The Key Role of Data Storage in AI Strategy

Effective management of growing data volumes
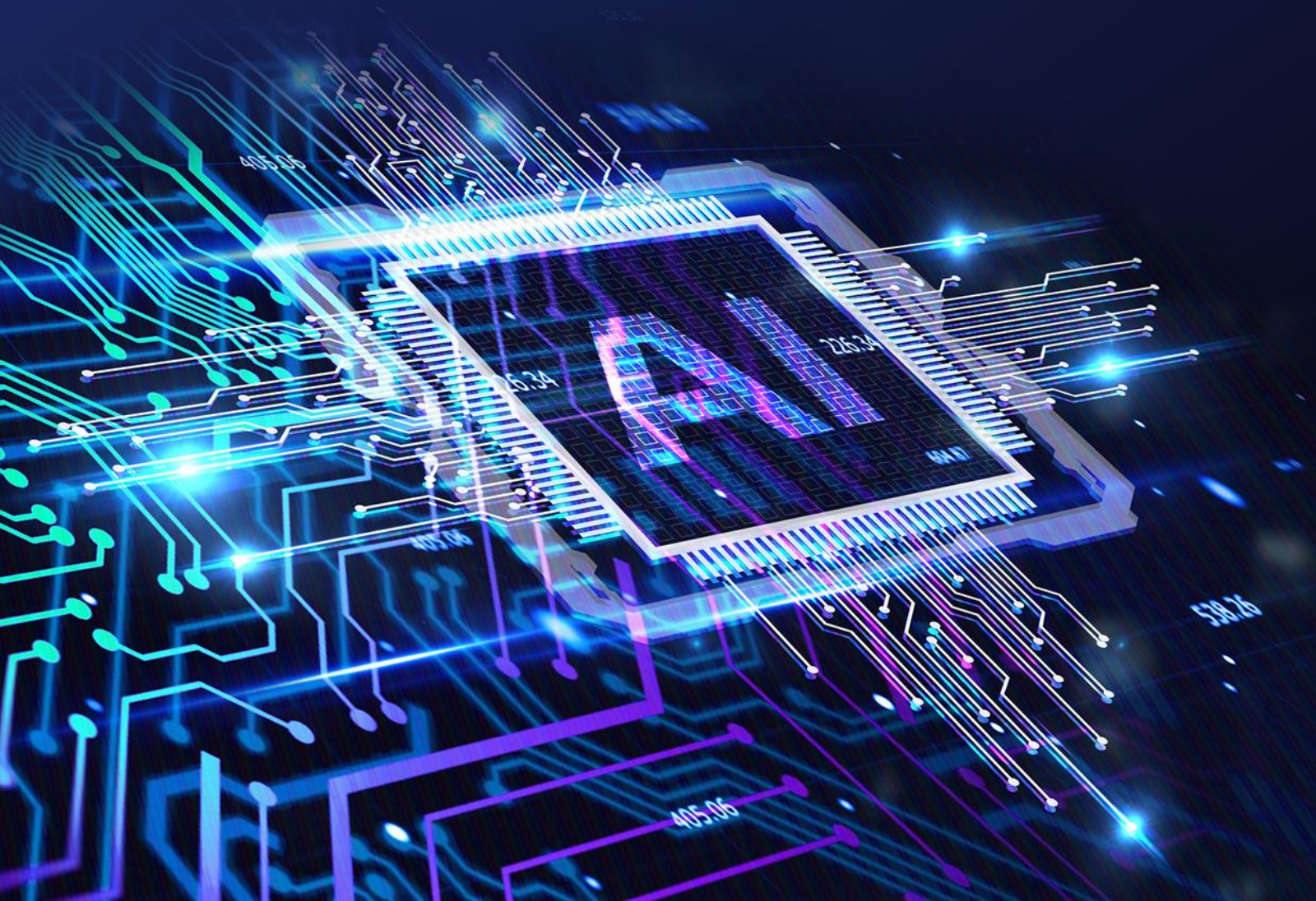
00 Executive Summary

Artificial intelligence (AI) has shed its academic roots and become a powerful tool in companies. Not only large global players, but also SMEs use AI and machine learning (ML) in a wide variety of business areas.

However, implementing AI solutions also poses challenges: costs, skills shortages, governance hurdles and, above all, hardware capacity in the form of storage and computing power.

Exploding data volumes result in ever greater AI applications which in turn create more data. When designing an AI strategy, every company should not only consider the benefits and advantages of AI itself, but also consider data storage.

This white paper explores the goals and applications of AI and explains why scalable data storage is an important and often underestimated prerequisite for successful AI implementation.

01 A brief history of how AI has revolutionized the business world

As early as 1936, Alan Turing laid the foundation for artificial intelligence with his Turing machine, which could carry out cognitive processes based on algorithmic steps. For many decades, artificial intelligence was primarily developed in academic circles until 1997, when IBM's "Deep Blue" defeated world chess champion Garry Kasparov, which is considered a historic moment for AI and brought it into the public eye.

The history of integrating artificial intelligence into company business processes is rather short - early applications in the 2010s used very simple chatbots and recommendation systems. It was only between 2012 and 2015 that advances in deep learning (DL) led to impressive advancements in image and speech recognition, paving the way for applications such as facial recognition and automatic translation.

Soon after AI-based applications enabled greater personalization, for example to create more tailored marketing campaigns. AI has also been increasingly used in healthcare to support diagnoses, analyze medical images and accelerate medical research.

But it wasn't until 2019/2020 that advances in natural language processing (NLP) allowed AI systems to generate human-like text, and companies began using AI to automate business processes, from data processing to document management.

This in turn led to the birth of applications like ChatGPT and Midjourney. Artificial intelligence has thus grown beyond academic circles and even the purely corporate world and has now reached the general public.

A key prerequisite for these innovative AI applications has been the development and availability of cloud services. In particular, enormous high-performance cloud storage capacity is necessary to store the huge data sets necessary for training AI models.
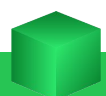
02 For what purposes is AI used today?

The use of artificial intelligence has the potential to revolutionize the way companies work in almost every aspect of the business. The goals that decision-makers in companies pursue with the these new technologies can be summarized in the following areas:

- **To increase sales**, marketing and sales teams use AI and ML to better understand their customers, engage them, and ultimately drive more sales. Today's AI can identify emotions and provide insights into customer behavior. This information helps define effective sales strategies and leverage customer feedback on products and services.

- **To increase cost efficiency**, many companies are improving their business processes with AI in innovative ways:: In customer support AI-supported solutions accelerate the processing of tickets. Deep learning algorithms increase the speed and accuracy of diagnosis and treatment in medicine. Industrial IoT models predict failures and recommend preventive maintenance.

- **Potential risks** can be identified in real time through the use of AI-based technologies, enabling companies to quickly take proactive measures to mitigate or resolve them. For example, AI helps detect abnormal activities and prevent fraud. AI also plays a crucial role in cybersecurity. Even financial institutions are reducing risk by improving lending decisions with the help of AI.

According to a 2023 survey by Forbes Advisor, companies are using AI in a variety of areas. The most frequently used areas of application are:

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56%	**Customer Service**
51%	**Cyber Security und Fraud Management**
46%	**Customer Relationship Management**
46%	**Digital Personal Assistant**
40%	**Inventory Management**
35%	**Content Production**

As a general trend, exploding amounts of data in every type of business process are leading to an increased use of AI to make sense of the data, and that AI in turn creates even more data. That's why every company should not only consider the benefits and advantages of AI in its business strategy, but also consider the use of scalable and cost-efficient data storage.

03 **AI as a growth engine and the importance of cloud storage**

The use of AI not only has the potential to revolutionize the way we work i but can be a driver of economic growth across all business sectors.

Several examples from different industries are described below:

Healthcare - Generative AI models will make access to healthcare much simpler. For example, patients can use user-friendly interfaces to analyze their symptoms and receive customized treatment plans. This not only improves the quality of patient care but also significantly reduces healthcare costs. Furthermore, AI can take patient care to new levels by acting as the primary authority for standard tests such as x-rays, lab results and MRI scans and conducting predictive analyses of large amounts of data. This increased analysis capability will also play a crucial role in drug development and optimized research processes.

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Cloud storage makes it possible to store large amounts of patient data in a quickly accessible, secure and cost-effective manner. This is crucial for storing patient records, medical images such as X-rays and MRI scans, and research data. When necessary, this data can be quickly accessed to support patient diagnosis and treatment.

Technology sector - Large language models are significantly changing the technology sector. In software development, products such as GitHub, Microsoft's Copilot and Deep Mind's AlphaCode support automation and improve code quality.

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In the technology sector, cloud storage plays a supporting role in agile development processes, enabling the storage of development projects and code versions in a central repository that can be used by distributed teams. Cloud backup and data recovery also offer the security of being able to quickly access previous work in order to ensure business continuity.

Retail - From creating personalized advertising campaigns to optimizing inventory, AI tools help retailers make better decisions. With AI-powered tools predicting sales trends, ensuring the right amount of inventory is much easier.

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In retail, high-performance cloud storage plays a key role in cost-effectively backing up sales data and inventory. In the event of data loss or corruption, cloud storage ensures rapid recovery of business-critical information, minimizing business interruptions.

04 Challenges for the near future

Despite the potential of AI tools and rapidly evolving technology applications, the future still has some challenges to offer. On the one hand, there are governance - and thus trust - problems with the new technology. On the other hand, there's a shortage of qualified personnel to develop, implement, and maintain the new technologies. These aren't trivial challenges.

However, the scarcity and rising costs of hardware and computing resources are much more serious, especially for small and medium-sized businesses. Global enterprise cloud infrastructure spending increased by $10.5 billion year-over-year in the third quarter of 2023, representing a growth rate of 18 percent (Source: CRN).

As data volumes continue to grow exponentially, companies face increasing cost pressures and business continuity risks.

05 Impossible Cloud supports multiple AI strategies

The progressive integration of artificial intelligence into companies is setting new standards for cloud storage: scaling is the success strategy of the future.

Given the enormous value of data in AI initiatives, reliably accessing this information and securing it separately in the cloud is critical. Newly generated data must also be stored reliably and secured. Ideally, each backup copy should be kept in a different location than the primary data to provide additional protection against cyber threats or human error.

As an essential part of your AI strategy, Impossible Cloud solves your data storage and backup challenges with the following features and benefits:

Industry-leading data security - AI data is valuable and must be protected from loss or damage. Impossible Cloud offers built-in ransomware protection and an industry-leading security architecture, including Identity Access Management (IAM), object locking, multiple encryption, CORS, and more.

Maximum cost efficiency - Storing large amounts of data securely and at scale doesn't have to be expensive. Impossible Cloud delivers up to 80% savings compared to AWS S3, ensuring AI initiatives stay on budget.

Seamless Integration - Impossible Cloud Storage is S3 API compatible and integrates seamlessly with leading data management and backup solutions. You can switch with one line of code and continue using existing scripts.

Fast recoverability - Fast recovery times are essential for AI applications. Impossible Cloud offers unlimited hot storage, ensuring that data can be quickly retrieved for recovery in the event of a problem so as not to impact business continuity.

Made in Germany - Sensitive data used or generated by AI must be stored in a GDPR-compliant manner. With Impossible Cloud all data is stored in GDPR-compliant, ISO-certified data centers in Germany.

First-class service - Impossible Cloud provides professional service in German or English and continuous product innovation to ensure smooth operations.

06 Conclusion

In summary, considering cloud storage as an essential pillar of your AI strategy is critical for forward-thinking businesses.

A rapid increase in data volumes almost inevitably leads to the implementation of AI, which in turn creates more data. When developing an AI strategy, it is therefore crucial to consider not only the immediate benefits and potential of AI, but also the essential role of data storage.

It's also a good idea for European businesses to work with a European cloud provider to ensure that compliance requirements are met and sensitive data is protected.