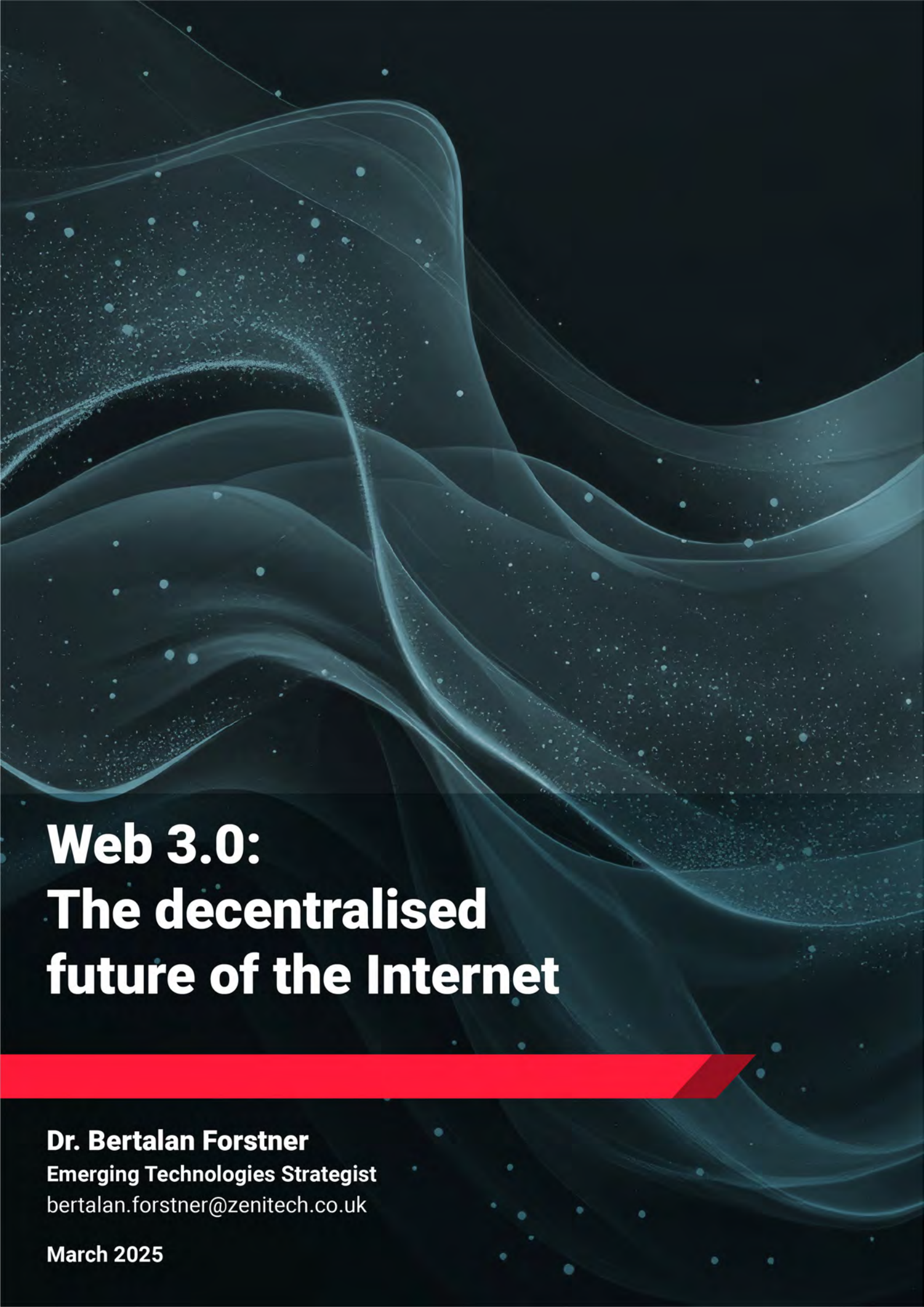


Web 3.0: The decentralised future of the Internet

Dr. Bertalan Forstner
Emerging Technologies Strategist
bertalan.forstner@zenitech.co.uk

March 2025

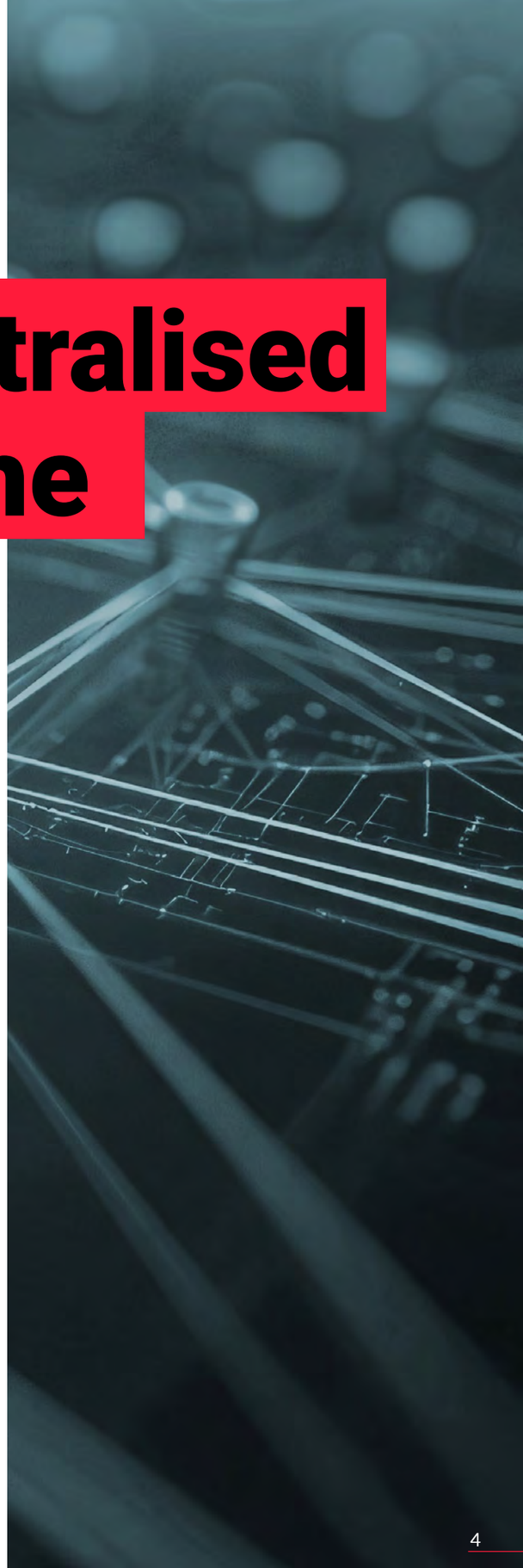
CONTENTS

Web 3.0: The decentralised future of the Internet

The internet is entering a transformative phase: Web 3.0.

Unlike its predecessors, Web 3.0 is built on decentralised technologies to redefine digital interactions. Moving beyond the centralised platforms of Web 2.0, this paradigm shift emphasises distributed systems, privacy, and peer-to-peer collaboration. Blockchain, decentralised autonomous organisations (DAOs), and self-sovereign identity solutions are just a few examples of the innovations shaping this new era.

For CTOs and decision-makers, understanding Web 3.0 is critical for positioning their organisations in a future characterised by transparency, trust, and innovation.



What is Web 3.0 and why it matters

Web 3.0 leverages blockchain technology to create a trustless and user-controlled internet. It moves away from the static pages of Web 1.0 and the centralised platforms of Web 2.0 to a decentralised architecture, where users have more control over their data and interactions. Smart contracts, decentralised applications (dApps), and token-based ecosystems are central to this evolution, enabling a more equitable and efficient digital economy.

Leading industry analysts have weighed in on the significance of this shift. **McKinsey** describes Web3 as "the idea of a new, decentralized internet built on blockchains, which are distributed ledgers controlled communally by participants." They suggest that Web3 could usher in a new era of the internet, shifting control from centralised entities to community-run networks. **TechTarget** notes that "Web 3.0 describes the next evolution of the World Wide Web," highlighting its potential to offer a more secure, private, and decentralised online experience compared to Web 2.0. Our **university partner,** with whom we work closely, has long been researching **peer-to-peer** and other related technologies. Together, we are developing scenarios and solutions for the **power** and **utilities** industries, leveraging these advancements to drive innovation and tackle sector-specific challenges.

For decision-makers, Web 3.0 offers a range of opportunities to transform their business strategies. By **reducing reliance on intermediaries,** organisations can lower costs and boost efficiency, streamlining processes without the need for third parties. Additionally, Web 3.0 enables companies to **enhance user trust** by utilising transparent and immutable systems, providing customers with greater confidence in their interactions. Finally, the shift towards decentralised technologies allows businesses to **innovate business models,** with options like tokenisation and decentralised governance opening up new avenues for revenue generation.

Business benefits of Web 3.0

The decentralised foundation of Web 3.0 brings substantial advantages for businesses across various industries. It enables **new revenue streams** by supporting token economies and decentralised platforms, which allow for innovative monetisation strategies, such as those seen in Decentralised Finance (DeFi) and Non-Fungible Token (NFT) marketplaces. Additionally, Web 3.0 enhances **security** by leveraging blockchain's cryptographic infrastructure, which reduces the risk of data breaches and ensures secure transactions. With a focus on **greater user engagement**, the decentralised model empowers users with ownership, fostering stronger loyalty and participation. Furthermore, **operational efficiency** is improved as decentralised systems streamline processes like supply chain transparency and financial settlements, ultimately reducing overhead and complexity.

To illustrate the tangible benefits of Web 3.0, consider the following hypothetical scenario. Imagine a small business owner seeking a loan to expand operations. Traditionally, this process involves applying through a bank, undergoing credit checks, and waiting for approval—a procedure that can be time-consuming and restrictive, especially for those with limited credit history.

In a Web 3.0 environment, the business owner can access a decentralised lending platform built on blockchain technology. By leveraging smart contracts, they can directly connect with global investors willing to lend funds. The terms of the loan, including interest rates and repayment schedules, are encoded in the smart contract, ensuring automatic and transparent execution.

Key considerations for businesses

Adopting Web 3.0 technologies requires careful strategic planning and attention to several critical factors. One of the first considerations is **infrastructure investments**, as transitioning to Web 3.0 demands robust technological infrastructure, including seamless blockchain integration and a skilled development team capable of supporting these advanced systems. **Regulatory compliance** is another key challenge, as businesses must navigate the complex legal and regulatory landscapes inherent in the decentralised nature of Web 3.0. Additionally, **interoperability challenges** must be addressed, ensuring compatibility between traditional systems and decentralised platforms, which can be a technically demanding task. At Zenitech we are also always keeping an eye on **user education,** as they should always be educated and informed about the benefits and functionalities of Web 3.0 to drive widespread adoption.

The anticipated growth of the Web 3.0 market underscores its increasing relevance. According to **Grand View Research,** the global Web 3.0 market size was valued at USD 2.25 billion in 2023 and is expected to grow at a compound annual growth rate (CAGR) of 49.3% from 2024 to 2030. The analysis from **MarketsandMarkets** projects the global Web 3.0 market to grow from USD 0.4 billion in 2023 to USD 5.5 billion by 2030, at a CAGR of 44.9% during the forecast period.

Challenges and how Zenitech solves them

Web 3.0's potential brings with it a range of challenges, including issues with **scalability, security,** and **user experience.** Zenitech effectively addresses these challenges by providing **scalability solutions,** utilising advanced frameworks and optimising network architectures to manage enterprise-grade workloads efficiently. Our **robust security** expertise, built on deep knowledge in cybersecurity and blockchain, ensures data integrity and secure transactions across decentralised platforms. Zenitech also focuses on **user-centric design,** creating intuitive interfaces for decentralised applications that encourage user adoption. Our **integration expertise** enables seamless transitions between legacy systems and decentralised platforms, ensuring smooth adaptation without disrupting existing business processes.

Applications of Web 3.0 in practice

Web 3.0 technologies are often talked about in terms of their potential to disrupt industries like finance and art, but who would have thought that their applications stretch far beyond these well-worn examples? From **DeFi** to **NFTs,** these technologies are revolutionising even the **power** and **utilities** sectors in ways that few anticipated.

Decentralised Finance (DeFi) eliminates intermediaries through blockchain, enabling peer-to-peer financial services. In the **utilities** industry, this can significantly reduce transaction costs related to energy trading platforms or decentralised energy markets, improving efficiency and transparency. For example, **energy cooperatives** could use DeFi protocols to facilitate peer-to-peer energy trading, allowing consumers to buy and sell surplus energy directly, bypassing traditional utilities and achieving better rates.

Non-Fungible Tokens (NFTs) tokenise unique digital assets, including in areas like energy certificates or renewable energy credits. NFTs can enable **power companies** to tokenise energy production or carbon credits, providing a more transparent and secure method of tracking and trading environmental impact. For instance, a **solar energy provider** could issue NFTs as proof of renewable energy generation, creating new revenue streams and enhancing customer engagement.

With **Decentralised Identity Management,** Web 3.0 enables user-controlled digital identities, reducing reliance on centralised entities and ensuring privacy while simplifying verification. In the **utilities** sector, this could be used to provide secure access for consumers and businesses to energy consumption data or utility bills, ensuring privacy while enhancing customer service and compliance with privacy regulations.

Web 3.0 transforms **smart grid** management by enabling **Play-to-Earn Gaming Models,** where players earn cryptocurrency or tokens, fostering engaged communities. For **power utilities,** a similar model could be applied to incentivise consumers to reduce energy consumption during peak hours, rewarding them with tokens that could be exchanged for energy discounts or other benefits.

Finally, **blockchain** ensures traceability in supply chains, offering unparalleled transparency and trust for consumers and businesses. A **smart grid** operator can use blockchain to verify energy transactions, ensuring that renewable energy certificates are traceable and accurately attributed to the correct energy producers, enhancing transparency and trust in the green energy market.

Web 3.0 technologies are revolutionising various industries beyond power and utilities. Just to name a few close to our heart:

Healthcare - Web 3.0 enables decentralised patient data management, granting individuals control over their health records. Blockchain technology ensures secure sharing of electronic health records (EHRs) among healthcare providers, enhancing care quality and reducing errors. For instance, patients can authorise research institutions to access their data, contributing to personalised medicine advancements while maintaining privacy.

Supply Chain Management - Blockchain-based systems offer transparency and traceability in supply chains. Each product's journey is recorded on an immutable ledger, verifying authenticity and quality. This is crucial in industries like pharmaceuticals, where counterfeit products pose significant risks. A blockchain system allows real-time tracking of medications from manufacturer to end-user, reducing fraud and enhancing consumer trust.

Education - Web 3.0 transforms education through decentralised learning platforms and personalised experiences. Blockchain enables students to manage their academic records securely, sharing them with educational institutions or employers as needed. Smart contracts can automate the issuance and verification of certifications, reducing administrative burdens and ensuring credibility. For example, a student can store all their credentials in a digital wallet, accessible only to them, and shareable upon request.

The path forward

To prepare for Web 3.0, businesses need to take several key steps. First, it is essential to invest in education by equipping teams with the knowledge and skills needed to understand and effectively leverage decentralised technologies. Without a doubt, employees will be better prepared to engage with the new landscape and contribute to its successful integration once they are well-versed in these technologies. Next, building **strategic partnerships** becomes crucial, as collaborating with innovators like Zenitech allows businesses to navigate the complexities of Web 3.0 more effectively. Our partnership brings valuable expertise and insight into the rapidly evolving space. Finally, businesses cannot afford to skip experimenting strategically by piloting projects in areas like DeFi or NFTs. This approach allows them to test Web 3.0's potential and explore its benefits without overcommitting resources, minimising risk while maximising the learning opportunity.

Web 3.0 is more than a technological evolution; it's a paradigm shift in digital interactions. By decentralising the internet, Web 3.0 empowers businesses to operate with greater transparency, security, and efficiency, fostering enhanced trust and collaboration among users. For CTOs, CIOs, and engineering leaders, embracing this change today can unlock unprecedented opportunities tomorrow. Zenitech is ready to guide organisations through this transformation, ensuring they harness the full potential of the decentralised web.

Reach out to our team to discuss how Zenitech can help your organisation realise the benefits of Web 3.0.

Connect with us

www.zenitech.co.uk

info@zenitech.co.uk

linkedin.com/company/zenitechteam

facebook.com/zenitechteam

instagram.com/zenitech