EVALUESERVE

Web 3.0: The Next Evolution in Digital Transformation

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Preface

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In the coming years, the internet is expected to undergo significant changes, shifting from centralized, platform-driven models to a decentralized, user-centric web. This evolution, known as **Web 3.0**, has the potential to transform how we interact with technology, access services, and engage with digital economies.

Web 3.0 is built on **decentralization, blockchain, and crypto technologies**, fundamentally altering industries, governance, and user experiences. As organizations, individuals, and enterprises continue to explore this new digital frontier, understanding and embracing it will be crucial to staying ahead in an increasingly decentralized world.

Although Web 3.0 is still in its early stages, it holds immense potential to reshape business models, governance structures, and digital ecosystems. Staying informed about Web 3.0 is essential for businesses that want to remain competitive and innovative in the rapidly evolving digital landscape.

In this whitepaper, experts from Evalueserve's TMT (Technology, Media, and Telecommunications) practice have examined Web 3.0's technological foundations, market growth, and practical applications. We have also provided insights into how Web 3.0 is poised to impact various industries, the investment trends surrounding its development, and the key challenges to its adoption. We believe our research will help you uncover new opportunities and drive meaningful business transformation in the age of **Web 3.0**.

About Evalueserve

We are a global company at the forefront of using product-led solutions to enhance and accelerate decision-making throughout enterprises. Hundreds of Fortune 1000 companies such as Intel, McDonalds, and PwC rely on our unique domain-specific AI solutions, powered by more than 5,000 subject matter experts.

Evalueserve strives to offer employees an inclusive and empowered workplace and has been recognized by 'Great Place to Work' in five countries in 2022.

Disclaimer:

Web 3.0 – A decentralized future

What is Web 3.0

Web3, or Web 3.0, refers to a decentralized and more user-centric version of the internet, where individuals have greater control over their data and digital identities. It integrates technologies such as blockchain, artificial intelligence, and machine learning to create a more intelligent, transparent, and interactive online experience. Web 3.0 emphasizes privacy, security, and the seamless connection of different platforms, allowing users to navigate a more personalized and interconnected digital space.

What does it entail

Decentralization	Semantic web	Smart contracts	Blockchain	Tokenization and cryptocurrencies
Distributes data and applications across nodes, thereby reducing reliance on central servers and enhancing resilience and security	**Uses AI** and machine learning to enhance the capability to understand data and offer context-aware services	**Executes** contracts on blockchain, allowing decentralized apps (dApps) to function without the need for centralized control	**Provides** a transparent, immutable ledger for secure, trustless transactions, eliminating intermediaries	**Enables** digital assets and currencies, creating new economic models and incentivizing network participation

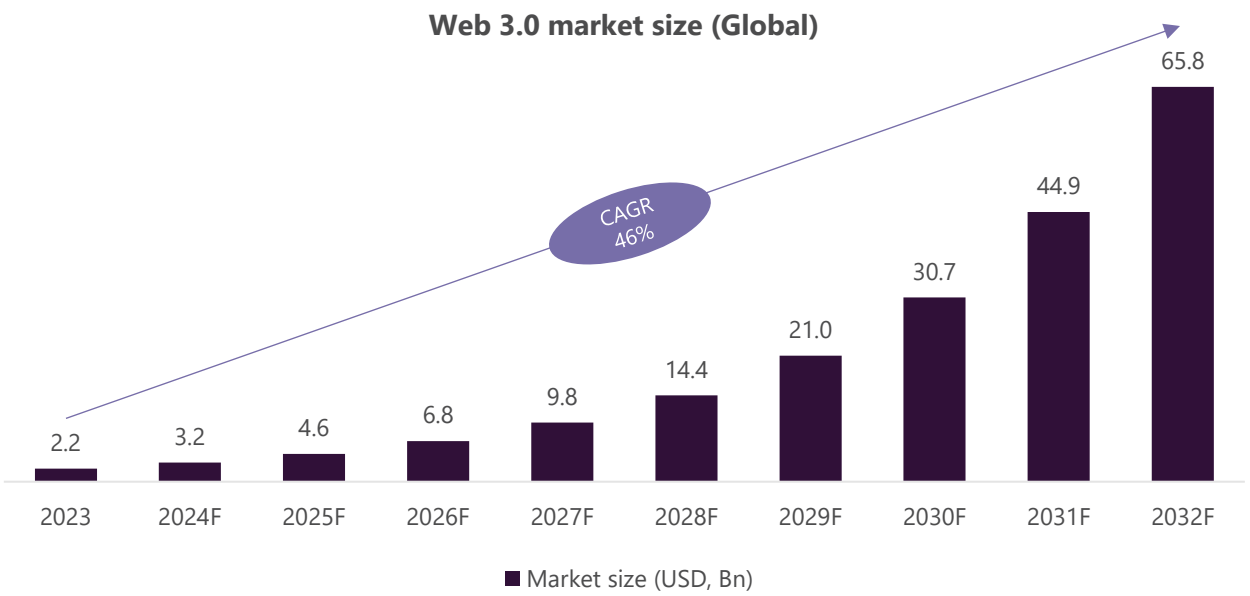
Evolution of web

Web 1.0	Web 2.0	Web 3.0
Read-only	Read-write	Read-write-execute
Static content and information retrieval	User-generated content and social interaction	Decentralized setup, user empowerment
Centralized servers	Centralized / collaborative platforms	Decentralized storage (blockchain)
HTML, HTTP, basic web browsers	AJAX, JavaScript, APIs, mobile web	Blockchain, smart contracts, decentralized protocols
Static websites, personal homepages, etc.	Social media websites (Facebook, Twitter), blogs, etc.	dApps, blockchain (Ethereum), etc.
Early 1990s to 2000s	**Mid 2000s to present**	**Term emerged in 2014-15**

Global Web 3.0 market poised to post 45%+ CAGR until 2032

Web 3.0 market size

The Web 3.0 market is growing rapidly, driven by technological advancements and evolving consumer preferences. The widespread adoption of blockchain, AI innovations, and the rise of dApps are central to this shift. Additionally, increasing demand for better data privacy, security, and control over digital assets is further accelerating the market's expansion.



Key factors driving market growth

Rising demand for data privacy

Consumers are seeking greater control over personal data, thereby fueling the adoption of blockchain-based platforms focused on privacy and security.

Blockchain advancements

Continuous improvements in the blockchain technology, such as faster transactions, make it the core of Web 3.0, promoting decentralization and trust.

AI integration

AI and machine learning are expected to enhance user experiences in Web 3.0 by enabling personalized services and efficient data management.

Metaverse growth

The increasing interest in virtual worlds and digital assets accelerates the adoption of Web 3.0 technologies, supporting decentralized digital economies.

Decentralized finance (DeFi)

DeFi platforms are revolutionizing traditional finance by removing intermediaries and enabling peer-to-peer transactions, highlighting Web 3.0's potential in financial services.

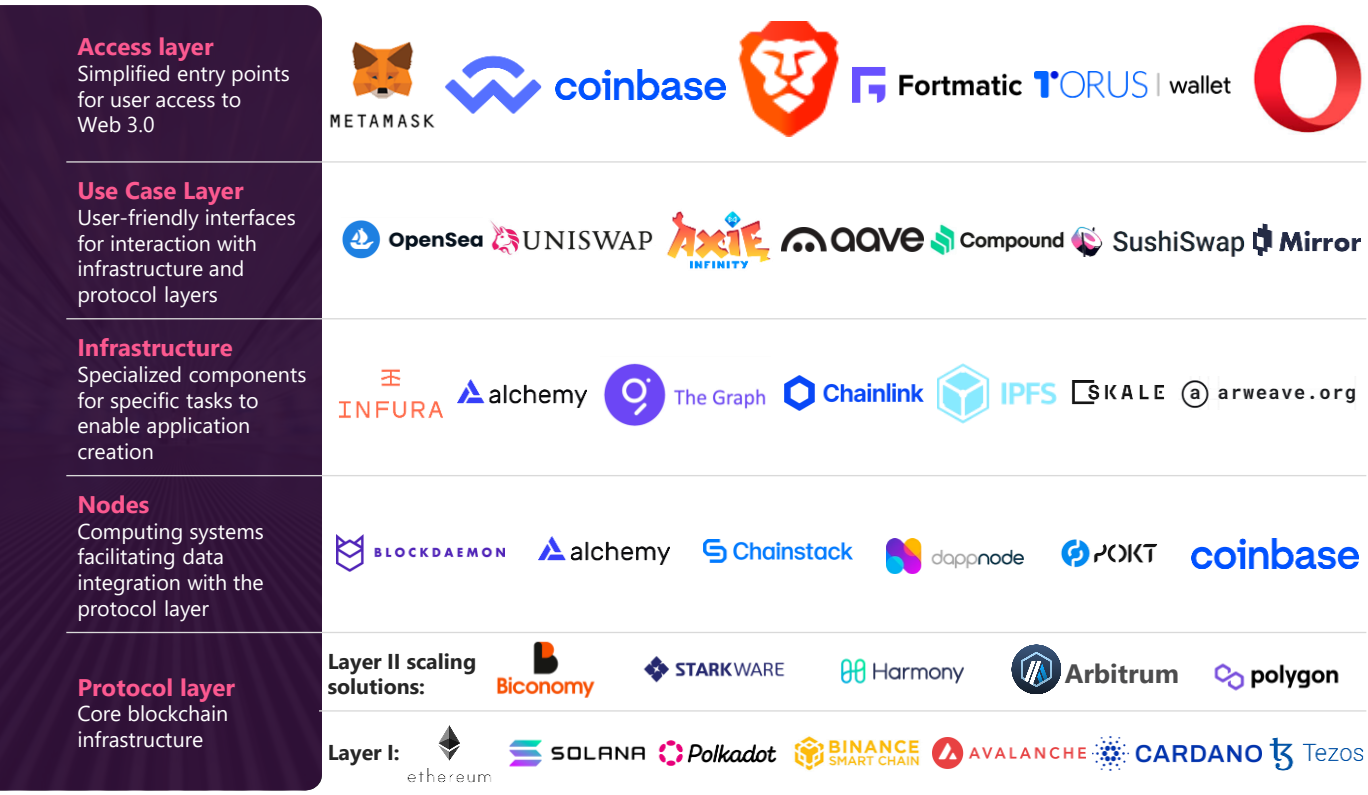
Source: Precedence Research

Building blocks of Web 3.0

Technology stack

The Web 3.0 ecosystem relies on a sophisticated, multi-layered technology stack, with each layer playing a crucial role in enabling decentralized applications and services. From foundational blockchain protocols to user-facing interfaces, this stack ensures secure, scalable, and efficient operations. Each component, from consensus mechanisms to smart contracts, is essential in realizing the vision of a fully distributed and user-empowered web.

Key players in each layer



Layer breakdown

- **Protocol layer:** This foundational layer serves as the backbone of the Web 3.0 ecosystem, with blockchain protocols such as Ethereum, Polkadot, and Solana leading the way in enabling distributed networks and smart contract execution.
- **Nodes layer:** Crucial for the operational integrity of Web 3.0, the nodes layer ensures that decentralized networks run securely and efficiently, thereby supporting the autonomous nature of the ecosystem.
- **Infrastructure layer:** This layer, comprising middleware and development tools, bridges the gap between protocols and applications. Companies in this space provide crucial services and platforms for building, deploying, and managing blockchain-based applications.
- **Use case layer:** Representing the practical applications of Web 3.0 across various industries, from finance to gaming, this layer is where innovation takes shape. Companies are developing decentralized solutions that transform traditional business models and processes.
- **Access layer:** The final layer focuses on user interface and experience, ensuring seamless access to Web 3.0 for end-users. This includes wallets, browsers, and gateways that allow users to easily interact with applications.

Convergence of Web 3.0, blockchain, cryptocurrency, and metaverse

Interdependencies

Together, blockchain, cryptocurrency, Web 3.0, and the metaverse create an interconnected digital ecosystem. Blockchain provides a secure foundation for cryptocurrency transactions, which in turn fuel virtual economies within the metaverse. Web 3.0 enables blockchain-based, peer-to-peer interactions across platforms.

These technologies collectively support a decentralized, user-driven digital landscape that prioritizes digital ownership, privacy, and transparent transactions, creating a seamless experience where each component enhances and reinforces the others.

Metaverse

Offers virtual worlds and digital experiences

Web 3.0

Connects everything to create a decentralized internet system

Blockchain

Provides fundamental technology and infrastructure

Cryptocurrency

Enables the creation of digital assets and tokens

01

Web 3.0

Acts as a comprehensive framework that seamlessly integrates and connects all decentralized services and applications, facilitating smooth interactions.

Blockchain

Establishes a foundation of trust, ensuring that all other components can operate securely and reliably.

02

03

Cryptocurrency

Provides an economic infrastructure that offers real value to digital interactions and assets.

Metaverse

Provides the interface and environment that make these technologies tangible and accessible.

04

Exploring practical use cases of Web 3.0

Use cases

Web 3.0 is a transformative technology that decentralizes control and empowers individuals, enabling new ways of interacting, transacting, and organizing. Its potential to create more equitable, transparent, and user-centric systems spans various industries, including finance, healthcare, gaming, and supply chain management. By eliminating intermediaries and enabling direct, peer-to-peer interactions, Web 3.0 fosters innovations that enhance trust, privacy, and access to digital services, ultimately reshaping how individuals and businesses engage online.

DeFi	DeFi, or decentralized finance, refers to financial services that operate on a blockchain. It encompasses activities such as **lending, borrowing, trading, and earning interest on assets, all without the involvement of traditional banks or financial institutions.**
Decentralized identity and authentication	A decentralized identity allows individuals to control their digital identity **without relying on a central authority**, such as a government or tech company. It enables users to **manage and share** their personal information securely and privately.
Content monetization and ownership	Web 3.0 provides creators, such as writers, musicians, and artists, with new opportunities to monetize their content and retain ownership **without relying on intermediaries like publishers or platforms.**
Tokenization of assets	Tokenization is the process of **converting** real-world assets (like real estate, art, or stocks) into **digital tokens** on a blockchain. Each token represents a share or ownership of the underlying asset.
Data storage and retrieval	Web 3.0 enables distributed data storage solutions, where data is not stored on a single server but distributed across **a network of computers**. This contrasts with traditional cloud storage, which relies on centralized servers owned by companies like Google or Amazon.
Decentralized social media	Social media platforms on Web 3.0 are user-controlled networks where **individuals own and control their content, data**, and interactions. This model addresses concerns about censorship, data privacy, and the monetization of user data without consent.
Cross-border payments	Web 3.0 revolutionizes cross-border payments by facilitating peer-to-peer transactions without traditional banking intermediaries. This innovation makes cross-border payments **faster, more affordable, and accessible**, particularly for individuals in regions with limited banking services.

How Web 3.0 is reshaping industries

End-use applications

The growing adoption and integration of Web 3.0 are enabling medium to high impact on use cases across industries.

Impact: High | Medium | Low

Use case \ Industry	Finance	Retail	Healthcare	Supply chain	Media & entertainment	Manufacturing
DeFi	Lending platforms, decentralized exchanges	Crypto payment	Medical crowdfunding	Supply chain financing	Fan / followers tokens	Tokenized factory machinery and inventory
Decentralized identity and authentication	Identity verification, self-sovereign identity	Blockchain loyalty programs	Medical records management	Product tracing	Content creator verification	Worker credentials
Content monetization and ownership	Tokenized investment funds	NFT product authenticity	Health data marketplaces	Logistics data monetization	Music streaming, NFT marketplaces	Digital twin monetization
Tokenization of assets	Real estate tokenization, security tokens	NFT collectibles	Tokenized health insurance	Product authenticity tracking	Sports moments NFTs	Tokenized machinery ownership
Data storage and retrieval	Permanent data storage, distributed cloud storage	Customer data management	Electronic health records	RFID-based tracking	Decentralized video delivery	IoT data management
Cross-border payments	International money transfers	Global e-commerce payments	Global healthcare payments	Supply chain payments	Royalty distributions	International supplier payments

Key insights

- Web 3.0 technologies show broad applicability across industries**, with finance and media and entertainment** leading in adoption.
- **DeFi, asset tokenization, and decentralized identity solutions** are among the most impactful use cases across sectors.
- Each industry has unique high-impact applications, e.g., **medical record maintenance in healthcare, supply chain tracing in manufacturing, and NFTs in media and entertainment.**
- While some use cases like **cross-border payments have** widespread relevance, others such as user-controlled social media show specific impact in certain sectors.

Note: These are potential Web 3.0 use cases; only a few are currently in real-world use.
The heatmap has been created based on the adoption rate of various Web 3.0 use cases across multiple industries and their specific applications.

Growing interest and investments in Web 3.0

Strategic deals

Recent strategic deals are driving innovation and collaboration across the Web 3.0 tech stack. These investments are not only enhancing infrastructure but also improving user access and expanding the decentralized application ecosystem. This synergy is paving the way for substantial growth in the Web 3.0 space.

	Partnerships	M&A	Funding
Access layer Simplified entry points for user access to Web 3.0	**LAOS Network**, a Polkadot parachain, partners with **Sequence** to integrate free-to-play mechanics into blockchain gaming. Nov 2024	**Stripe** acquires **Bridge**, a stablecoin infrastructure startup, for a reported **USD1.1 bn**. Oct 2024	Kuru raises **USD2 mn** seed funding, from Electric Capital, Brevan Howard Digital, and CMS Holdings. July 2024
Use case layer User-friendly interfaces with infrastructure and protocol layers	**Wilder World** partners with **Samsung** to bring its metaverse to a broader audience via smart TVs. Apr 2024	**Yuga Labs** acquires PROOF, including PROOF Collective, Moonbirds, and other key assets. Feb 2024	Animoca Brands raises **USD10 mn** for Mocaverse from OKX Ventures, CMCC Global, and Hong Shan. Nov 2024
Infrastructure Specialized components for specific tasks and application creation	**Transak and Privado ID** enter into a partnership to streamline decentralized KYC processes with enhanced privacy and efficiency. June 2024	**Avast** acquires **SecureKey Technologies** to bolster its digital identity and authentication products. Mar 2024	Mirror World, a Solana gaming company, raises **USD12 mn** for its game, Sonic, from Bitkraft, Galaxy Interactive, and others. June 2024
Nodes Computing systems facilitating data integration with the protocol layer	**exSat** partners with **Everstake**, a major validator, to improve Bitcoin scaling solutions. July 2024	**Galaxy Digital** acquires most assets of **CryptoManufaktur LLC**, a blockchain node operator serving decentralized protocols. July 2024	NodeOps secures **USD5 mn** from L1D, Blockchain Founders Fund, and Finality Capital. May 2024
Protocol layer Core blockchain infrastructure	Layer-1 blockchain **WAX** signs a deal with **AWS** to enable developers to deploy nodes on WAX through the AWS console. Mar 2024	**Klaytn** and Finschia propose a chain merge to create Asia's leading blockchain ecosystem. Jan 2024	Particle Network raises **USD25 mn** for chain abstraction, following the USD15 mn round led by Spartan Group and Gumi Crypto. June 2024

Addressing obstacles in Web 3.0 adoption

Challenges and mitigants

Web 3.0 faces several challenges, including scalability issues that hinder its ability to efficiently handle large volumes of transactions. The complexity of its technology also creates barriers to mainstream adoption, presenting a steep learning curve for both users and developers. Additionally, regulatory uncertainty and security concerns related to decentralized networks and cryptocurrencies pose significant hurdles.

Challenges		Mitigations
Decentralized networks and smart contracts are vulnerable to **hacks and exploits**, potentially leading to significant financial losses.	**Security concerns**	Enhanced security measures, robust security protocols, and advanced fraud-detection mechanisms for protection against attacks.
The **evolving regulatory landscape** poses challenges, with governments and institutions working to develop frameworks that can accommodate decentralized technologies.	**Regulatory uncertainty**	Collaboration between industries and governments to ensure the creation of balanced regulations that provide clarity without stifling innovation.
Energy consumption associated with blockchain technologies, particularly those using **proof-of-work mechanisms**, raises sustainability-related concerns.	**Environmental impact**	Adoption of energy-efficient consensus mechanisms, such as **proof-of-stake or proof-of-authority**, to reduce the environmental footprint of Web 3.0 technologies.
A lack of seamless integration between different blockchain networks can lead to fragmented ecosystems, thereby limiting the fluid movement of assets and data across platforms.	**Interoperability**	Development and promotion of interoperability standards, and protocols that drive seamless exchange of data and assets across Web 3.0 platforms.

Transformative potential of a decentralized internet

Outlook

Web 3.0 is poised to become mainstream, particularly in sectors such as finance and gaming, fueled by improvements in scalability and interoperability. It will democratize investment opportunities, introduce decentralized governance models, and give users greater control over their digital identities. As regulations evolve, Web 3.0 will challenge traditional internet structures and drive the expansion of the metaverse and user-controlled social media.

Key recommendations

Embrace blockchain and decentralization

Organizations should explore and **adopt blockchain technology** as a foundational element for Web 3.0 applications.

Invest in scalability solutions

Businesses and developers should prioritize **scalable blockchain solutions** to handle the increasing volume of transactions and data demands.

Monitor regulatory developments

Companies must stay informed about **emerging regulations** related to blockchain-based finance, cryptocurrencies, and digital assets to ensure compliance and mitigate risks.

Enhance user education and adoption

To drive broader adoption, businesses must invest in **educating users** about the benefits and functionality of Web 3.0.

Prepare for the metaverse and decentralized social media

Businesses should explore opportunities for virtual engagement, advertising, and community building through the metaverse and decentralized social media platforms.

How Evalueserve can help leverage Web 3.0

Our solutions

Evalueserve can confidently help you navigate the Web 3.0 landscape by offering expert advice on blockchain platform selection, comprehensive market research, and competitive analysis. We empower businesses with insights and strategies needed to stay ahead in the rapidly evolving digital economy.

01 Market / industry research

Offer comprehensive market research and insights into Web 3.0 technologies and relevant industries to empower clients to make data-driven decisions.

- **Trend analysis:** Identify emerging trends in the Web 3.0 space and their potential impact on industries.
- **Market mapping:** Analyze the competitive landscape, including key players, recent developments, and market dynamics.
- **Opportunity identification:** Highlight potential growth opportunities in the Web 3.0 space, such as innovative business models and partnerships, to drive revenue streams.
- **Regulatory insights:** Provide insights into the regulatory environment related to Web 3.0 to help you effectively navigate compliance challenges.

02 Competitive analysis

Provide a strategic and competitive edge through in-depth analysis of industry players' Web 3.0 initiatives.

- **Competitor benchmarking:** Evaluate competitors' Web 3.0 strategies, products, technology stacks, and market positioning.
- **SWOT analysis:** Conduct SWOT analyses of competitors' Web 3.0 approaches to uncover strategic insights.
- **Monitoring and reporting:** Track competitors' activities and market shifts to deliver real-time insights that offer a competitive advantage.

02 Blockchain platform selection

Help clients choose the most effective blockchain platform for their business needs and goals.

- **Needs assessment:** Conduct a thorough analysis of a client's business requirements related to scalability, security, compliance, and specific use cases, among others.
- **Platform evaluation:** Evaluate various blockchain platforms (e.g., Ethereum, Hyperledger, and Polkadot) based on critical factors such as transaction speed, consensus mechanisms, and developer ecosystem.
- **Customization:** Offer strategic advice on necessary platform customizations that align with a client's technical and operational objectives.

Glossary of Web 3.0 terms*

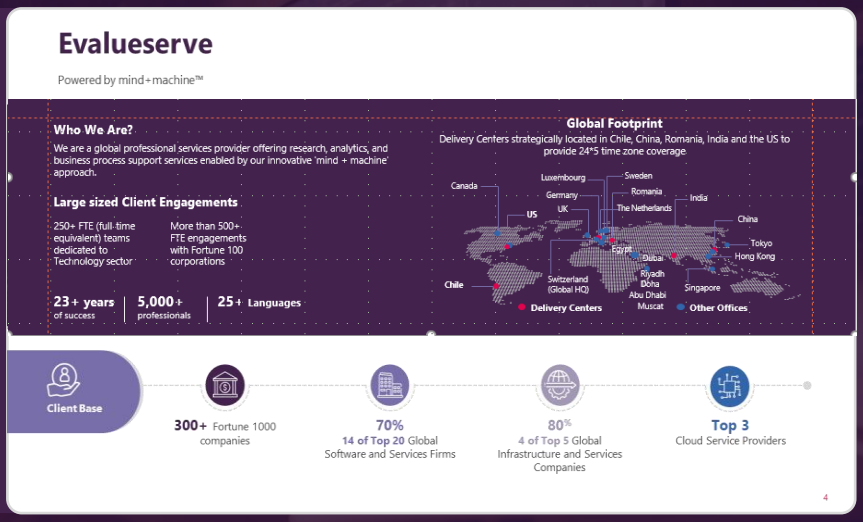
Centralized exchange	A company-managed platform for buying and selling cryptocurrencies, featuring a user-friendly interface and necessitating trust in an operator.
Consensus mechanism	The process through which blockchain networks agree on the validity of transactions (e.g., Proof of Work, Proof of Stake).
Cryptocurrency	Digital or virtual currency secured by cryptography, primarily used for transactions within Web 3.0 ecosystems.
Decentralized applications (dApps)	Applications that run on a blockchain network, rather than on centralized servers.
Decentralized autonomous organization (DAO)	An organization that is built on blockchain technology and operates without centralized authority.
Decentralization	The distribution of power and control from a central authority to a dispersed network.
InterPlanetary file system (IPFS)	A decentralized file storage protocol that enables secure and distributed file sharing.
Layer I blockchain	The base layer of blockchain protocols (e.g., Ethereum, Bitcoin) that acts as the foundation for other blockchain activities.
Layer II blockchain	Protocols built on top of Layer I to improve scalability, speed, and transaction costs.
Metaverse	A virtual and shared space that integrates digital assets, identities, and environments, often built on Web 3.0 technologies.
Non-fungible token (NFT)	A unique digital asset that represents the ownership of a specific item or piece of content stored on a blockchain.
Oracles	Services that provide external data to blockchain smart contracts, enabling them to interact with real-world information.
Public key / private key	Cryptographic keys that are used in blockchain for secure transactions and identity management.
Privacy coins	Cryptocurrencies that are designed to enhance user privacy by obscuring transaction details and user identities.
Proof of stake	A consensus mechanism that selects validators based on the number of coins they have and are willing to stake, thereby allowing them to confirm transactions and create new blocks.
Proof of work	A consensus mechanism that requires miners to solve complex mathematical puzzles to validate transactions and create new blocks on the blockchain.
Self-sovereign identity	A digital identity that is owned and controlled by an individual. It allows individuals to manage and share their credentials without relying on a central authority.
Stablecoin	A type of cryptocurrency designed to maintain a stable value by being pegged to a reserve asset like a fiat currency (e.g., USD).
Testnet	A version of a blockchain network used for testing and development. In this version, developers can experiment with new features without affecting the main (live) network.
Web 3.0 identity	Digital identities that are decentralized, self-sovereign, and often linked to blockchain-based credentials.
Web 3.0 wallet	A digital wallet that allows users to store and manage cryptocurrencies, NFTs, and other blockchain-based assets.

*Indicative list

About us

Evalueserve Technology, Media, & Telecom (TMT) Practice

A trusted advisory and transformation partner for businesses operating in the IT and communications infrastructure, software services, mobile and integrated operations, security, and internet and digital services space.



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