lighting, temperature, and air quality, combined with predictive analytics and proactive maintenance. It ensures safety through timely alerts and incorporates a cutting-edge recommender system, empowering even non-experts to optimise building functions for peak efficiency.