



An Introduction to Boli

White Paper . Boli Association . 31 October 2023

Boli's mission is to design responsible digital interactions through a unified decentralized ecosystem.

This document outlines plans for a new decentralized ecosystem, digital asset management, and smart contract platform that together aim to create a new responsible digital infrastructure.

Problem Statement

Climate change is increasingly affecting coastal cities, island nations, and other vulnerable communities around the world. The steady rise in sea levels, driven by the melting polar ice caps, is becoming a significant concern for Small Island Developing States, which face the possibility of submersion in the coming decades.(1) In regions such as Bangladesh, routine flooding has become a norm, displacing numerous individuals annually, while cities like Miami implement measures to manage increased seawater intrusion. (2) Beyond just an environmental concern, this situation underscores the broader implications on the socio-cultural and economic stability of the affected populations.

Moreover, communities that are geographically displaced due to these changes face unique challenges. A notable observation is that while they navigate the direct impacts of climate events, they often don't have the same access to opportunities as more geographically stable regions. For example, Pacific Islanders are not only contending with changing coastlines but also with narrowing job markets and constrained access to vital resources. (3) It paints a picture of contrast, where certain areas benefit from their geographical positions, while others must adapt to the constraints of their locations.

In today's evolving economic landscape, certain aspects of the global financial system can pose challenges. Many emerging economies, filled with potential and fresh ideas, sometimes encounter roadblocks in the form of cross-border transaction limitations. For instance, a farmer in Kenya might face higher costs when selling his produce to an international buyer due to wire transfer fees. (4) The modern era, characterized by digital advancements, should ideally bring everyone closer. However, certain financial regulations and the state of banking infrastructure can be limiting. Research suggests that reducing remittance costs by just 5% could provide an additional \$16 billion annually for emerging economies. (5) Ideally, borders shouldn't restrict economic opportunities, but the current financial system can sometimes limit potential.

Opportunity

Trust in Decentralization: As the world shifts, we believe that decentralized systems will garner increasing trust.

Empowerment through Ownership: Every individual deserves the unequivocal right to the outputs of their legitimate endeavors.

Inclusive Financial Access: We ardently hold that everyone, irrespective of geographical boundaries or economic standings, should have unhindered access to financial services and affordable capital.

Fluidity in Global Transactions: We envision a world where money flows freely, unencumbered by borders, enabling seamless commerce and opening the doors to boundless economic possibilities.

A Mandate for Ethical and Inclusive Progress: Our responsibility extends beyond mere infrastructure creation. We are dedicated to advancing financial inclusivity, endorsing and collaborating with ethical stakeholders, and perpetually ensuring the ecosystem's sanctity.

Introducing Boli

In the era of digitization, the paramount importance of a steadfast decentralized digital infrastructure cannot be overstated. While the concept of cryptocurrencies has its merits, the true potential of a modernized global economy lies in a reliable and expansive digital infrastructure.

Boli is designed to be a bridge that seamlessly connects our everyday real-world environments with the vast possibilities of the digital realm. We recognize the pressing challenges we face today: from the urgent threats of climate change to communities being disconnected from each other and the hurdles in global transactions. Rather than merely spotlighting these issues, Boli is designed to actively craft solutions. Using its unique digital infrastructure, Boli offers innovative ways to address, adapt, and alleviate these global concerns, ensuring a more streamlined, connected, and hopeful future for all.

Digital Assets: With Boli, visualizing ecosystems in the digital domain undergoes a revolutionary transformation. Our pioneering approach to containerized assets lets you digitize any physical entity, be it vast forests, vibrant cities, or intricate coral reefs, as distinct digital "containers". However, these are not mere static digital snapshots. They are teeming with life and activity, capable of hosting nested assets like varied plant species, dynamic urban life, or historic cultural monuments. This enables precise management, conservation, and even digitized regeneration of environments, bridging the gap between the tangible and the intangible.

Digital Ownership: In our progressively digital age, understanding ownership can become perplexing. Boli simplifies this with advanced digital contracts, offering clarity, transparency, and simplicity. These digital contracts seamlessly translate complex ownership structures into lucid, user-friendly, and transparent digital paradigms.

Bespoke Ecosystems: Every community, institution, government, or organization boasts its unique identity, shaped by cultural evolution, governance models, and administrative practices developed over generations. Boli respects these nuances. It provides tools for these entities to craft their custom digital ecosystems. These are not mere shallow digital clones; they mirror the real-world complexities and intricacies. What's even more striking is these individualized ecosystems can interconnect, weaving together a grand tapestry of globally linked digital ecosystems, unified in purpose and vision.

Research and Development

The vision for Boli did not come together overnight. Instead, it is the culmination of three years of intensive research, real-world testing, and collaborative development. What sets Boli apart from the multitude of blockchain endeavors is its deep-rooted commitment to forging partnerships with entities beyond the typical tech-centric sphere.

This comprehensive approach has involved collaboration with:

Communities: Boli places communities at the heart of its mission. Working closely with governments and particularly with the local governments in the Maldives, Boli ensures that the needs and aspirations of local populations are recognized and addressed.

Smart City Projects: Digital transformation is at the cusp of revolutionizing urban spaces. In partnership with government-owned enterprises like Urbanco in the Maldives and giants like Mastercard, Boli contributed to research to the evolution of smart city initiatives that aim to make urban living more efficient, sustainable, and connected.

Environment and Sustainability: Recognizing the urgent need for environmental conservation, Boli has engaged and invested in significant projects with nonprofits like The Eco Org and intergovernmental organizations like UNICEF. These collaborations solidify Boli's commitment to ensuring its infrastructure aligns with global sustainability goals.

Academic Research: The academic community provides invaluable insights into theoretical and practical aspects of blockchain technology. Collaborative projects with esteemed institutions such as the University of the Arts London: Central Saint Martins and teams from ETH Zurich enriched Boli's approach, integrating academic rigor and innovation.

Events and Discussions: Knowledge-sharing is vital in the rapidly evolving world of decentralized infrastructure. By actively participating in and hosting events like Parallel 2023, which brought together senior government officials from the Maldives, with stakeholders from around the world, and events in partnership with global brands like Ooredoo, Boli fosters a culture of open dialogue, innovation, and mutual growth.

In essence, Boli isn't just a product of technological advancement but a manifestation of global collaborative effort.

Boli Technology

Core Architecture: Boli is engineered to function as a subnet within the Avalanche ecosystem. By anchoring to Avalanche's robust infrastructure, Boli gains access to unmatched scalability, impenetrable security, and superior flexibility. Leveraging Avalanche's innovative approach, Boli is designed to be a system that offers not just decentralization, but unparalleled customization down to granular levels.

Containerized Digital Assets: In the ever-evolving digital landscape, Boli ushers in a groundbreaking paradigm shift with its concept of containerized assets. Using advancements like the ERC 1155 standards in novel ways, Boli facilitates the digital encapsulation of tangible entities—from vast wilderness expanses to urban jungles or pristine marine ecosystems—within distinct digital "containers". The result? A conduit to manage, safeguard, and digitally reconstruct environments, forging a bridge between the tangible and the virtual.

Structured Digital Contracts: Bol is designed to implement advanced digital contracts that encapsulate intricate ownership facets with utmost clarity. By leveraging the power of smart contracts, Boli can address modern needs such as fractional ownership, crowdfunding, and more. These contracts distill complex legal frameworks into lucid, transparent, and user-friendly digital constructs. Augmented by Boli's intrinsic architecture, automated revenue streams come to life, ensuring frictionless transactions and unwavering economic proliferation.

Custom Blockchains: Boli taps into Avalanche's advanced support for VMs, allowing entities that use Boli ecosystem to craft their distinct digital landscapes. These are not mere digital doppelgangers but intricate reflections of real-world dynamics. The genius lies in the ability of these individually crafted blockchains to interlink, resulting in a global consortium of interconnected digital realms, all synchronized in purpose and vision.

In a nutshell, Boli Blockchain is designed to be a digital canvas. It offers a space where the lines between the physical and digital blur, where entities can recreate their worlds, ideologies, and visions, and where every digital transaction or ownership is as real and palpable as its physical counterpart. As the Boli ecosystem continues to evolve, it promises a confluence of technology, culture, environment, and governance like never before.

Boli Security & Privacy

In the digital realm, where security is paramount, Boli's integration with the Altmis encryption system stands as a beacon of innovation, mainly because of its exceptional encryption and key management features.

Advanced End-to-End Encryption: At the heart of Boli's security lies a complex encryption mechanism powered by Altmis. This ensures every piece of data, every transaction, and every digital asset is wrapped in a robust layer of cryptographic protection, offering unparalleled defense against breaches.

Hierarchical Access Management: Leveraging the Altmis system, Boli reimagines key management by introducing a sophisticated hierarchical access model. Through this approach, Boli uses varying tiers of keys for digital assets, allowing owners to set graded levels of access. Each key corresponds to a different level of privileges, ensuring that while a primary user retains full control over an asset, they can also delegate specific access rights to others.

In sum, by leveraging the prowess of Altmis's complex encryption and sophisticated key management, Boli offers a fortified, user-centric security infrastructure, distinctly positioning it at the forefront of the blockchain universe.

Boli Tokenomics

Navigating the intricate pathways of the decentralized world, Boli introduces a novel approach to tokenomics, driven by a dual token system. As digital economies emerge and evolve, Boli's strategic vision is to craft a robust mechanism that amalgamates both governance and utility, ensuring not just the security and fluidity of transactions but also the democratization of decision-making.

Boli Security Token (BST):

Investment Vehicle: BST serves as a potent medium for investments.

Governance and Proposals: Holders of BST can table proposals and partake in critical decision-making processes.

Yielding Dividends: As Boli's ecosystem flourishes, BST holders are eligible for dividends.

Validation Power: BST plays a cardinal role in maintaining the integrity of the system. It gives holders the right to validate transactions, keeping the ecosystem transparent and trustworthy.

Boli Utility Token (BUT):

Gas Fees: The vitality of any blockchain ecosystem lies in its seamless transactions. BUT is used to pay for gas fees, ensuring the cogs of the Boli ecosystem keep turning smoothly.

Gateway to Other Utilities: Holding BUT unlocks a myriad of utilities within the Boli ecosystem. It's the key to harnessing the full potential of Boli's services.

Interoperability with Subnets: BUT acts as a bridge, enabling users to interact and transact with other blockchains operating under the Boli subnet.

The beauty of the Boli ecosystem lies in its expansiveness. Blockchains within the Boli ecosystem aren't just passive participants; they are empowered entities. They possess the autonomy to issue their native tokens, further enriching the tokenomic landscape. This fosters a vibrant and diverse digital economy where every blockchain can tailor its financial model while being part of a larger, unified system.

Moreover, these individual blockchains can also issue custom tokens, catering to specific use-cases or projects, thus allowing for more targeted investments and utilities within their unique ecosystems.

What's Next?

Today, we are unveiling this document that elucidates our vision for Boli and introducing boli.org as the central hub for the association and everything related to Boli. This space will undergo continual updates in the subsequent months. Moreover, we are making the code for the Boli Blockchain publicly accessible and rolling out Boli's preliminary testnet for developers to explore, innovate, and expand upon.

There remains a significant amount of work ahead of the launch in Q1 of 2024.

Boli Technology: In the forthcoming months, the association will collaborate with the community to solicit feedback on the Boli Blockchain prototype, refining it to a state ready for production. Specifically, efforts will be channeled towards fortifying the security, enhancing performance, and ensuring scalability of both the protocol and its execution.

The Boli Association will develop comprehensive APIs and libraries to facilitate user interactions with the Boli Blockchain.

The Boli Association will establish a blueprint for the joint evolution of the technology underpinning the Boli ecosystem, leveraging the principles of open-source development. Mechanisms will be instituted for dialogues and assessments pertaining to alterations in the protocol and the software that sustains the blockchain.

The Boli Association: Our goal is to expand the Boli Association to an inclusive body representing a diverse group of experts and thinkers. These members will also serve as the initial validator nodes of the Boli Blockchain.

The association will design and implement a robust charter alongside a set of bylaws grounded in the proposed governance structure.

We aim to identify partners who resonate with our collective mission and collaborate with them to launch an Advisory Board and a corresponding program.

Conclusion

The Boli technology, as outlined in this whitepaper, embodies a transformative step in the world of blockchain and decentralized systems. By introducing a novel approach to containerized digital assets, structured digital ownership, and bespoke ecosystems, Boli paves the way for a new generation of blockchain applications that seamlessly merge the virtual and real worlds.

As part of the Avalanche ecosystem, Boli takes full advantage of the robustness and flexibility inherent in its design, allowing for unparalleled scalability and performance. Through its dual token system, it offers a balance between governance, utility, and economic efficiency, ensuring that both individual users and organizations can engage with its technology in a meaningful and productive manner.

Furthermore, the capability for subnets to foster individual blockchains and token systems represents a significant leap forward in ensuring diverse and tailored solutions for varied needs. This not only empowers entities to mirror their real-world nuances in the digital realm but also provides them with tools to architect their future in an increasingly digital global landscape.

As we move forward, our commitment remains unwavering: to refine, expand, and adapt the Boli technology to meet the ever-evolving demands of its community. We believe in the potential of Boli to reshape the landscape of blockchain applications and look forward to witnessing the innovations it will undoubtedly inspire.

References

1. Sea level rise and the Maldives:

Intergovernmental Panel on Climate Change (IPCC), Sixth Assessment Report, Working Group I: The Physical Science Basis, Chapter 9: Ocean, Cryosphere and Sea Level Change (2021)

United Nations Environment Programme (UNEP), Frontiers 2022: Emerging Issues of Environmental Concern (2022)

Maldives Climate Change Observatory, Climate Change in the Maldives (2022)

2. Flooding in Bangladesh and Miami:

World Bank, Climate Risk and Adaptation Country Profile: Bangladesh (2021)

United States Geological Survey (USGS), Sea Level Change and Coastal Flooding in Miami (2022)

City of Miami, Sea Level Rise Adaptation Strategies (2022)

3. Socio-cultural and economic impacts of climate change on coastal communities:

International Organization for Migration (IOM), Migration, Environment and Climate Change: Evidence for Policy (2019)

United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), Asia-Pacific Disaster Report 2020: Climate Risk and Displaced Populations (2020)

Pacific Community (SPC), State of the Pacific Climate 2021: People, Communities and Climate Change (2021)

4. Cross-border transaction limitations in emerging economies:

World Bank, Financial Inclusion Global Report 2022 (2022)

International Monetary Fund (IMF), Global Financial Stability Report 2022 (2022)

World Economic Forum, Global Competitiveness Report 2021-2022 (2021)

5. Reducing remittance costs to boost emerging economies:

World Bank, Remittances and Development 2022: Financing Recovery and Resilience (2022)

International Labour Organization (ILO), Labour Migration and the Remittance Economy in Asia and the Pacific (2022)

World Economic Forum, Global Remittance Prices: A Comparative Analysis (2021)