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Sommario/riassunto	This document provides an introduction to owners, co-location developers, designers, constructors, operators and all those who have an interest in data centre design, operation and space planning. It gives an introduction to many of the concepts that require careful consideration. This document is not intended to be a design tool, but should be used for guidance only as to the more significant issues that might be considered. Over recent years data centres have gained greater significance and complexity in the way they are designed and engineered. They are not necessarily a commercial enterprise within themselves but more of a significant and necessary component in the way businesses perform and operate.Customers range from the most demanding, where downtime and failures cannot be tolerated, through to the commercial, industrial and scientific communities. For example, the banking and financial sector cannot tolerate system failures or accept prolonged periods of downtime. They therefore require highly engineered solutions that, by inference, are of a complex nature

although within manageable proportions. The more risk-averse business users, such as financiers and gaming institutions, can be closely regulated. This might drive their behaviour and use of space, resulting in high resilience and conservative design. Other end users accept lower levels of resilience providing it is properly detailed and managed. This might include a level of structured downtime with more frequent service intervals and perhaps no system backup or strategic, off-site, backup facility.The size of an information technology (IT) or data centre installation can vary enormously from a few kW for the small commercial user to those serving large financial institutions of many mW with server rack densities of 4 kW not being unusual. This could relate to approximately 2 kW/m2 for a fully populated, high-density server facility. Although this range represents many magnitudes of scale, the engineering solutions in many ways remain the same.With owning and operating a data-processing facility comes the responsibility of minimising operating costs, including energy consumption and usage. This requires specialist knowledge and expertise, especially when considering energy consumption, flexibility of operation, legacy installations and planning for the future.