The Beginner-Friendly Guide to Understanding Web3 Development in 2023 and How its Application Can Change Your Life Forever

Welcome to our “Beginner-Friendly Guide to Web” In this comprehensive Guide, we aim to help you understand the complex world of Web3 like ABC in a friendly way that even a 10-year-old child would get to understand. We’ll delve into the origins of Web3, its key principles, and how it contracts with Web2 and Web1 eras. Exploring different other aspects of the Web including the potential benefits.

So, let’s dive into the **beginner’s guide to Web3** to help you better understand the future of the Internet and how you can benefit from this new World.

What was Web1? (1990-2004)

The inception of the digital era began with Web 1.0 in the 1990s, marking the first significant strides in the web’s evolution. This stage of the web, often dubbed the

“Read-Only” era, presented the internet as a space where information could be consumed, but the interaction was limited.

Web1 was defined by static, read-only pages where users had little to no opportunity to influence or interact with the content they were viewing. The information that had once been bound to newspaper and library shelves was now becoming accessible online. These static web pages served as digital libraries where users could glean information from a wider array of sources than ever before. However, the functionality was limited despite the vast amounts of data available.

The primary mode of communication during the Web1 era was through emails, a groundbreaking feature at this time. This presented a whole new level of connectivity, but the ability for users to generate their own content was virtually non-existent. Websites were primarily text-based, limited in multimedia content, and user participation was largely confined to reading information rather than creating or influencing it.

Despite these limitations, Web1 set the stage for future advancement. It marked the beginning of the digital age, converting physical information into digital format and making it globally accessible. While it might seem

primitive by today's standards, it was a crucial first step in the journey that has led us from the static, one-sided internet of Web1 to the dynamic, interactive Web2, and now towards the decentralized Web3.

What is Web2? Read-Write (2004-now)

Emerging around 2004/2005, Web 2.0, also known as the "social web," marked a significant evolution in the internet's journey. For the first time, users could consume content and generate it, fostering a lively, interactive digital landscape. This interaction was made possible by technological advancements like Javascript, HTML5, and CSS3, which allowed websites to evolve from static to dynamic, interactive platforms.

Web 2.0 turned the internet into a "Read/Write" space, granting every user the power of content creation, and social media platforms like Facebook, MySpace, and Twitter facilitated social interaction; data-sharing applications such as Napster met the demand for online music and video; Google provided an effective means for users to navigate the huge quantity of online information.

Users could express their interests, share opinions, interact with others' content, and even influence the type

of content produced by new agencies, media outlets, and creators. Traditional institutions such as Bank of America met the demand for financial interactions and electronic funds transfers, enabled by new encryption standards such as 256-bit AES.

This new, more interactive Internet improved users' experiences of the web tremendously by adding new functionality.
However, the democratization of content creation under Web 2.0 came with a price: the centralization of power. As tech companies like Facebook grew, the balance of power shifted from individual users to these corporate giants. Under the pretense of enhancing user experience, the companies began collecting vast amounts of personal data, often only to sell it to advertisers. In effect, users became the product, their data a commodity for companies to profit from.

Instances of seeing an ad for a coffee place on your Facebook newsfeed after a chat about the best coffee spots are all too common. These occurrences were monitored and our data was utilized. Privacy on the web became increasingly elusive, even when using features like Incognito mode.

However, these tech giants' control is not limited to data collection. They can control user access, banning or limiting accounts if they deem users to be avoiding their terms of use.
They can also curate what content users see, shaping the digital landscape according to their perspectives and interests.

While Web 2.0 propelled the development of the web to new heights, it also led to an unprecedented consolidation of control. This centralization has left a handful of entities with the power to make far-reaching decisions on behalf of the users, raising questions about privacy, data security, and freedom on the internet.

What is Web3? Read-Write-Own

Web3, also known as Web3.0, represents the next generation of the internet. This concept integrates the principles of decentralization, blockchain technology, and token-based economics into the World Wide Web.

In contrast to Web 2.0, where data and content are mostly centralized in a handful of large technology companies (also known as "Big Tech"), Web3 aims to distribute control across the network. The term "Web3" was initially

coined by **Ethereum co-founder Gavin Wood** and has gained significant attention from cryptocurrency enthusiasts, technology companies, and venture capital firms since 2021.

Web3 envisions an internet where users have a financial stake and more control over their web communities. It includes applications in cryptocurrencies, non-fungible tokens (NFTs), decentralized autonomous organizations (DAOs), and decentralized finance (DeFi).

However, it is important to note that while Web3 offers potential solutions to privacy, centralization, and financial exclusion concerns, it also presents new challenges and risks.
These include questions about data security, scalability, the potential for fraud, and the environmental impact of blockchain technologies. Critics also debate its potential to influence the power dynamics of the internet, both positively and negatively.

Overall, Web3 is anticipated to transform the online experience as dramatically as personal computers and smartphones did, marking a significant shift in how we interact with digital platforms.

Web3 Features

Web3 elevates the user experience to unprecedented levels of control and ownership. It marks an evolution towards a more democratic digital space where users consume and contribute content and exercise absolute ownership over their online assets and data.

So, let's dive deeper into the intricate workings of Web 3.0 and explore its groundbreaking features and unique capabilities. We aim to provide you with an understanding of how Web 3.0 is redefining the Internet's landscape and carving a path for a more egalitarian, user-centric digital future.

Users Become Decision Makers

Web3 empowers you to become more than a consumer or contributor; it allows you to be a decision-maker, controlling how you interact with the web. Instead of corporations dictating the use of your data, you decide its fate. If you opt to have your data sold to advertisers, fair compensation will be your right, not a courtesy.
You can also choose to experience an ad-free web, keeping your data exclusive to you.

An existing example is the **Brave Browser,** which rewards users with its native crypto token BAT for opting to view ads.

Unleashing the Power of Permissionless

Web3 eliminates gatekeeping, embodying a permissionless environment. This means you can access any decentralized application on the internet using just your wallet, which requires nothing more than a functional email address to set up.

Decentralizing Authority

Web3 promotes a web ecosystem where no central authority can unjustly revoke your access. Furthermore, it empowers you to take part in the government of your platforms. Community members can contribute to decision-making processes by utilizing decentralized autonomous organizations (DAOs) and protocol-specific governance tokens, creating a democratic environment where decisions are made collectively.

Leveraging Web3 Tools

In Web 3.0, tools like NFTs, blockchains, and cryptocurrencies have become instrumental in restoring control of your web experience by eliminating middlemen. For instance, NFTs allow you to retain greater control of your digital assets, such as artwork, music, and tickets.

Eliminating a Central Point of Failure

Another distinctive feature of Web3 is its robustness, achieved by eradicating a central point of failure. In contrast to Web2 systems, where a single server's failure can disable an entire platform, Web 3's decentralized architecture ensures continued operation even if a node goes down. Your data is distributed across multiple nodes, protecting the system against outrages and security breaches.

Whenever you go on **YouTube** to watch a video, you send a data request to a central server on YouTube, which stores all videos. Once the central server receives your request, it will find that video from its storage and play it for you on its website. If this central server goes down, you will not be able to access YouTube, and if it gets hacked, all the data stored on the server will get into malicious hands.

This happened in October 2021 when **Facebook's** central server went down and was unavailable for 6 hours,

and the world came to a standstill. With a central source, there is a greater chance of network outage or failure.

With decentralization in Web3, data is distributed across several servers (or nodes), and there is no single point of failure. If one node is hacked or goes down, the system keeps functioning.

Embracing Continuous Improvement

Web3 strives for evolution and improvement. The code underpinning applications is open-source, allowing anyone to view it. Developers and tech enthusiasts can take this code, twerk it, and build improved versions, fostering a dynamic environment of continuous enhancement.

Interoperability

is another key feature to consider. This refers to the ability of different systems and applications to work together, exchanging and using information. Web 3.0 promotes seamless interaction between different platforms and applications, creating a more connected and efficient Internet ecosystem.

Privacy and Security

Web3 places a heightened emphasis on privacy and security. Using cryptographic techniques and decentralized storage, Web 3.0 gives users enhanced control over their personal data and protects against unauthorized access and data breaches.

The Core Elements of Web3: Blockchains, Cryptocurrency, Smart Contracts, and Oracles.

Powering the Web3 model is a growing stack of decentralized technologies, such as blockchains, smart contracts, oracles, crypto wallets., storage networks, and more. Below, we walk through some of the critical layers and components of the Web3 technology stack.

Blockchains

A blockchain is a highly secure and decentralized network that allows people to store data, exchange value, and record transaction activity in a shared ledger that is not controlled by any central authority.

Blockchain networks serve as the backbone of Web3, providing secure execution environments that allow for the creation, distribution, and trading of cryptocurrencies, as well as the development of programmable smart contracts. Blockchains are the settlement layer of Web3.

Cryptocurrency

Cryptocurrencies are digital tokens that leverage the decentralized and tamper-proof environments of blockchain networks to facilitate highly secure transactions. They are the native currencies of Web3 decentralized applications (dApps) and can also be used to pay for Web3 services and participate in Web3 governance.

Before blockchain technology, tokens were units of value that could be purchased and exchanged to pay for specific products and/or services, such as tokens for highway tolls or amusement park rides and games.
In these earlier applications, tokens were useful to service providers because they allowed customers to pay upfront for services that they would consume in the future and because they facilitated transactions where exact change was required.

Tokens in Web3 applications are also units of value issued to Web3 content creators, but these units of value are digital, programmable, and have functions beyond the exchange. In Web3, a token might be held as an investment in a protocol, project, or blockchain. It might have utility for that project or protocol— for paying for a service or insuring a service, for example. It might also provide a gateway to participation in the governance of the protocol or project.

Oracles

Web3 Oracles are an essential component of the Web3 stack, which refers to the third generation of the internet. They serve as a bridge between the decentralized blockchain ecosystem and external data or services.

In the context of blockchain and cryptocurrency applications, Oracles is responsible for providing external data and information to smart contracts.
Smart contracts on platforms like Ethereum are self-executing programs that need reliable real-world data to determine when and how to execute certain conditions. These conditions can be triggered by external events, such as the price of a particular cryptocurrency or the outcome of a sports event.

Web3 Oracles act as intermediaries that fetch relevant data from disparate sources, such as APIs, off-chain databases, or external systems. They verify and validate this data before feeding it to the smart contracts. This ensures that the contracts have access to accurate, reliable, and up-to-date information.

These Oracles play a crucial role in enabling decentralized finance(Defi) applications, decentralized prediction markets, supply chain management, insurance contracts, and many other use cases that require real-world data integration into on-chain systems. By providing trust and transparency, they help to eliminate the need for centralized intermediaries or third-party data providers.

Web3 Oracles also offers additional services. Such as data aggregation, filtering, and computation. They can aggregate multiple data sources to provide an average or median value, filter out outliers, or perform complex calculations based on the collected data.

To maintain the integrity and security of the data they provide, Web3 Oracles employs various techniques, including cryptographic proofs, reputation systems, decentralized consensus mechanisms, and multiple oracles fetching and verifying the same data.

Smart Contracts

Web3 is the term used to describe the next generation of the internet, which is decentralized and built on blockchain technology. Smart contracts are self-executing contracts with the terms of the agreement directly written into code.
They are built on blockchain technology, most commonly on platforms like Ethereum, Smart contracts automatically execute when predefined conditions are met, removing the need for intermediaries and providing a decentralized and transparent approach to conducting transactions.

The contracts are programmable and can handle the transfer of assets, manage digital identities, and automate the execution of predefined actions, The code within a smart contract is immutable, meaning it cannot be altered once deployed, ensuring transparency and trust in the transaction process.

Smart contracts offer a range of benefits, including increased security, transparency, and efficiency. They eliminate the need for intermediaries or third parties and enable direct peer-to-peer interaction. They also enable the creation of decentralized applications (dApps). Which can provide various services and functionalities.

Smart contracts are used in various industries and applications, such as decentralized finance (DeFi), supply chain management, voting systems, real estate, insurance, and more. They enable efficiency, security, and cost savings by eliminating the need for intermediaries, reducing paperwork, and minimizing the risk of fraud or manipulation.

Web 3.0 and Decentralized Applications.

In the 21st century, we can't imagine our world without the internet. Whether we need information like the weather forecast or funny videos with cats, the answer is the same open the web.
According to Statista, In the first quarter of 2023, There are over 600,000 new internet users each day, on average, and every second, an estimated 127 new devices around the world connect to the internet.

When an enormous structure like the internet transforms, no doubt it will stir up our lives as well. We experienced drastic changes in our everyday routine during previous Web transitions. The experts say the next stage should start in the near future, so, if you want to be its pioneer, you better get ready today.

So how can you be ahead of the game and what to expect, in this next slide we will dwell on how Web3 applications can change our lives forever.

NFT, Non-Fungible Tokens, and blockchain

are starting to hit stride.
Serving as the Web 3.0 technology example, they may become a basis for the future internet and economy.

Cryptocurrency will likely replace regular money and eventually, this will lead to radical changes in the banking system.
The banks as we know them may disappear. Private organizations will take their place and become independent from the government and its policies.

If you create content like art, texts, videos, or any other, you can find new ways to earn money with Web 3.0. It allows you to transform your content into tokens and get additional monetization via the NFT marketplaces. These creations will be absolutely unique and have a special mark protecting the copyrights. Your customers or viewers interacting with your art will be able to earn rewards in return.

The most expensive NFT art ever sold is Pak's' The Merge'. ($91.8M). Merge, a digital

artwork by Pak sold on the NFT platform Nifty Gateway in December 2021.

Lots of companies add NFTs and blockchain to their mobile apps. This is not only financial apps but games and art galleries as well. They are extremely popular: Axie Infinity has around 2.7 million daily active users. That's why **Mobile app development** based on Web 3.0 technology might be a very profitable project.

Metaverses may sound like a cliche from a sci-fi movie, but in reality, they are already here. It's a so-called 3D Internet where digital algorithms are represented as physical objects in our world. Using a VR headset, a person can enter a digital universe and take different actions: chat with friends, buy or sell something via blockchain companies, visit other people's universes, etc.

Mark Zuckerberg, the co-founder of Facebook, was the first to launch a metaverse. In the summer of 2021, he started to transfer the popular social network into a 3D digital world, other companies like Epic Games and Microsoft have also started developing metaverses.

Metaverses are not just entertainment: they can be used as innovative e-learning platforms. An interactive

environment is a perfect way to study languages, arts, sports, etc. That's why, if you have an idea of creating an e-learning project, you can already consider adding a 3D environment to it and get ahead of your competitors.

Next-gen dApps

Decentralized applications use blockchain technology and are not owned and controlled by any centralized entity. Web3 supports development that is advanced both in terms of features and usability. Web3 dApps can range from gaming, DeFi, NFT, and metaverse. dApps designed for web3 projects are truly decentralized and interoperable.
However, dApps for the blockchain ecosystem do not necessarily need to be interoperable unless the project demands so.

Decentralized finance

As one of the use cases of Web3, DeFi leverages Web3 attributes to improve its existing infrastructure and associated capabilities.
Enterprises can combine DeFi technology with the open and powerful Web3 ecosystem to build futuristic DeFi solutions and applications and put them to use.

Web3 brings many benefits to DeFi, including access to an open-source ecosystem, lower transaction fees, efficient transaction processing, and more transparent and automated governance.

Advanced Gaming

Web3 games represent the advanced version of blockchain-based games like play-to-earn, NFT, and play-to-own games. These Web3 games use technologies such as blockchain, NFTs, and underlying gaming infrastructure, contributing to the development of next-generation games that allow players to own, trade, and create in-game assets to generate income from the game. Axie Infinity and Decentraland are the perfect examples of web3 games that have sparked high adoption across the player community. With changes in the web3 ecosystem, web3 games will also undergo considerable changes in the future.

Privacy & Data Management

Blockchain is arguably the most prominent technology with the vision to decentralize the future. However, “complete transparency” sometimes causes concern among users related to privacy. Web3 enables blockchain

infrastructure to implement innovative concepts like cryptography and zero-knowledge proof to exercise complete secrecy for enhanced privacy in decentralized digital infrastructures.

Social media

Web3 empowers a new era of social media networks that emphasize the creator-driven economy with a core interest in providing content ownership to the users instead of any centralized entity. Web3 social media applications will introduce the next iteration of today's social media apps like Facebook, Instagram, and Snapchat, requiring users to submit their data to an authorized entity. As a significant change, web3 apps enable anonymous access to the users via wallet address and private key.

Virtual Real-Estate

The real estate industry has already transformed considerably with the advent of NFTs, blockchain, and metaverse. Now with Web3 providing a more robust and wide ecosystem for real estate, a range of "modern" Web3 real-estate projects have been developed that use NFTs, virtual reality, and 3D technology to verify ownership and transfer NFT-based real estate properties. Moreover, the

transaction is recorded in the immutable and transparent ledger in the blockchain.

Remote workplaces

Since Web3 supports the development of high-end metaverse projects, companies are using Web3 technologies to build 3D realistic workplaces, allowing employees' avatars to work inside virtual workplaces, interact with their colleagues, and engage in fun activities just like real workplaces.

Advanced NFT use cases

NFTs are an essential tool used in the blockchain. NFTs have plenty of use cases on the web3 ecosystem, like incentivizing the audience, granting people digital ownership, and recording immutable data on the blockchain. However, businesses have started raising money by tokenizing their companies, offering exclusive ownership on the blockchain, or starting a DAO community (a decentralized autonomous organization or an online community owned by its members).

REAL-WORLD APPLICATIONS

Blockchain applications-Polkadot

Polkadot is a decentralized web3 blockchain project designed to achieve the multichain vision for the decentralized web. With features like true interoperability, parachins, parathreads, high energy efficiency, and user-driven governance.
Polkadot stands apart from the rest of the third-generation advanced blockchains. Polkadot's ecosystem facilitates the development of innovative dApps and solutions that can seamlessly support diverse web3 projects.

Gaming application- Axie Infinity

Axie Infinity is a new-age web3 gaming platform that implements a play-to-earn model, allowing the players to play, earn, and trade NFTs-based game assets like weapons, skin, vehicles, etc., and collectibles. To access the Axie Infinity platform, users must complete a multi-step process, which includes setting up an Axie Infinity account and connecting the wallet.

DeFi application- Uniswap

Uniswap is a web3 DeFi exchange protocol that uses an open and decentralized network protocol to provide

ownership completely to the users instead of a single entity.
Developers, traders, and liquidity providers participate together in a financial marketplace that is open and accessible to all.

BENEFITS OF WEB3

Web3 implies a paradigm shift towards a more user-centric and decentralized digital environment in the context of the internet's future. It offers a number of important advantages by utilizing blockchain technology and encryption protocols. In order to develop a more democratic and transparent online environment, Web3 first encourages decentralization by minimizing reliance on centralized authorities and intermediaries.

The adoption of cryptographic algorithms, which ensure secure transactions and safeguard user data, also improves privacy and security. Additionally, Web3 gives individuals more control over their online interaction, data ownership, and digital identities.

Furthermore, it permits communication between several blockchain networks, facilitating the smooth transfer of assets and the exchange of data. Economically, Web3 enables direct participation and eliminates the need for

intermediaries by facilitating peer-to-peer transactions and programmable contracts.

Web3 also supports community guidance models that let users decide together and influence how protocols and platforms will develop in the future. These Benefits of Web3 have the potential to influence how the internet develops in the future by promoting a more open, safe, and user-focused online environment.

Decentralization

Web3 ensures a more democratic and robust digital ecosystem by embracing decentralization and reducing dependency on centralized authorities and intermediaries. Giving people more control over their online interactions, data ownership, and privacy, empowers them.
By removing single points of failure and making it more challenging for malevolent actors to manipulate or breach the system, decentralization also improves trust and security.
Decentralization networks also encourage accountability, transparency, and censorship resistance, enabling a more accessible and inclusive internet for people everywhere. As a basic tenet of Web3, decentralization propels the technology's transformative potential and molds the

internet's future in the direction of a more just and user-centric paradigm.

Trust and Security

Web3 uses decentralized consensus methods, blockchain technology, and cryptographic approaches to improve security and trust. Web3 facilitates transparent and tamper-resistant transactions by doing away with the need for middlemen, protecting the accuracy of data, and enhancing participant trust.

Data Ownership And Privacy

Web3 empowers people because it gives them more control over their data. Web3 enables users to retain control of their data and selectively share it with trusted partners through encrypted protocols and self-sovereign identification systems.
Giving people control over their personal data improves privacy, safeguards against unauthorized access, and reduces the risks of centralized data breaches.

Interoperability

Different blockchain networks and decentralized applications (dApps) can connect and communicate with one another without any problems because of interoperability. Web3 encourages interoperability by utilizing standardization protocols, smart contracts, and cross-chain bridges to enable the transfer of assets, data, and capabilities between various platforms.

This encourages a more integrated and interconnected environment, opening up fresh opportunities for cooperation, creativity, and the development of synergistic solutions. By facilitating seamless integration and interaction across different blockchain networks and their associated ecosystems, interoperability in Web3 eliminates silos, broadens the scope of dApps, and improves user experiences.

Economic Empowerment

By enabling peer-to-peer transactions and removing the need for conventional intermediaries, Web3 promotes economic empowerment. It enables people to participate directly in economic activity, lowering barriers and possibly boosting financial inclusion.

Programmable Economy

The introduction of smart contracts by Web3 makes it possible to create programmable, self-executing contracts. This programmability streamlines procedures, does away with the need for middlemen and makes it possible to develop creative decentralized applications and business models.

Community Governance

Web3 supports types of community governance that let users decide together and direct the creation of protocols and platforms. By guaranteeing that the interests of the community are represented, this democratic and open government framework promotes a sense of ownership and shared responsibility.

Conclusion

A more user-centric, secure, and decentralized internet is being ushered in by Web3. Trust, privacy, data ownership, interoperability, economic empowerment, programmability, and community governance are just a few advantages it provides.

Moreover, Web3 has the ability to transform many industries and give people more power, and it has great promise for reshaping the Internet's future in a way that is more inclusive, transparent, and decentralized.