



### LINCOLN DISCOVERY CENTRE

- Operational data centre with demonstration and testing facility.
  - Demonstrates scalable, modular, IT-driven solutions.
  - Designed to European Code of Conduct best practice standards.
  - Offers a range of liquid cooling solutions: hot aisle containment, OCP cold-aisle containment, rear door, immersed and on-chip cooling.
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- Demonstrates on-site generation of energy via gas-powered Combined Heat & Power (CHP) plant. Use of alternative - more sustainable - fuels is site dependent.
  - Awarded CEEDA Gold for Design & Operate, 2019.
  - Winner of European Code of Conduct for Data Centres Energy Efficiency award, 2019.
  - Winner of the Global DCD Energy Smart Award, 2019.



MAKING THE DATA  
CENTRE WORLD  
#MORECOOL





We live in an increasingly digitilised world, where everything from sending a text message or paying a bill through a mobile banking app, to streaming music or a movie relies on huge amounts of data storage and processing power.

The Internet of Things, ‘smart’ buildings and cities, and innovations such as driverless cars have only increased the demand for high-density data processing. Consequently, the need for data centres capable of meeting these requirements has increased exponentially.

Whilst digitilisation has undoubtedly transformed everyday life, the burgeoning number of data centres that have appeared over the last decade has led to widespread concern about the **environmental impact** of digital transformation.

**Physical footprint** - Data centres increasingly have a large physical footprint, with hyperscale facilities - such as those required by Facebook and Google, for example - occupying vast areas of land covering thousands of square meters.

**Energy use** - Data centres consume huge amounts of energy to run essential processes. The bigger the data centre, the greater the demand for energy to power its processing capabilities. The more power that is required, the greater the pressure on power grids. Environmental experts report that in 2016, data centres used 3 per cent of the global supply of electricity, with consumption expected to treble over the coming decade.

**Waste heat** - Data centres also generate enormous quantities of surplus heat as a by-product of cooling processes. In conventional data centres, this surplus heat is generally released into the atmosphere. A recent study suggests that the data centre industry generates up to 2 per cent of CO<sub>2</sub> emissions.

Motivated by a desire to create a step-change in how data centres operate, coolDC aims to ameliorate some of the adverse consequences of digitilisation by placing the environment at the centre of our designs.



Working within the limitations and opportunities afforded at specific sites, we aim to produce bespoke, **carbon neutral** designs, enabling our clients to achieve their own low carbon targets.

**How do we reduce the environmental footprint of our data centres?**



Rather than building large-scale facilities in central locations, our focus is smaller, Edge data centres. Our designs are **scalable** and **modular**, allowing for expansion - and shrinkage - to meet changing IT requirements.



Our solutions are **IT-driven**, this means that the power our data centres use reflects only the power that the equipment needs. We match the cooling environment to IT infrastructure requirement, ensuring maximum energy efficiency.



coolDC offers a number of innovative solutions for **recovering and reusing heat** produced via our industrial processes. These include, utilising residual heat on-site and recovering surplus heat to provide energy for subsequent cooling cycles.

Our innovative designs enable us to both facilitate higher rack density, and to work at the top end of the ASHRAE scale.

**The coolDC paradox: we’re making the data centre world more cool by operating at higher temperatures.**