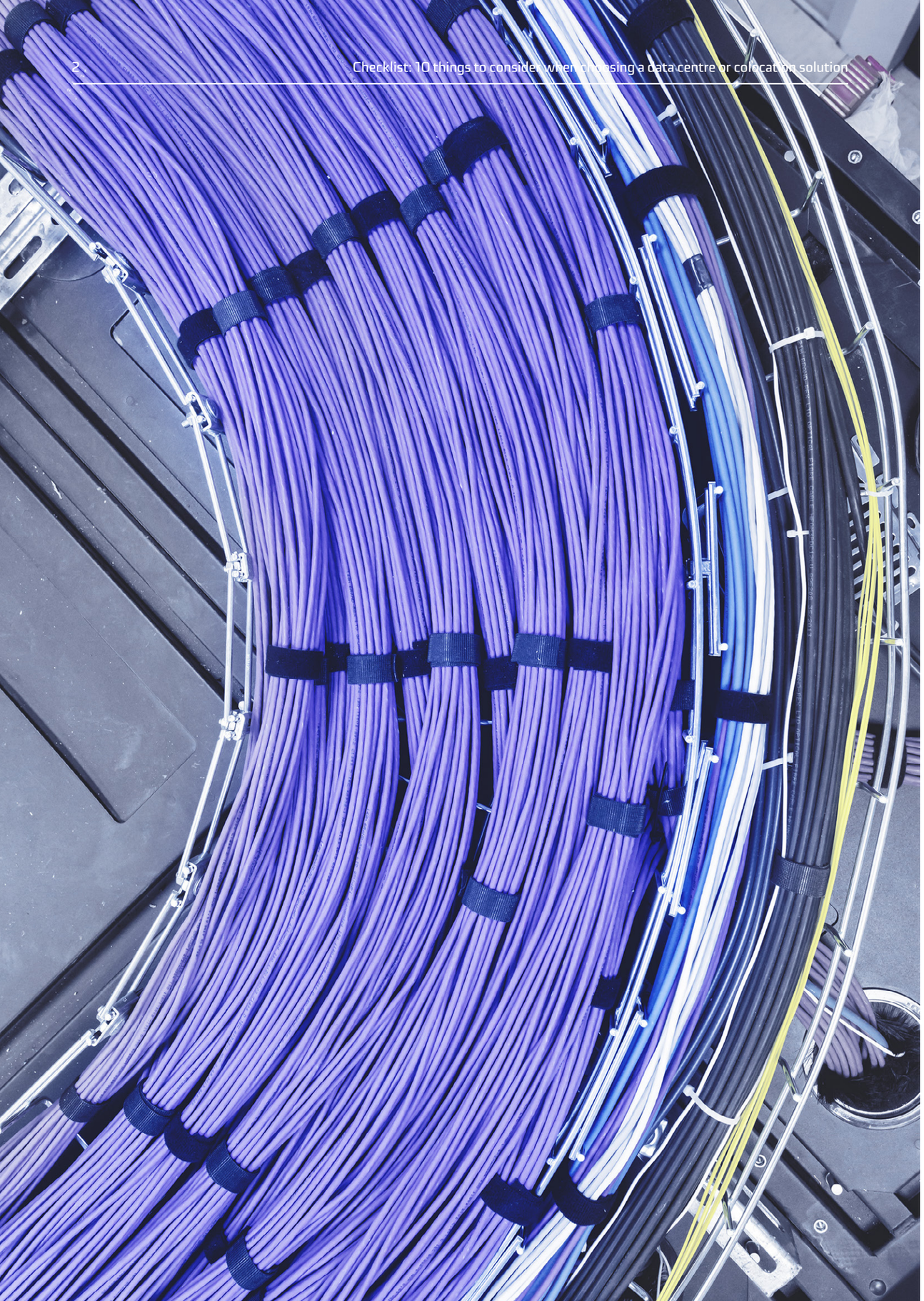
DigiPlex

A whitepaper by DigiPlex

Checklist:

10 things to consider when choosing a data centre or colocation solution

Data centres are an ever-growing part of the business world and their strategic value is quickly increasing. Data centres can be owned and operated in many ways, so it is vital to review and evaluate which option is best for you. This checklist goes through the 10 most important aspects of data centre operations and colocation services as they can hold the key to success in a changing world.



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To compete in today's technology-driven economy, companies are searching for ways to transform their operations to become more agile.

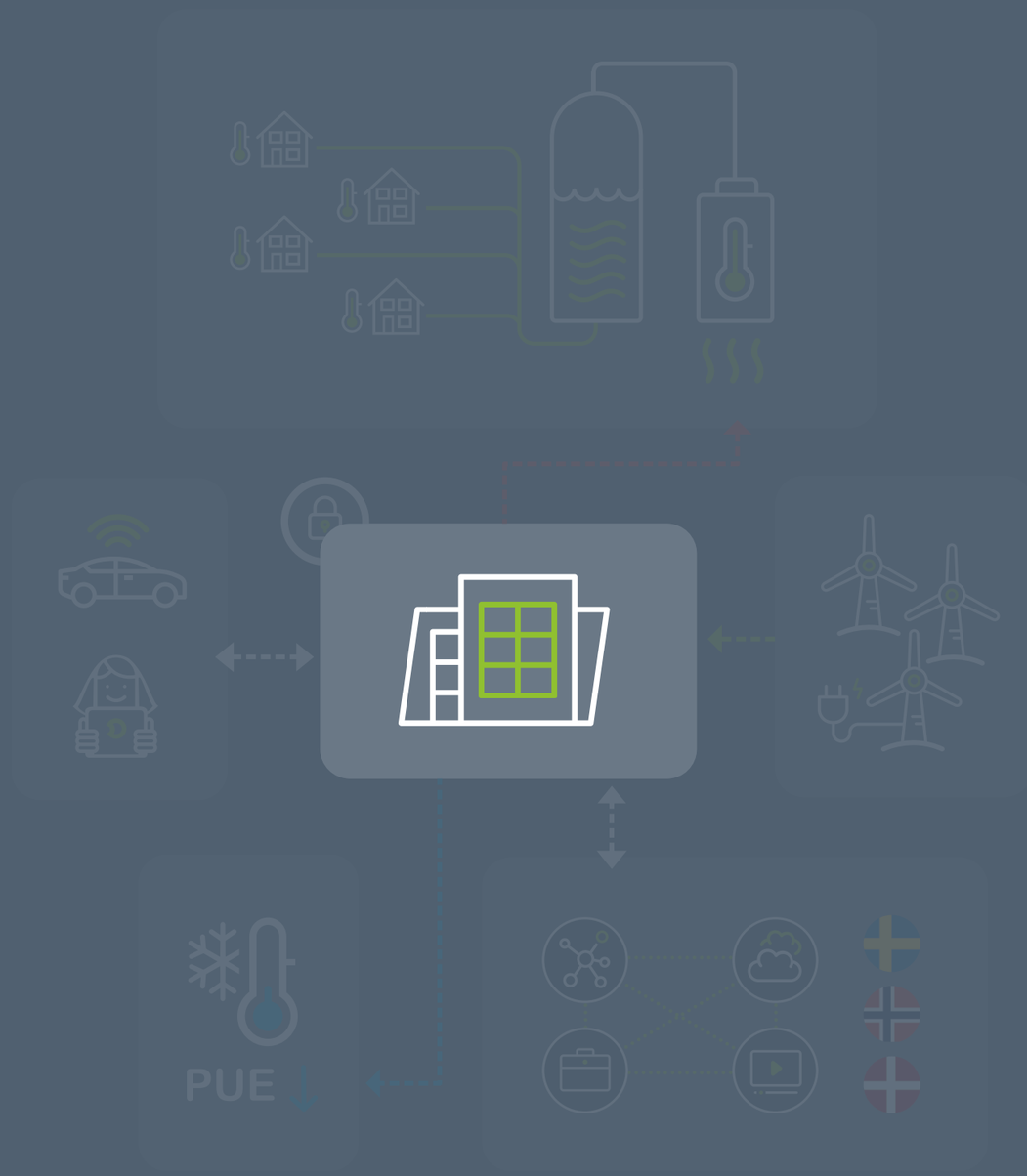
This allows them to quickly respond to market shifts, increase their ability to attract and maintain customers as well as strengthen their collaborations internally and with partners and suppliers.

To achieve these goals, the need for a solid IT foundation is increasingly important.

As the dependency on IT deepens, decisions become more crucial to your business. A thorough evaluation of each option is crucial. The requirements on security, reliability, efficiency, cost and sustainability for each level of IT delivered must be carefully considered.

Data centres come in all shapes and sizes and there is not one perfect solution for every business.

The ideal data centre or colocation solution for your company largely depends on the exact nature and specific requirements of your day-to-day operations now and your plans for the future. Still, there is a general list of key points to consider. To help you make the best decision for your business, we have created a checklist with the most important points to consider when evaluating data centres and colocation.



Data centre basics

Data centres are complex, interdependent systems that house and organise IT operations and equipment. In today's digitalised world, most organisations rely heavily on a secure, reliable and efficient data centre that delivers a high level of business value in a financially viable way.

Data centres can be owned and operated in many ways. Many organisations have their own data centre in their office building, thereby having the servers nearby and full control of the operations and IT investments. However, offices and data centres have different needs for security, design and access. Making them co-exist will in many cases lead to compromises for one or the other. It can also become costly and challenging to keep the data centre up to date with cutting-edge technology, finding the right staff to operate and maintain it, as well as delivering the level of security required.

There are several alternatives to running your own data centre, with different levels of involvement. Colocation is one, where organisations can house their own, privately owned IT environment at a third-party site. The colocation provider takes care of the space, power, cooling and physical security, as well as several additional services such as connectivity, monitoring, and on-site staff. The data centre is bought as a service, with a committed service level agreement (SLA) and a monthly fee. A colocation customer maintains and operates their own IT resources.

Cloud is another option. Here companies also buy the IT environment as a service and the monthly fee is usually per user or usage-based. Another alternative is to outsource IT operations as a whole, including the data centre. Many companies use a combination of solutions, regardless of the solution, it needs to comply with the following requirements:

Data centre basics

01 High reliability

Data centre failures are expensive and potentially disastrous for any type of organisation. The reasons for failures and outages are extensive: power loss, faulty equipment, unplanned outages in connectivity or cooling, trespassing, theft, fire, flooding, and even wilful attacks. Whatever the reason, you can be sure your business does not benefit from unplanned halts and your users don't want to wait.

Location

To achieve the best possible reliability, a data centre should be located where there is a low risk of economic and political instability. The location should also be chosen to minimise the risk of natural disasters such as flooding, hurricanes or earthquakes, as well as the ability to offer a high level of perimeter security.

Design

The data centre design should be robust, redundant and resilient to both expected and unexpected incidents. As data centres are highly dependent on continuous power, an uninterruptible power supply (UPS) and generators to provide emergency power are essential. UPS systems also protect IT equipment from damages caused by spikes, dips or surges in the main power supply. Insufficient cooling and exposure to high temperatures, component failure and equipment wear and tear, can all lead to downtime and affect the availability of IT systems.

The data centre essentials, such as power, cooling and security, must also have built-in redundancy and reliability to ensure continuity of service in case of failure. Fire detection, water detection, lightning protection and fire-suppression systems are all essential to a high level of reliability. It is also important that the data centre is designed for concurrent maintainability, as it further strengthens availability and reliability.

Operation

Operation of the data centre is also vital to its reliability and should follow strict routines for maintenance of all equipment, preferably by following a certified model such as ISO. To provide a high level of operational stability, data centre operation should also include audit readiness, escalation procedures and the correct system for ongoing monitoring, as well as highly trained staff.

Reliability and availability for data centre and colocation providers is usually defined by an SLA that guarantees service availability, power service and temperature stability. Most external data centre providers or alternative services provide SLAs as part of their contracts. Reliability is measured in terms of uptime and a reliable data centre should have at least 99.999% uptime.

To do: Make sure you fully understand your business line's needs for reliability today and tomorrow, and make sure your data centre solution is designed to deliver or exceed it.

99.999%

The uptime a reliable data centre should have

Data centre basics

02 Ability to release investment budget for innovation

The expectations for results from innovation enabled by digital transformation are very high. According to IDC, 65% of European CEOs are under considerable pressure to deliver a successful digital transformation strategy to become a digital enterprise.[1]

In a world where new technology causes major changes to business models and operations, freeing up capital for innovation is a matter of survival and it is essential not to have capital tied up that can be better used elsewhere.

IT budgets might not be the only source of funding for innovation, but it is clear that most organisations need to do a lot of innovation and optimise technology at the same time. One way of doing this is to ensure that investment costs for infrastructure are kept as low as possible, while maintaining the highest level of operation and quality.

In-house data centres require continuous and sometimes heavy investments to meet and keep up with business requirements. These capital investments also require up-front payment, which impacts cash flow and reduces the budget for other investments. Also, all capital investments require detailed forecasting, meaning you either end up overbuying to make sure you have functionality and capacity for a number of years, or it leaves you in a position where you need to make further investments in additional resources and functionalities when you need them.

[1] IDC webcast: IDC Nordic Directions 2019

By choosing a colocation or outsourcing solution for the IT environments as a whole, it is possible to decommission in-house data centre facilities, which with time can eliminate the capital costs associated with housing and protecting mission-critical systems and fully shift them to operating expenses. However, companies that need to keep some IT environment in-house may discover that the data centre infrastructure for power, cooling and security needs to continue to operate with full redundancy even while carrying a lower load. By moving the remaining IT load to a colocation provider, the in-house data centre can be shut down and the data centre capex cost extinguished – to the benefit of the innovation budget.

65%

of European CEOs are under pressure to deliver a successful digital strategy

To do: Make sure you free up as much investment capital as possible in the IT budget by considering colocation– your business is most likely going to need the investment capital to successfully execute your digital transformation.

Data centre basics

03 Predictable operating costs

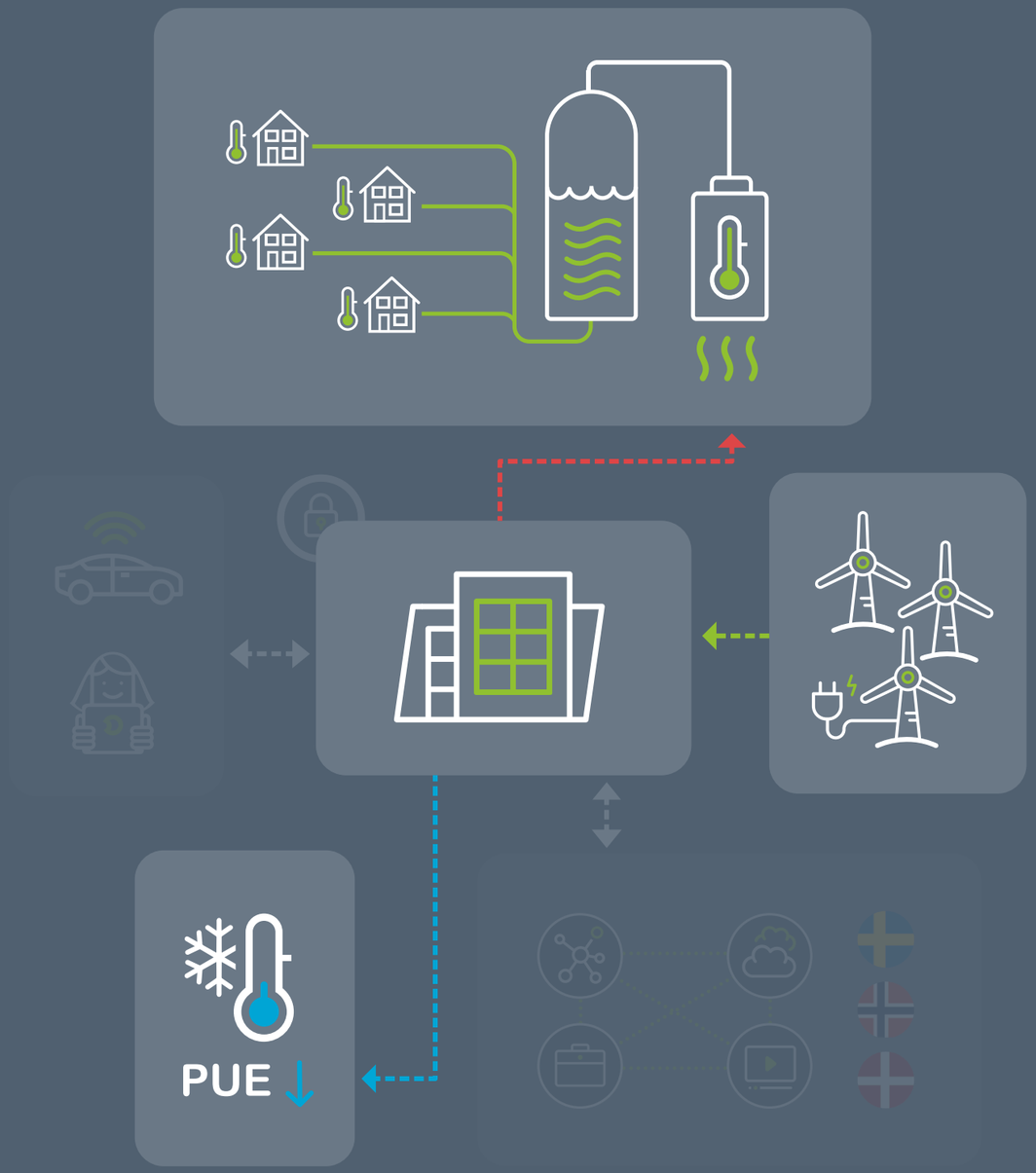
The IT spend must cover an increasing amount of business-critical operations, as well as provide the means for innovation and digitalisation. Maintaining and updating legacy systems, meeting increasing business demands and keeping talent happy all stretch IT budgets, and you want to keep the unexpected costs to a minimum.

When running your own data centre, your operating costs might seem low. This may be correct, but not always when you consider all unexpected costs. Replacing faulty or outdated equipment, or simply making expensive upgrades of equipment, such as UPSes, generators and cooling systems at the end of their lifetime, are just a few examples of unwelcome costs that need to be considered when reviewing the full cost of running your own data centre.

Staffing and skilled resources are other important areas. When you have the resources and competences you need, everything is fine. But it gets trickier when someone leaves or is absent for a longer period of time. Finding a replacement or engaging temporary resources to fill in can be a time-consuming and expensive activity.

A predictable cost model with a lower cost of ownership can be achieved by choosing a colocation or outsourcing solution for your data centre.

To do: Carefully review your operational costs. Take all costs, expected and unexpected, into consideration and assess the value of cost predictability on your business.



Sustainability

Businesses are about more than making short-term profits. Having a clear focus on defining and highlighting the company's purpose is definitely on the rise, as well as simultaneously working to ensure that your organisation uses resources efficiently. Sustainability is a broad concept that includes environmental protection and an ambition to create a sustainable society in all its aspects. Increasing sustainability in businesses can mean anything from producing more energy-efficient products made of renewable materials, to incorporating sustainable practices into business operations and minimising the negative impact of IT.

Data centres could account for as much as 20% of global electricity consumption by 2025[2]. The choices you make for data centre operation affect not only your costs, but also in essence your environmental footprint and reputation as a business and brand.

of global electricity consumption in 2025 could be accounted for by data centres

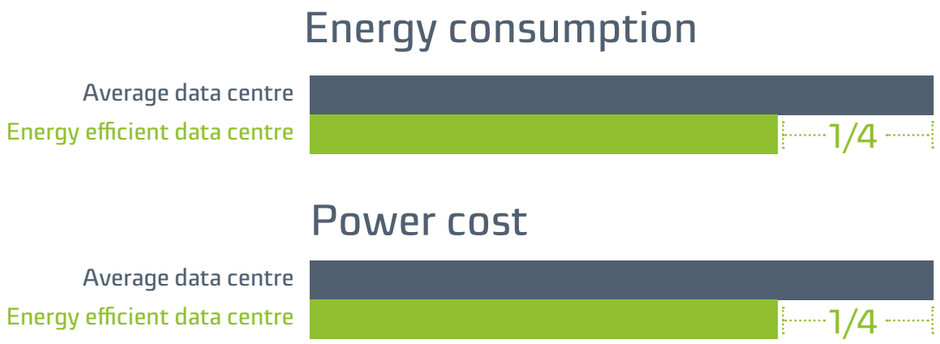
The key sustainability aspects of data centres are...

[2] DataEconomy: Datacenters of the World Will Consume 1/5 of Earth's Power by 2025

Sustainability:
04 High energy efficiency

Data centres today are already estimated to consume 3% of the global power supply[3] – and consumption is continuing to grow. As a fundamental part of your digital infrastructure, your data centre clearly needs to be sustainable and a key component is energy efficiency.

The most common energy performance measurement for data centres is power usage effectiveness (PUE), the ratio between total energy and net server energy. It is essential to keep the PUE as low as possible. As an example, by moving from an average data centre (with a PUE of 1.67 [4]) to an energy efficient one (with a PUE of 1.2) you save as much as a quarter of the power consumption – and of the power bill. With the expected growth in data volumes and a limited supply of power, the importance of energy efficiency cannot be over-estimated.



[3] https://www.forbes.com/sites/forbestechcouncil/2017/12/15/why-energy-is-a-big-and-rapidly-growing-problem-for-data-centers/
[4] Uptime Institute Global Survey of IT and Data Center Managers 2019, n=624
[5] https://uptimeinstitute.com/about-ui
[6] https://journal.uptimeinstitute.com/is-pue-actually-going-up/

The Uptime Institute[5] also published an article in May 2019 highlighting the difficulty for independent operators or in-house data centres to achieve low PUE levels. In the article "Is PUE actually going up?" the institute states, "We know that most operators cannot compete with the finely tuned, aggressively efficient hyperscale data centres in energy efficiency, nor indeed with newer, highly efficient colocation sites".[6] With stronger focus on sustainability in the IT area, you need to make sure you keep PUE levels at a minimum.

And as stated earlier – if in-house IT loads decrease, it's usually a challenge to reduce the power consumption of the in-house data centre accordingly, as it needs to remain operational. Often the efficiency of cooling equipment and UPS will be significantly reduced when carrying a smaller load, so the overhead costs might remain the same. This increases the in-house PUE, sometimes quite significantly. Utilising a colocation service that offers low PUE for the remaining IT loads may be the answer.

To do: Make sure your data centre operates with the energy efficiency required for a sustainable future by taking a close look at the delivered PUE value

Sustainability:
05 Use of renewable electricity

Keeping energy usage to a minimum (without compromising reliability) is one thing, and the quality of the energy is another.

Today, certified renewable power is available on most markets, and a modern data centre should run on renewable energy to keep the environmental footprint low – and the brand value high.

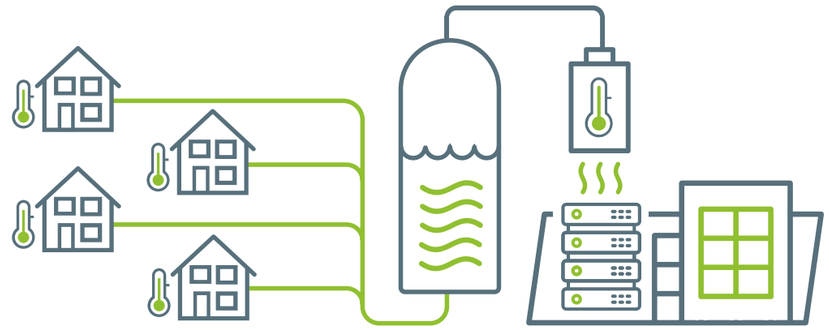
To do: Make sure the energy used to run your data centre is 100% renewable

Sustainability:
06 Effective heat recovery

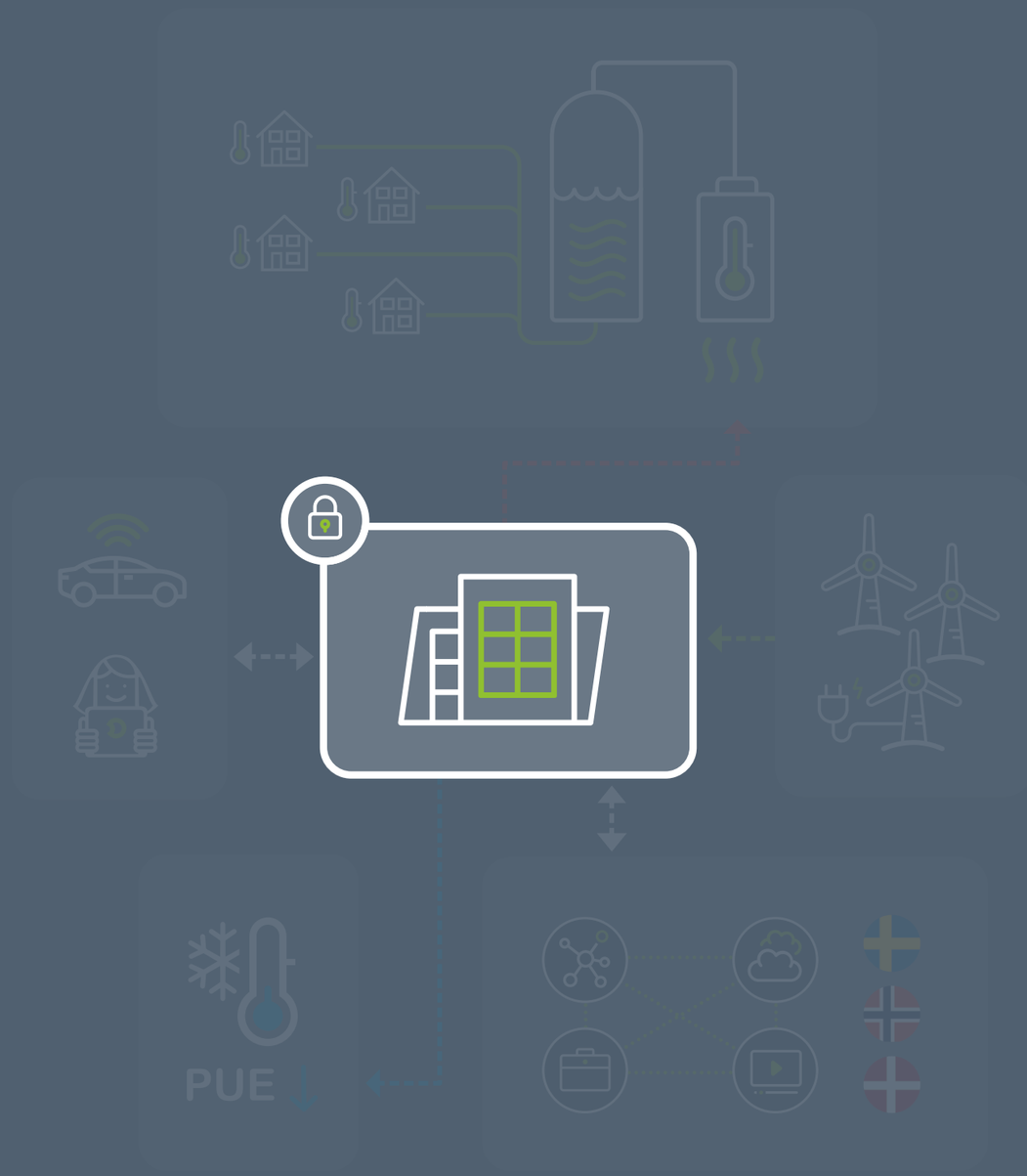
All IT activities, one way or another, generate heat in a data centre when servers process the data.

Rather than just wasting the heat, it can be re-used in many ways, such as heating buildings and homes by feeding it into the district heating system or using it for a specific purpose such as heating agricultural green houses. Waste heat recovery is especially beneficial in the Nordic countries, where both heat demand and availability of district heating networks are relatively high.

Waste heat utilisation holds great potential for cleaner IT operations by improving energy efficiency and enhancing engineering functionality. From a broader perspective, it can also reduce overall energy usage. Waste heat utilisation should be an important factor to consider in a sustainable data centre operation.



To do: Make sure you – or your colocation provider – are actively working to recover and re-use your data centre's excess heat for an improved environmental footprint.



Security

We are bombarded with news and events that highlight the evolving and increasing cyberthreats.

This might fool us into believing that digital threats are the most important or sole security concern, when in fact physical threats are just as critical.

Security:
07 High level of physical security

As digitalisation becomes pivotal to most processes, and as digital protection improves, attempts to attack data by physical intervention or by destroying infrastructure are expected to rise.[7]

The security objective for your data centre should be to prevent, detect and delay trespassing by choosing a location, design and routines that ensure a high level of security. Weak security can put your business, staff, customers and partners at risk, as data can be destroyed, compromised or stolen. This would in turn result in severe reputational damage and potentially in heavy fines (as regulated in GDPR).

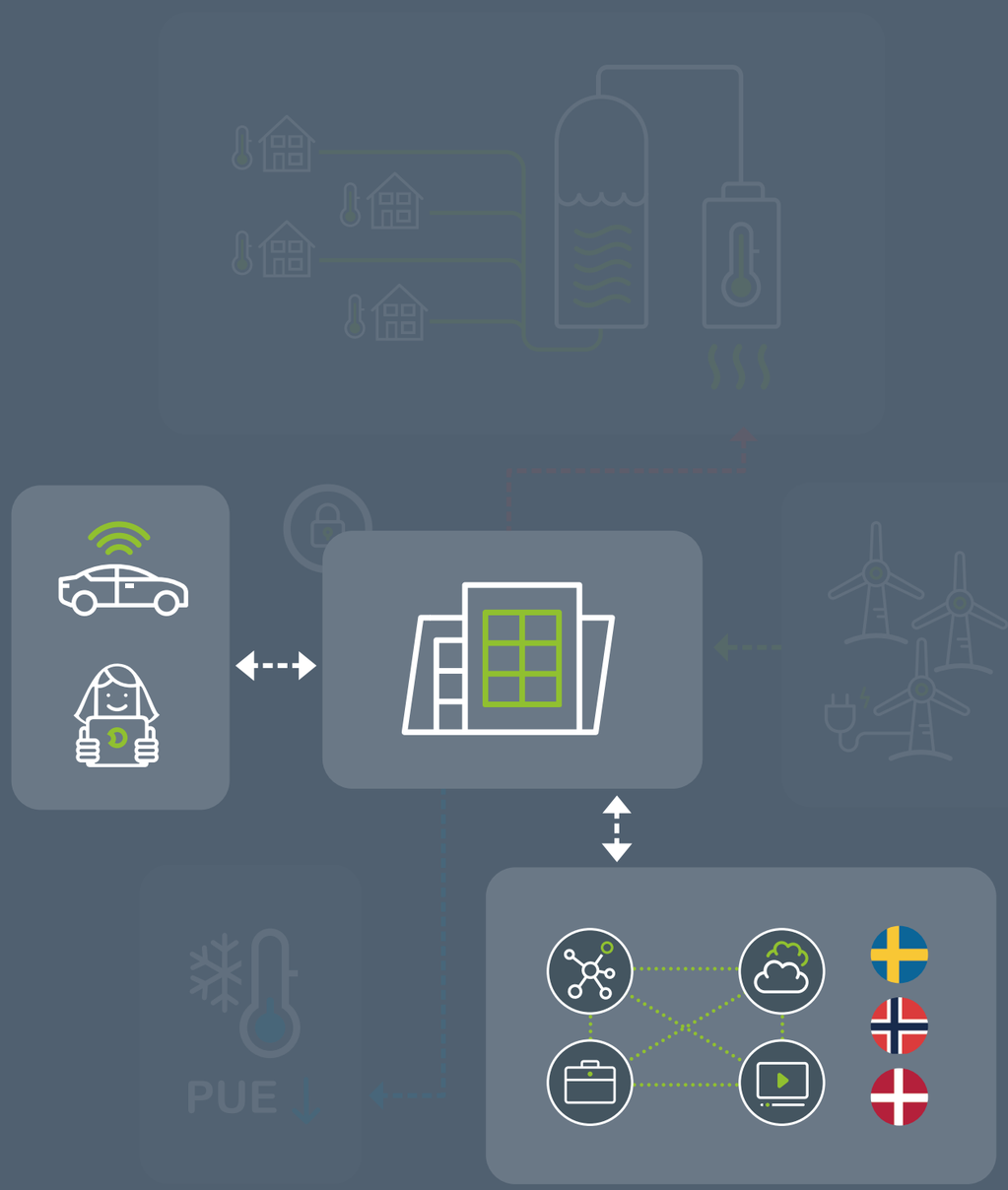
Weak security can put your business, staff, customers and partners at risk

[7] IDC Perspective: European CISO Summit 2018: From "No" to "Know": Security-by-Design and Risk Management Enable Digital Transformation

Some essential aspects of physical security include perimeter fencing with man and car traps to prevent tailgating, camera and sensor surveillance to detect intrusion attempts at the perimeter; advanced surveillance technology for monitoring and recording activity on driveways, entrances, exits, and delivery areas, as well as access control including key card access in combination with a code and manual or biometric verification complemented with constant training of staff and improvement of routines. With a colocation service, the cost of impeccable security is shared by all customers.

Intrusion or the loss or compromise of data, could have a disastrous economic impact and potentially cause significant reputational damage as customers and trading partners could be affected by the inability to operate. Nothing less than a high level of physical security should be demanded, but without making it too complicated for your staff to access the site.

To do: Conduct a risk and consequence analysis on your data centre and develop a plan to achieve the physical security level that your – and your customers' – data deserves.



User experience

Many organisations are evaluating new business models, driving change and transforming into increasingly digital businesses. Seventy-one percent of decision-makers in Norway and Sweden are already there or are urgently transforming.[8] In many ways, this development is driven by customer expectations and increased competition, both within your industry and from unexpected disrupters. Customers expect instant response, high-quality content without delay and overall outstanding performance in all types of service, on any device from any location. If they don't get that from you, they'll find it elsewhere.

This means that the location of data becomes increasingly important. Access to computing resources as well as relevant connections to content providers of all kinds also play a vital role in an ever-connected environment. This requires careful consideration of a few different areas:

[8] DigiPlex Nordic Data Centre Trends 2018 – A Perfect Storm

User experience:

08 Proximity to end users

Physical proximity to customers has always been key to companies. Today, as everything is moving online, if it isn't here already, the requirements are shifting.

A high-street location of a store, a city location for a company or proximity to transportation, other companies and partners, might not mean the same as it did back in the day. Today, digital proximity to end-users is becoming essential to ensure high performance and fulfil customer expectations.

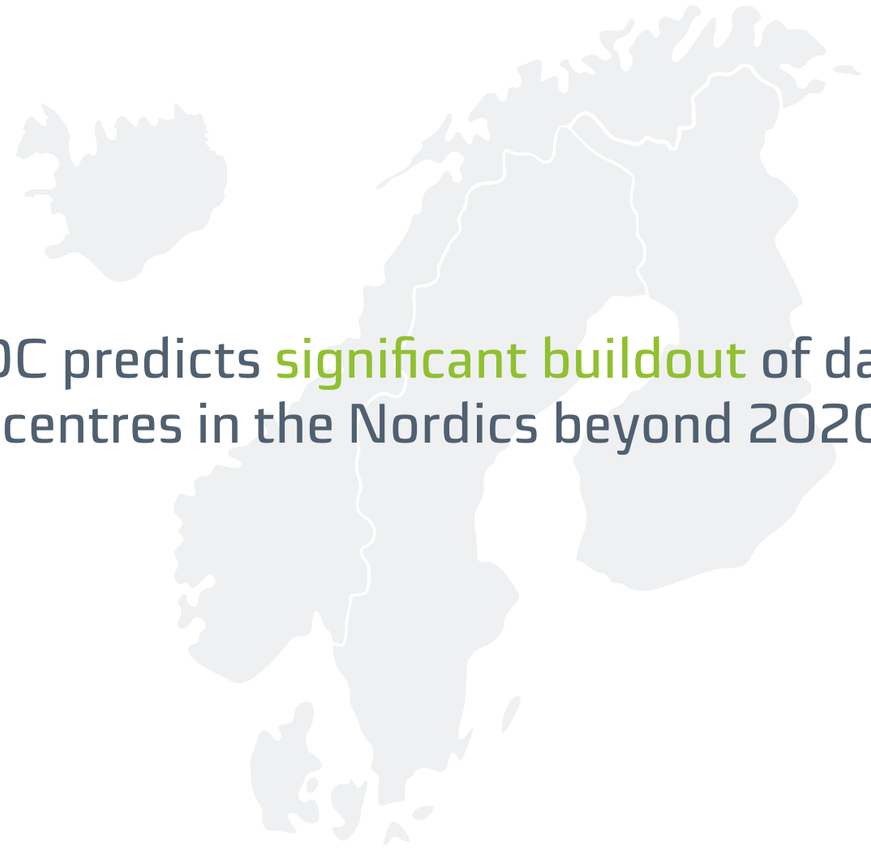
Customer loyalty is often won or lost in seconds. It is essential to deliver a superior experience in the moments that matter and access to data is key. A higher level of personalisation of the customer interaction is a strong trend. Services, information, images and dialogue need to be adapted for each individual user. Tools and intelligence to achieve this are available but add complexity, and it is essential that they do not affect performance negatively.

Performance and access to data does not stop with customer interaction. They are also essential for productivity and staff morale, as well as interaction with digital partners.

Many new types of connected services and IoT bring new demands and data processing at or near the source of data generation is one of them. But it also requires high-performance access to core computing power, on-site or in the cloud.

When evaluating data centre and colocation providers, it is very important to consider digital proximity to users, as well as access to relevant content providers and connections to providers of other services essential to your business. IDC predicts significant buildout of data centres in the Nordics beyond 2020 as data centres need to be located closer to users to avoid latency in data traffic as cloud transformation and IoT expand.[9] If your in-house data centre is not ideally located, it is worth evaluating an additional data centre to achieve the digital proximity needed and avoid unfortunate digital congestion.

[9] ITWatch.dk: It-analysehus om data centre: Danmark får øget konkurrence i fremtiden (IT Analysts on Datacenters: Denmark to Get Increased Competition in the Future)



IDC predicts **significant buildout** of data centres in the Nordics beyond 2020

To do: Look into the future: what type of services and IoT solutions will you be providing, and where will your users be located? Your data centre solution – and location – should reflect that.

User experience:
09 Proper connectivity

There are no limits to current and future demands on speed and accessibility in our digital world.

The longer the length of the route, the more significant latency will be in the data transfer. Most businesses are dependent on one or a selection of quality carriers to reach out to users, content and clouds, so it is essential to choose a carrier-neutral data centre that can provide access to the carriers your business needs to stay competitive. Also, remember that your choice of carrier might change over time.

To do: List which operators and carriers are the best for communicating with your users, content and clouds, and make sure they are available at your data centre or colocation provider.

User experience:

10 A relevant data centre ecosystem

We have already concluded that proximity is increasingly important. One of the most valued benefits of a colocation data centre is its ability to interconnect with other companies within the facility.

Digital trade flows are creating global business and data processes involving an increasing ecosystem of customers, content, cloud providers, partners and employees. Proximity to these becomes essential for a good user experience. Ideally you should connect with these through a direct connect – a cable from their servers direct into yours – without going out over the internet. Direct connects increase speed, user experience, and security. In a colocation space with a solid ecosystem, you can get this.

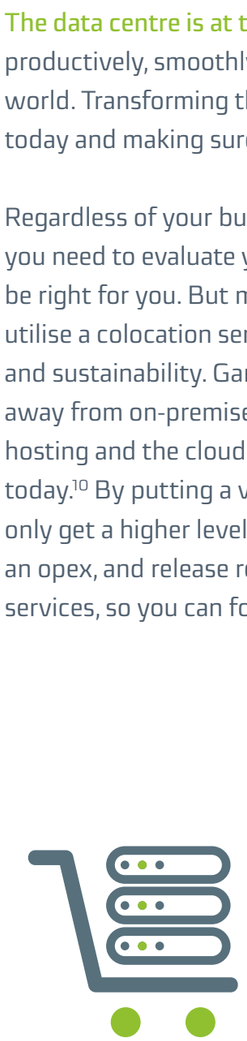
Direct connects increase speed, user experience, and security

To do: List your digital partners – those you work with today and those you may want to interact with in the future – and place your data within a direct connect to them.

Conclusion

The data centre is at the heart of your operation. It not only ensures that your business operates productively, smoothly, and cost-effectively, but also holds the key to success in a changing world. Transforming the business digitally will mean taking stock of what is in the data centre today and making sure the infrastructure can support the demands of today and tomorrow.

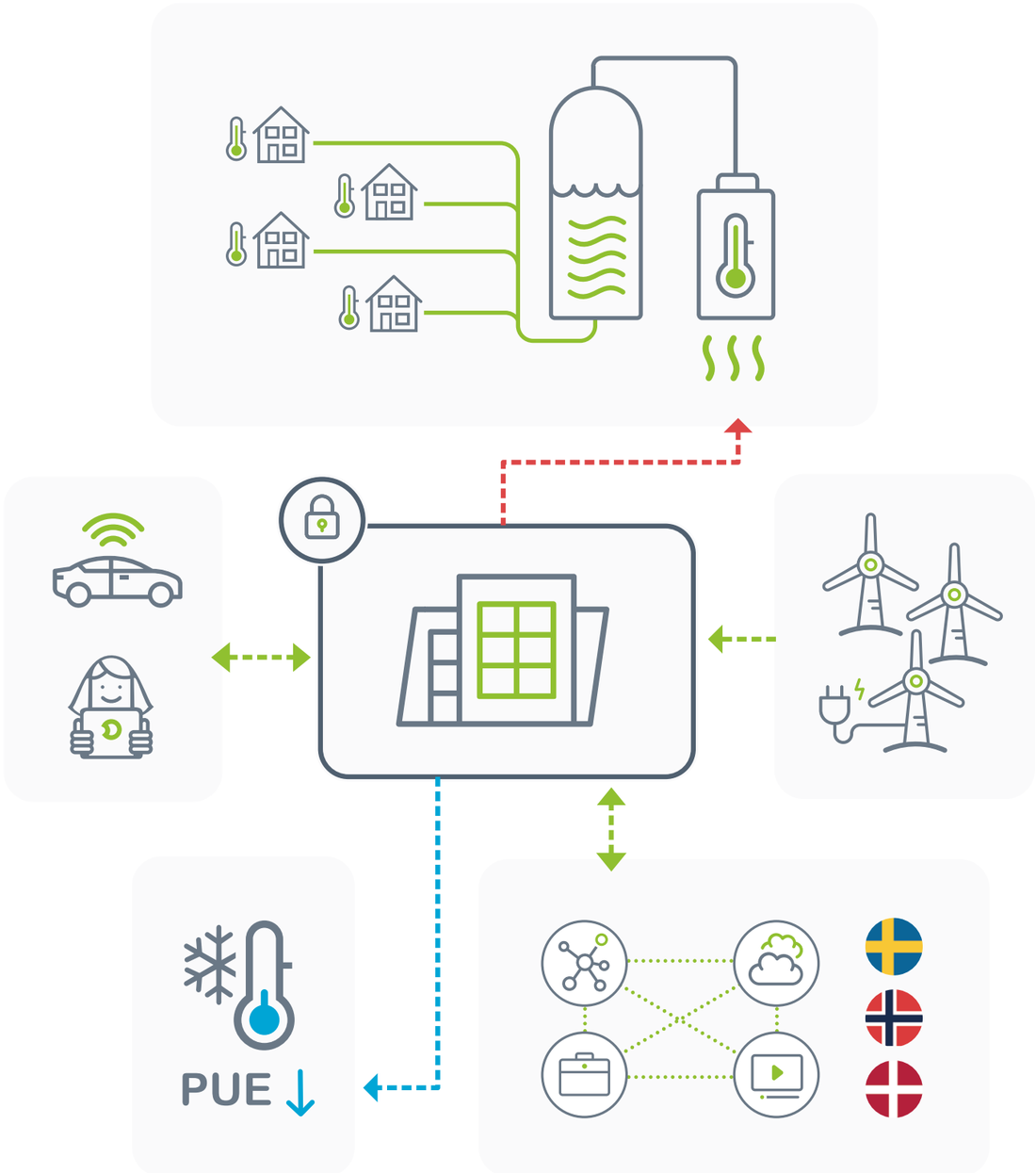
Regardless of your business, level of digitalisation or current way of operating your data centre, you need to evaluate your options thoroughly. Running your own in-house data centre might be right for you. But more and more organisations are considering, or have already chosen to, utilise a colocation service for their data centre to benefit from the scalability, stability, security and sustainability. Gartner predicts that by 2025, 80 % of enterprises will migrate entirely away from on-premises data centres with the current trend of moving workloads to colocation, hosting and the cloud leading them to shut down their traditional data centre, versus 10% today.[10] By putting a vital part of your business in the hands of a professional partner, you not only get a higher level of service, you also free up capital by moving from a capex model to an opex, and release resources, in terms of innovation budget, staff, housing, and additional services, so you can focus on your core business and its future.



80%

of enterprises **will migrate entirely away** from on-premises data centres by 2025, according to Gartner.

[10] https://www.gartner.com/en/newsroom/press-releases/2018-12-04-gartner-identifies-the-top-10-trends-impacting-infras



The checklist

	DigiPlex	Other provider/solution
High reliability	✓ All our facilities are located, designed and managed for best possible reliability, and are fully compliant with ISO standards 9001, 14001, 27001 and 45001[11].	☐
Ability to release investment budget for innovation	✓ By migrating your in-house IT loads to us, you should be able to shut down in-house operations and free up investment capital.	☐
Predictable operating costs	✓ We always offer a fixed monthly fee with several options for additional services.	☐
The level of certified renewable electricity used	✓ 100%	☐
High energy efficiency	✓ All our facilities operate at competitive PUE levels, with the newer ones as low as 1.2	☐
Effective heat recovery	✓ We are actively working on or planning for heat recovery at several of our facilities.	☐
High level of physical security	✓ We take security very seriously and offer leading security solutions to protect your data, such as dual perimeter fencing, cartraps, mantraps and strict access routines with biometric and manual verification.	☐
Proximity to end-users	✓ All our facilities are located in the city or urban areas of Oslo, Copenhagen and Stockholm.	☐
Proper connectivity	✓ We are connected to the most requested carriers across the Nordics. We offer full carrier neutrality and welcome any other carrier of choice.	☐
A relevant data centre ecosystem	✓ Our colocation facilities are home to many of the region's most renowned enterprises and host the most important cloud and content providers, including the first AWS direct connect in Norway. Our Nordic Connect Platform provides direct access to a unique Nordic data centre ecosystem.	☐

[11] From mid-September 2019.

DigiPlex

About

DigiPlex operates sustainable and secure colocation data centres in Oslo, Stockholm and Copenhagen. DigiPlex is carrier-neutral and offers connectivity to all major Cloud and Network Service Providers. DigiPlex offers best-in-class services with the highest possible availability and is trusted by public and private customers alike – including security sensitive organisations such as government and financial institutions with mission-critical applications. DigiPlex's five data centres are powered by electricity produced from 100% sustainable sources and the company has won several awards for its many energy efficient innovations and sustainability initiatives.
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- Secure
- Innovative
- ISO Certified
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