



# Pangea & LEOS

## MICA Notified Whitepaper

*By the Tonomy Foundation*  
v2.3





This whitepaper follows the European Union's [template for the crypto-asset white papers](#) in reference to the [Markets in Crypto-assets Regulations](#).

No	FIELD	CONTENT
0	Table of contents	<b>SUMMARY</b> <b>4</b> <b>Part A - Information about the offeror or the person seeking admission to trading</b> <b>12</b> <b>Part B - Information about the issuer, if different from the offeror or person seeking admission to trading</b> <b>18</b> <b>Part C- Information about the operator of the trading platform</b> <b>19</b> <b>Part D- Information about the crypto-asset project</b> <b>20</b> <b>Part E - Information about the offer to the public of crypto-assets or their admission to trading</b> <b>38</b> <b>Part F - Information about the crypto-assets</b> <b>56</b> A description of the characteristics of the crypto-asset 60 <b>Part G - Information on the rights and obligations attached to the crypto-assets</b> <b>63</b> <b>Part H – information on the underlying technology</b> <b>75</b> <b>Part I – Information on risks</b> <b>89</b> <b>Part J – Information on the sustainability indicators</b> <b>94</b>
1	Date of notification	2025-03-14
2	Statement in accordance with Article 6(3) of Regulation (EU) 2023/1114	This crypto-asset white paper has not been approved by any competent authority in any Member State of the European Union. The offeror of the crypto-asset is solely responsible for the content of this crypto-asset white paper.
3	Compliance statement in accordance with Article 6(6) of Regulation (EU) 2023/1114	This crypto-asset white paper complies with Title II of Regulation (EU) 2023/1114 of the European Parliament and of the Council and, to the best of the knowledge of the management body, the information presented in the crypto-asset white paper is fair, clear and not misleading and the crypto-asset white paper makes no omission likely to affect its import.



4	Statement in accordance with Article 6(5), points (a), (b), (c), of Regulation (EU) 2023/1114	The crypto-asset referred to in this crypto-asset white paper may lose its value in part or in full, may not always be transferable and may not be liquid.
5	Statement in accordance with Article 6(5), point (d), of Regulation (EU) 2023/1114	The utility token referred to in this white paper may not be exchangeable against the good or service promised in this white paper, especially in the case of a failure or discontinuation of the crypto-asset project.
6	Statement in accordance with Article 6(5), points (e) and (f), of Regulation (EU) 2023/1114	The crypto-asset referred to in this white paper is not covered by the investor compensation schemes under Directive 97/9/EC of the European Parliament and of the Council or the deposit guarantee schemes under Directive 2014/49/EU of the European Parliament and of the Council.



## SUMMARY

7	<p>Warning in accordance with Article 6(7), second subparagraph, of Regulation (EU) 2023/1114</p>	<p>Warning</p> <p>This summary should be read as an introduction to the crypto-asset white paper.</p> <p>The prospective holder should base any decision to purchase this crypto-asset on the content of the crypto-asset white paper as a whole and not on the summary alone.</p> <p>The offer to the public of this crypto-asset does not constitute an offer or solicitation to purchase financial instruments and any such offer or solicitation can be made only by means of a prospectus or other offer documents pursuant to the applicable national law.</p> <p>This crypto-asset white paper does not constitute a prospectus as referred to in Regulation (EU) 2017/1129 of the European Parliament and of the Council or any other offer document pursuant to Union or national law.</p>
---	---	---



## Characteristics of the crypto-asset

LEOS (L) is the native crypto-asset of the Pangea Virtual Nation ecosystem. It functions as both a utility token and a medium of exchange within the platform's digital economy. LEOS is essential for accessing services, participating in governance, and facilitating payments within Pangea's digital infrastructure.

### Key Characteristics:

- **Medium of Exchange:** LEOS is required for transactions across the Pangea platform, including payments for identity verification, legal entity creation (e.g., DAOs), other platform services, and goods and services from other Pangea users.
- **Access to Public Services:** LEOS grants access to core Pangea features such as the Pangea ID for digital identity, DAO formation and management, and application development resources. These services are structured under a Software-as-a-Service (SaaS) and Pay-as-you-go model, where fees are set in USD equivalents but paid exclusively in LEOS.
- **Incentivisation Mechanism:** LEOS is used to reward operators of the platform's infrastructure services (e.g., blockchain nodes, identity verification servers). Holders can also stake LEOS and share in staking rewards, while also accepting potential losses in case of service malfeasance.

### Rights and Obligations of the Purchaser:

Purchasers of LEOS are entitled to the following rights:

- **Service Access:** The primary right associated with LEOS is the ability to exchange it for services within the Pangea ecosystem, including identity verification, DAO seats, and other platform functionalities.
- **Staking Participation:** Purchasers may voluntarily stake their LEOS to support service providers, earning staking rewards proportionate to their stake. Stakers also share the risk of penalties in the event of a provider's non-performance.
- **Transferability:** LEOS is transferable and may be exchanged on secondary markets, subject to applicable regulations. Transfers must comply with the legal requirements of the purchaser's jurisdiction.
- **Vesting:** LEOS obtained during initial distribution phases may be subject to vesting schedules, with tokens gradually released over time.

Purchasers are subject to the following obligations:



	<ul style="list-style-type: none"><li>• <b>Compliance:</b> Purchasers must comply with applicable legal and regulatory requirements, including tax obligations and any KYC/AML measures enforced by the Foundation.</li><li>• <b>Adherence to Platform Rules:</b> Participation in the Pangea ecosystem requires compliance with platform governance protocols, including the policies and constitution established by the community.</li></ul> <p><b>Modification of Rights and Obligations:</b></p> <p>Rights and obligations associated with LEOS purchasers may be modified under the following conditions:</p> <ul style="list-style-type: none"><li>• <b>Amendments to Platform Policies:</b> The Pangea governance system, operating under liquid democracy principles, may propose and approve amendments to the rules governing the use of LEOS, including changes to fees, staking conditions, or service rewards. These decisions will be recorded transparently on-chain.</li><li>• <b>Whitepaper Updates:</b> Any modifications to rights and obligations arising from legal, technical, or operational changes will be reflected in updates to this Whitepaper. Such updates will be notified to the Netherlands Authority for the Financial Markets (AFM) in accordance with MiCAR.</li></ul> <p><b>Summary:</b></p> <p>LEOS is a utility-focused crypto-asset designed to facilitate transactions, incentivize service provision, and enable global payments within the Pangea Virtual Nation. It grants Pangea users access to platform services and staking rewards, while also requiring adherence to community governance and regulatory compliance. Rights and obligations related to LEOS may evolve through transparent, democratic processes or regulatory requirements, ensuring the token remains adaptive to the needs of the ecosystem and its participants.</p>
9	<p>LEOS (L) is a utility token that grants holders access to various goods and services within the Pangea Virtual Nation, a digital governance ecosystem. The token is essential for engaging with the platform's core public and private services, each designed to operate with efficiency, transparency, and security.</p> <p><b>Services Accessible Through LEOS</b></p>



Holders of LEOS can exchange their tokens for a range of services across the Pangea ecosystem, which are structured to meet both individual and organizational needs. The services are modular and scalable, with pricing set in USD equivalents but paid exclusively in LEOS. Access to these services is available on an ongoing basis, provided users hold a sufficient amount of LEOS to meet the respective service fees.

**(i) Digital Identity and Verification (Pangea ID):**

- **Service Description:** A passwordless, privacy-preserving digital identity solution that allows citizens and organizations to prove their identity securely and seamlessly across Pangea and third-party applications.
- **Quality Assurance:** Built on zero-knowledge proof cryptography and compliant with decentralized identity standards (e.g., W3C), ensuring security, user privacy, and GDPR alignment.
- **Quantity Accessed per LEOS:** The Pangea ID is free to create and maintain for all users, with additional paid services such as enhanced verification and signature features available.

**(ii) Legal Entity Formation and Management (Pangea DAO):**

- **Service Description:** Creation and governance of decentralized autonomous organizations (DAOs), enabling the establishment of digital entities for business operations, community groups, and cooperatives.
- **Quality Assurance:** Secure and tamper-resistant, leveraging Pangea's on-chain governance tools and identity-verified membership processes.
- **Quantity Accessed per LEOS:** DAO creation, member seat reservations, and other management functions are available on a per-usage basis, with fees adjusted according to demand and operational costs.

**(iii) Platform and Application Development (Pangea Build):**

- **Service Description:** Infrastructure provisioning for developers to build and operate Web 4.0 applications, including blockchain storage, smart contract deployment, and secure messaging services.
- **Quality Assurance:** Robust serverless architecture with distributed node infrastructure to ensure uptime, performance, and resilience.
- **Quantity Accessed per LEOS:** Resources such as RAM, transaction capacity, and messaging quotas are allocated proportionally based on the number of LEOS exchanged.

**(iv) Governance Participation (Pangea Gov+):**

- **Service Description:** Governance tools enabling citizens to propose, vote, and deliberate on policies, monetary adjustments, and platform rules using liquid democracy.
- **Quality Assurance:** Decisions are transparent and verifiable on-chain, ensuring procedural fairness and reflecting the collective will of Pangea users.
- **Quantity Accessed per LEOS:** Access to governance is open to all Pangea users, with no direct token expenditure required for basic participation, though additional governance features may incur fees.

**(v) Peer-to-Peer and Merchant Payments (Pangea Bankless):**

- **Service Description:** Enabling individuals and businesses to use LEOS as a means of payment for goods and services within the Pangea ecosystem and potentially beyond.
- **Quality Assurance:** Secure, fast, and low-cost transactions facilitated by Pangea's blockchain infrastructure.
- **Quantity Accessed per LEOS:** There are no upper limits on transaction frequency or volume, subject to network capacity and gas fees.

**Restrictions on Transferability**

- **Secondary Market Trading:** LEOS is freely transferable and can be traded on secondary markets, subject to applicable regulatory requirements. However, the Foundation does not guarantee the availability of liquidity or specific exchange platforms.
- **Vesting Periods:** Tokens allocated during initial distribution rounds may be subject to vesting schedules, delaying their full transferability until the vesting conditions are met.
- **Compliance Requirements:** Transfers and usage may be restricted for holders who fail to complete identity verification (KYC) procedures or breach platform rules.
- **Jurisdictional Limitations:** Certain jurisdictions may impose restrictions on the purchase, holding, or transfer of LEOS, requiring holders to ensure compliance with their local laws.

**Summary**





		LEOS serves as the primary access mechanism to the Pangea platform’s identity, governance, DAO, and development services, with pricing designed to reflect the operational costs of maintaining these services. While LEOS is generally transferable, vesting schedules, KYC requirements, and jurisdictional restrictions may apply in specific cases. The Pangea ecosystem is designed to ensure that services funded by LEOS maintain high standards of security, performance, and user privacy.																																										
10	Key information about the offer to the public or admission to trading	<p>The offer to the public concerns LEOS (Ł), the native utility token of the Pangea Virtual Nation ecosystem. LEOS has a <b>capped total supply of 50 billion tokens</b>, with <b>no inflation and no burning mechanism</b>. This fixed supply ensures long-term stability and predictability in token distribution.</p> <p>The sale of LEOS is structured across multiple pre-Token Generation Event (TGE) phases:</p>																																										
		<table><tr><th>Round</th><th>Price</th><th>Allocation (LEOS)</th><th>Raise Target (USD)</th><th>Discount</th><th>Vesting</th></tr><tr><td>Seed</td><td>\$0.0001</td><td>7,000,000,000</td><td>\$700,000</td><td>83%</td><td>5% unlock at TGE, then linear unlocks from 6 to 18 months</td></tr><tr><td>Incubator</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Pre-Sale</td><td>\$0.0002</td><td>250,000,000</td><td>\$50,000</td><td>67%</td><td>7.5% unlock at TGE, then linear unlocks from 4 to 16 months</td></tr><tr><td>Private</td><td>\$0.0004</td><td>3,000,000,000</td><td>\$1,200,000</td><td>33%</td><td>7.5% unlock at TGE, then linear unlocks from 4 to 16 months</td></tr><tr><td>KOL</td><td>\$0.0006</td><td>333,333,333</td><td>\$200,000</td><td>0%</td><td>25% unlock at TGE, then linear unlocks from 1 to 4 months</td></tr><tr><td>Public</td><td>\$0.0006</td><td>333,333,333</td><td>\$200,000</td><td>0%</td><td>25% unlock at TGE, then linear unlocks from 1 to 4 months</td></tr></table>	Round	Price	Allocation (LEOS)	Raise Target (USD)	Discount	Vesting	Seed	\$0.0001	7,000,000,000	\$700,000	83%	5% unlock at TGE, then linear unlocks from 6 to 18 months	Incubator						Pre-Sale	\$0.0002	250,000,000	\$50,000	67%	7.5% unlock at TGE, then linear unlocks from 4 to 16 months	Private	\$0.0004	3,000,000,000	\$1,200,000	33%	7.5% unlock at TGE, then linear unlocks from 4 to 16 months	KOL	\$0.0006	333,333,333	\$200,000	0%	25% unlock at TGE, then linear unlocks from 1 to 4 months	Public	\$0.0006	333,333,333	\$200,000	0%	25% unlock at TGE, then linear unlocks from 1 to 4 months
		Round	Price	Allocation (LEOS)	Raise Target (USD)	Discount	Vesting																																					
		Seed	\$0.0001	7,000,000,000	\$700,000	83%	5% unlock at TGE, then linear unlocks from 6 to 18 months																																					
		Incubator																																										
		Pre-Sale	\$0.0002	250,000,000	\$50,000	67%	7.5% unlock at TGE, then linear unlocks from 4 to 16 months																																					
		Private	\$0.0004	3,000,000,000	\$1,200,000	33%	7.5% unlock at TGE, then linear unlocks from 4 to 16 months																																					
		KOL	\$0.0006	333,333,333	\$200,000	0%	25% unlock at TGE, then linear unlocks from 1 to 4 months																																					
		Public	\$0.0006	333,333,333	\$200,000	0%	25% unlock at TGE, then linear unlocks from 1 to 4 months																																					
<p>The structure of the LEOS sales rounds and timings are subject to market conditions and operational changes. Changes to the above sales and other tokenomics will be notified through primary communication platforms.</p>																																												



### Minimum Target Requirement

- **Seed Round Minimum:** The seed round had a **minimum raise target of \$200,000 USD**. If this amount had not been raised, funds would have been refunded to investors. This threshold was successfully met, and **approximately \$700,000 USD was raised**.
- **Other Rounds:** There are **no minimum raise requirements** for the incubator, pre-sale, private sale, KOL, or public sale.

**II rounds are offered through the Pangea sales website**, which is operated by **Tonomy Foundation** (the issuing foundation).

The sales website can be accessed at:

<https://pangea.web4.world>

Participation is **open to retail, professional, and institutional investors from 49 whitelisted countries**. The list of eligible countries is available on the website, and the sale is conducted in compliance with applicable KYC (Know Your Customer) and AML (Anti-Money Laundering) requirements. The Tonomy Foundation may add or remove countries from the whitelist.

In addition to the website:

- The **KOL and Public Sale phases** are expected to be **offered through additional third-party launchpads and exchanges**, subject to final agreements.
- These platforms are still **to be confirmed**, and the details will be **publicly notified to the community** via official channels and the website.

### Subscription Fees

- **Pangea Website:** There are **no subscription fees** for token purchases made directly through the Pangea sales website.
- **Launchpads & Exchanges:** Purchases made via third-party platforms (e.g., exchanges or launchpads) **may be subject to subscription or transaction fees**, depending on the platform's policies. Any such fees will be disclosed by the respective platform at the time of sale.

### Issuance of Crypto-Assets



- **Direct Offering by Tonomy Foundation:** All sales conducted through the Pangea website are **issued directly by Tonomy Foundation**, the issuer of LEOS.
- **Third-Party Platforms:** Discussions are **ongoing with multiple major centralized exchanges and launchpads** to support the **KOL and Public Sale phases**, and **to list LEOS post-TGE**.
  - **No formal agreements have been signed** as of the date of this document.
  - Confirmed partners and details will be announced via the Foundation's website and community channels.

### Admission to Trading

The issuer is currently in contact with several major exchanges and launchpads regarding the potential listing of LEOS following the Token Generation Event (TGE). No agreements have been finalized as of the date of this white paper.

Upon confirmation of any admission to trading, this white paper will be updated and the competent authority notified in accordance with Article 6 MiCA.

The timing, platforms, and specific trading arrangements will be announced to the public once agreements are finalized.

Further information and the latest updates on the sale are available at the Foundation's website:

<https://pangea.web4.world>

### Offer Disclaimer

The information in this Whitepaper should not be considered business, legal, or tax advice. It does not constitute a recommendation by Stichting Tonomy, its directors, representatives, or agents for any recipient to subscribe for or purchase LEOS tokens.

Prospective investors should rely solely on the information contained in this Whitepaper and any official supplements. The Foundation is not obligated to update this Whitepaper unless required by law. Therefore, investors should not assume that the information remains accurate beyond the date of publication.

No individual is authorized to provide additional information or make representations beyond what is contained in this Whitepaper. Any information or representations not included here should not be relied upon as authorized by the Foundation, its directors, underwriters, or representatives.



		<p>The distribution of this Whitepaper and participation in the LEOS offering may be restricted by law in certain jurisdictions, including those outside the Netherlands. Any person receiving this Whitepaper must inform themselves of such restrictions and comply accordingly.</p> <p>This Whitepaper does not constitute an offer or invitation to sell or purchase LEOS tokens in any jurisdiction where such an offer would be unlawful or where it would require the Foundation to meet public reporting obligations outside the Netherlands.</p> <p>Recipients of this Whitepaper must ensure they comply with all applicable laws and observe any relevant restrictions. For further information, see the Section Holder Restrictions (E.14) and Crypto-assets transfer restrictions (G.11)</p> <p>By receiving this Whitepaper, you acknowledge that you have relied solely on the information contained herein. No external statements or representations should be considered authorized unless explicitly included in this document.</p>
--	--	--

## Part A - Information about the offeror or the person seeking admission to trading

A.1	Name	Tonomy Foundation  <b>Note: Stichting Tonomy is also referred to as the “issuer”, “Tonomy Foundation” or just the “Foundation” in the rest of this document.</b>
A.2	Legal form	V44D
A.3	Registered address	Nadia Ecurystraat 31D, Amsterdam 1087 VV, Netherlands
A.4	Head office	Same as the Registered Address
A.5	Registration date	2022-05-31
A.6	Legal entity identifier	724500NEH6AVYV4INR79



A.7	Another identifier required pursuant to applicable national law	Chamber of Commerce (KVK) number: 86537288 <a href="https://www.kvk.nl/bestellen/#/86537288/">https://www.kvk.nl/bestellen/#/86537288/</a>
A.8	Contact telephone number	+31 6 2216 5433
A.9	E-mail address	contact @ tomony.foundation
A.10	Response time (Days)	<p>Tonomy Foundation commits to responding to inquiries from prospective token purchasers, holders, and competent authorities within a maximum period of 10 calendar days.</p> <p>Inquiries may be submitted via:</p> <ul style="list-style-type: none"><li>• Support ticket in the official Pangea Discord server.</li><li>• Email: <a href="mailto:contact@tonomy.foundation">contact@tonomy.foundation</a></li></ul> <p>Response time is measured from the date the inquiry is received.</p> <ul style="list-style-type: none"><li>• Complex inquiries that require legal or technical investigation may take longer, but initial acknowledgment will be provided within the 10-day period.</li><li>• For urgent matters, including fund safeguarding concerns or vesting-related issues, purchasers are encouraged to specify this in their inquiry for prioritization.</li></ul>
A.11	Parent company	N/A
A.12	Members of the management body	<p><b>Jack Tanner</b></p> <p><b>Function:</b> Chairperson of the Management Body, Chief Executive Officer (CEO), Chief Technology Officer (CTO) <b>Business Address:</b> Nydia Ecurystraat 31D, 1087 VV Amsterdam, The Netherlands</p> <p>Jack Tanner holds a Master's in Computer Science from Imperial College London and a Bachelor of Engineering from the University of Queensland. He has over 8 years of experience as a blockchain engineer, with expertise spanning fintech, social platforms, and govtech, including work with Atos and MN. Jack is a recognized contributor to Ethereum upgradeability standards</p>



and has taught blockchain alongside Ethereum Foundation members in London. He is a leading expert in self-sovereign identity, having made notable contributions to W3C and the Decentralized Identity Foundation (DIF) standards. Jack is a serial entrepreneur and has founded three startups in the blockchain and identity sectors.

**Links:**[LinkedIn Profile](#)[Twitter Profile](#)

---

**Christian Verhoef****Function:** Member of the Management Body**Business Address:** Nydia Ecurystraat 31D, 1087 VV Amsterdam, The Netherlands

Christian Verhoef is a seasoned professional specializing in logistics, financial management, and fintech innovation. He holds a Bachelor's degree in Business IT and Management from Amsterdam University. With prior leadership roles at The New Fork and extensive experience as a startup advisor, technology incubator manager, and angel investor, Christian brings a diverse skill set to Tonomy Foundation. His strategic guidance focuses on business development, partnerships, and scaling the Pangea Virtual Nation ecosystem.

**Links:**[LinkedIn Profile](#)[Twitter Profile](#)

---

**Chetana Bhardwaj****Function:** Member of the Management Body, Chief Operating Officer (COO)**Business Address:** Nydia Ecurystraat 31D, 1087 VV Amsterdam, The Netherlands



Chetana Bhardwaj brings over 6 years of experience in leading software development projects and operational management. She served as Scrum Master at KoinWorx BV for over 5 years, ensuring the successful delivery of blockchain-based solutions. Previously, she held a leadership role at Air India Limited as Inflight Team Lead and Trainer. Chetana holds a Bachelor's degree in Political Science from Delhi University. She excels in agile project management, operational oversight, and ensuring the efficiency of cross-functional teams within Tonomy Foundation.

**Links:**[LinkedIn Profile](#)**Phil Patterson**

**Function:** Chief Commercial Officer (non-executive)

**Business Address:** Nydia Ecurystraat 31D, 1087 VV Amsterdam, The Netherlands

Phil is an accomplished business strategist with a proven track record in commercialization and go-to-market strategies. He is spearheaded funding and commercial growth for Pangea. With prior leadership roles at RBX and AiCore, Phil has developed expertise in blockchain and decentralized finance. He holds a BSc in Economics and Management from Queen's University Belfast and brings over a decade of experience driving innovative ventures.

**Links:**[LinkedIn Profile](#)**Priyanka Kasture**

**Function:** Marketing Manger (non-executive)

**Business Address:** Nydia Ecurystraat 31D, 1087 VV Amsterdam, The Netherlands

Priyanka specializes in building digital communities and driving growth marketing strategies. With 10+ communities and 600,000+ members under her leadership, she is advancing Tonomy Foundation's Pangea project. A graduate of Savitribai Phule Pune University, Priyanka excels in content strategy and ecosystem building.

**Links:**[LinkedIn Profile](#)



A.13	Business activity	The Tonomy Foundation is a Dutch non-profit organization committed to developing the <b>Pangea Virtual Nation</b> , a global sovereign digital community. Our mission is to create a comprehensive digital ecosystem that seamlessly integrates digital democracy, blockchain technology, artificial intelligence, and self-sovereign identity. We prioritize transparency and trust by utilizing open-source solutions, enabling individuals and organizations to manage digital interactions ethically and efficiently. Our initiatives include the development of secure identity management tools, democratic participation platforms, and contributions to international standards in decentralized identity. Through these efforts, we aim to foster a more empowered and equitable digital society.
A.14	Parent company business activity	N/A
A.15	Newly established	TRUE  Established less than 3 years ago
A.16	Financial condition for the past three years	N/A
A.17	Financial condition since registration	<b>2022 May till April 2024: Registration up till the start of LEOS Seed round sale</b> The first two years of the Tonomy Foundation were run mostly by volunteers with very low expenses. A select few people were paid under the conditions that were critical for the business and needed to pay living expenses. During the first year, we had no income while we built the initial MVP of Tonomy ID. In the second year, we had one client project of €6,000 and started running a validated note for the Telos network for approximately €4,000 / month. This was our sole revenue. Payments for contributors were paid with this revenue and additional loans made by founding members of around €45,000. In the second year, we took the Tonomy ID product to market which was met by keen interest from industry and government, however, we were not able to make any significant sales due to the immaturity of the technology relative to those that most wanted it. We lacked the enterprise-grade integration features allowing the product to easily integrate with their multi-app ecosystems quickly.  <b>April 2024 - December 2024: Seed round</b> With no significant revenue and challenges satisfying contributors, we set our sights back on the original vision of the Tonomy Foundation, to create an autonomous country and autonomous economic zone. We started the Pangea project. Around this time all other revenue streams stopped as we focused on Pangea. In April 2024 we had prepared





ourselves legally, including proactively aligning ourselves to the requirements set out in MICA with expert legal advice, even though they did not apply yet. We launched the mainnet and started the public sale quickly raising about \$300,000. By the end of 2024, we had finished the sale of almost all of the \$700,000 of the seed round. We spent approximately \$450,000 of these funds on our internal team and external costs including Pangea infrastructure servers through cloud services and third-party network validator operators, software platforms we used internally such as marketing, administration or finance platforms, and some external costs to marketing agencies and lawyers.

### 2025

At the beginning of 2025, we finished the full sale of \$700,000 of the seed round and opened the pre-sale round which has currently sold approximately \$50,000. We committed to working with TGE Ventures as a marketing agency and paid them larger amounts of our external budget of around \$150,000.

### Current Financial Position (as of 18 February 2025)

- **Assets:** €219,171
- **Short-term Liabilities:** €6,058 (unpaid board roles)
- **Long-term Liabilities:** €50,293 (founder contributions)
- **Total:** €162,820
- **Working Capital:** €213,113
- **Monthly Cash Flow:** Approximate outflow of **€35,295 per month**, reflecting team salaries, operational costs, external partnerships and marketing, and infrastructure expenses.
- **Runway:** 6 months



## Part B - Information about the issuer, if different from the offeror or person seeking admission to trading

B.1	Issuer different from offeror or person seeking admission to trading	FALSE
B.2	Name	N/A
B.3	Legal form	N/A
B.4	Registered address	N/A
B.5	Head office	N/A
B.6	Registration date	N/A
B.7	Legal entity identifier	N/A
B.8	Another identifier required pursuant to applicable national law	N/A
B.9	Parent company	N/A
B.10	Members of the management body	N/A
B.11	Business activity	N/A
B.12	Parent company business activity	N/A



## Part C- Information about the operator of the trading platform

in cases where it draws up the crypto-asset white paper and information about other persons drawing the crypto-asset white paper pursuant to Article 6(1), second subparagraph, of Regulation (EU) 2023/1114

C.1	Name	N/A
C.2	Legal form	N/A
C.3	Registered address	N/A
C.4	Head office	N/A
C.5	Registration date	N/A
C.6	Legal entity identifier	N/A
C.7	Another identifier required pursuant to applicable national law	N/A
C.8	Parent company	N/A
C.9	Reason for crypto-Asset white paper Preparation	N/A
C.10	Members of the Management body	N/A
C.11	Operator business activity	N/A
C.12	Parent company business activity	N/A



C.13	Other persons drawing up the crypto-asset white paper according to Article 6(1), second subparagraph, of Regulation (EU) 2023/1114	N/A
C.14	Reason for drawing the white paper by persons referred to in Article 6(1), second subparagraph, of Regulation (EU) 2023/1114	N/A

## Part D- Information about the crypto-asset project

D.1	Crypto-asset project name	Pangea
D.2	Crypto-assets name	LEOS
D.3	Abbreviation	LEOS
D.4	Crypto-asset project description	<p>Pangea Virtual Nation is a digital ecosystem designed to function as a self-governing, decentralized, and privacy-focused online jurisdiction. It aims to provide individuals, businesses, and organizations with digital identity, governance, and financial services without reliance on traditional nation-state frameworks. The project is powered by <b>LEOS</b>, a utility token that facilitates access to Pangea's services, including identity verification, decentralized governance, digital legal entity formation, and financial transactions.</p> <p>Pangea is structured as a <b>platform-as-a-service (PaaS)</b>, offering developers and enterprises scalable tools to integrate decentralized identity, payments, and governance functionalities into their applications. The ecosystem is built on the <b>Pangea</b></p>



		<p><b>Blockchain</b>, which utilizes the <b>Antelope protocol</b> with a customized governance system based on <b>Liquid Democracy</b>. This governance framework ensures democratic decision-making over key network rules, financial policies, and dispute resolution.</p> <p>The ecosystem consists of several key components:</p> <ul style="list-style-type: none"><li>• <b>Pangea ID</b> – A self-sovereign identity solution enabling secure authentication and digital identity verification.</li><li>• <b>Pangea DAO</b> – A framework for creating and managing decentralized autonomous organizations (DAOs).</li><li>• <b>Pangea Build</b> – Developer and enterprise tools for integrating identity, governance, and payments into applications.</li><li>• <b>Pangea Bankless</b> – A decentralized financial infrastructure for treasury management and business transactions.</li><li>• <b>Pangea Gov+</b> – A liquid democracy governance system with dispute resolution and financial policy management.</li></ul> <p>LEOS is used for <b>transaction fees, SaaS subscriptions, pay-per-use services, staking incentives, and governance participation</b>. The long-term vision of Pangea is to evolve into a self-regulating digital jurisdiction, where the governance and monetary policies of LEOS are managed democratically by its citizens rather than a central authority.</p> <p>This MiCA-notified whitepaper has been prepared using details from the following supplementary documents, which provide additional in-depth information:</p> <ul style="list-style-type: none"><li>• <a href="#">Pangea Virtual Nation Whitepaper</a> – A non-technical overview of the project's mission, governance model, and objectives.</li><li>• <a href="#">LEOS Tokenomics Whitepaper</a> – A comprehensive breakdown of LEOS token distribution, use cases, and economic model.</li><li>• <a href="#">Pangea Technology Whitepaper</a> – A detailed exploration of the technological architecture, blockchain infrastructure, and governance mechanisms.</li></ul> <p>These documents serve as official reference for understanding the full scope of Pangea and LEOS.</p>
D.5	Details of all natural or legal persons involved in the implementation of the crypto-asset project	<p><b>Core Team</b></p> <p><b>Sadia Abbas</b> Full-stack Developer</p> <p>Full-stack developer with specialities in back-end and blockchain development. With roles at Nova Labs, Smart IS, and MWAN Mobile, she brings expertise in React.js, Node.js, MongoDB, Angular, and PHP. Holds a BEIT in Computer Science from Dr. A. Q. Khan Institute. Known for her focus on clean, efficient code and dedication to quality and innovation.</p>

**Pavel Danilov** UI/UX Designer

Pavel has over 4 years of experience designing user-focused web and mobile applications. At Motivity, he leads UI/UX design for a B2B SaaS platform, creating intuitive and impactful solutions. He has also contributed to customer-centric projects at WSO-Team. Pavel holds a BA in Foreign Languages from Volgograd State Pedagogical University.

**Amir H. Teymourtash** Graphics Designer

Master of Design and Architecture from Aalto University, Amir is a graphic designer with a passion for storytelling through design. With 6 years of experience, he had the opportunity to work with clients in a range of industries including blockchain gaming, NFT art galleries and Metaverse Startups. His areas of expertise include logo design, print design, web design, branding and social media graphics.

**Jekin Gohel** Fullstack Developer

Jekin is a full-stack developer with 9+ years of experience in React.js, Laravel, and ASP.NET. Currently at Augmenthealth Pty Ltd, he has delivered scalable solutions in healthcare and logistics. Jekin is a BE in Computer Engineering graduate from Atmiya Institute of Technology, bringing expertise in web and software development.

**Md Shahriar Faim Roddro** Sales and Marketing Executive

With roles at IIDE and GAOTek Inc., he excels in digital marketing and business development. Pursuing a Bachelor of Business Administration with a focus on Marketing, he combines academic excellence with practical skills.

**Madhuri Vemkoti** Software Tester

Madhuri brings diverse experience from RNIT Solutions & Services and Tonomy Foundation as a part-time ES Software Tester. Holds a BSc in Mathematics from Andhra University. Certified as an Anaplan Level 2 Model Builder and ISTQB® Certified Tester Foundation Level.

**Amit Dobaria** Webflow Expert

Amit over 6 years of experience in leading software projects, Amit is a proficient Webflow developer ready to elevate your digital presence. With a notable tenure as a Scrum Master for 5+ years, she has a proven track record of ensuring success through innovative solutions and effective project management techniques. His expertise lies in translating client visions into functional and visually stunning websites using the Webflow platform. From responsive layouts to custom interactions.

**Sagar Maiyad** Webflow Expert



With a passion for crafting seamless digital experiences, Sagar is a skilled Webflow developer with 7+ year experience and specializing in creating visually stunning and functional websites. Armed with an eye for design and a deep understanding of web development principles, Sagar leverages their expertise to bring brands to life online. With a proven track record of delivering high-quality projects.

**Chirag Baroliya** UI/UX Designer

Meet Chirag, a seasoned Figma designer with a wealth of experience in bringing creative visions to life. With over 6 years of expertise in leading design projects, Chirag is your go-to professional for crafting visually stunning and impactful graphics. Previously serving as a key member of the design team for 5+ years, He has honed her skills in translating concepts into captivating visuals that resonate with audiences.

**Advisors****Chris Tanner**

Combines engineering leadership with financial acumen, having led his own firm for 20 years and invests in the stock and crypto market. His broad knowledge from a 44 year career include financial planning, budgeting, risk management skills and project management. BEng from the University of Tasmania and further Urban Planning Studies at the University of Queensland.

**John van Meer**

A seasoned crypto expert and founder of de Bitcoin Consultant, leveraging over 7 years of expertise and knowledge in the cryptocurrency space. He provides the public with comprehensive information on bitcoin, blockchain and other cryptocurrencies regarding trading and investing. He manages one of the largest crypto-only investor communities in the Netherlands with 20.000 followers on Youtube.

**Rhett Oudkerk Pool**

Rhett Oudkerk Pool is a seasoned leader in cybersecurity and blockchain technology with over two decades of experience. He is the founder and CEO of Zaisan, a blockchain system integrator, and co-founder of EOS Amsterdam, a major EOS block producer. Rhett has also served on the supervisory board of SMG Technology Acceleration. His educational background includes a degree in Technical Computer Science from Hogeschool Drenthe.

**Suneet Bendre**



A seasoned SSI Advisor with extensive experience in technical architecture and leadership roles at reputable companies like AyanWorks, Principal, RobustWealth, and more. He holds a Bachelor of Engineering in Information Technology from Vishwakarma Institute Of Technology.

**Patri Friedman**

A pioneer in startup governance, Patri Friedman has spent 20+ years advocating for new sovereign entities. He founded The Seasteading Institute in 2008 with funding from Peter Thiel and later co-founded Future Cities Development and Pronomos Capital, the first charter cities investment fund. A former Google engineer, he also co-developed an early AI poker bot. He holds degrees in mathematics and computer science from Harvey Mudd College.

**Suppliers****Coinbase**

Both Coinbase Europe Limited (company number 675475)

and Coinbase Ireland Limited (company number 630350)

Both with business address: 70 Sir John Rogerson's Quay, Dublin 2, D02 R296, Ireland

Coinbase Prime service provides crypto custody services to secure crypto received from the LEOS sales in accordance with MICA}.

Coinbase Exchange service allows us to exchange received crypto from the LEOS sale into stablecoins and fiat currency for expenses and other payments.

We may use other Coinbase suite products in the future.

**Coinsbuy LLC**

Business address: Suite 305, Griffith Corporate Centre, P.O. Box 1510, Beachmont, Kingstown, Saint Vincent and the Grenadines

The Coinsbuy platform is used to generate deposit addresses for the Pangea sales platform for LEOS and confirm received funds.

**TGE Ventures Group AG**

Company number 318946415

Business address: 10 Baarerstrasse, 6300 Zug, Switzerland.





TGE Ventures are assisting with tokenomics design, marketing and marketing partnerships such as KOLs, LEOS sales, exchange, launchpad and market maker partnerships and TGE planning and execution strategy. We are in final negotiations to accept them as our incubator to further assist in the token sale design and go-to-market strategy for the public sale and after.

**Taylor Wessing NV**

Company number 17282726

Business address: Kennedyplein 201, 5611 ZT, Eindhoven, Netherlands

Former legal counsel

**Watson Law BV**

Company number 70595119

Business address: Hugo de Grootlaan 33, 5223 LB 's-Hertogenbosch, Netherlands

Watson Law provides ongoing legal advice as we go into the public sale, particularly with MICA advice and support.

**BrightNode Sagl**

Business address: Via Stefano Franscini 6, 6826 Riva San Vitale, Switzerland,

Brightnode audited the LEOS tokenomics before it was launched in April 2024.

**Hide Corporation Ltd.**

Also known as Ninja Promo

Business address: 71-75, Shelton Street, Covent Garden, London, WC2H 9JQ, United Kingdom

Provided marketing strategy and execution services.

**JUMP Consulting AG**

Also known as Priority Token

Business address: Baarerstr. 82, 6300 Zug, Switzerland

Priority token helped generate LEOS purchaser leads and assist in the sales process. They also assisted in introductions with exchanges and other TGE-relevant partners.



		<p><b>Gavela Consulting LLC</b> Also know as Coinstack Business address: 59 Ploch Rd Clifton NJ 07013 Priority token helped generate LEOS purchaser leads and assist in the sales process.</p> <p><b>Tretanz Infotech</b> Company number 24AAJFT0675R1ZI Business address: 502, South Block, Twin Star, 150 Feet ring road, Rajkot 360005, India Tretanz helped us as a consulting agency with talent that worked in our team to build the Pangea webflow website, the sales platform and the Pangea product technologies.</p>
D.6	Utility Token Classification	TRUE
D.7	Key Features of Goods/Services for Utility Token Projects	<p>The <b>LEOS utility token</b> is the <b>core transactional and access unit within the Pangea Virtual Nation platform</b>, powering a <b>range of decentralized services</b>. The <b>primary focus of LEOS utilities</b> is on <b>business-to-business (B2B) use cases</b>, structured under a <b>Software-as-a-Service (SaaS) model</b>, with <b>monthly subscriptions and per-use fees for high-value services</b>. These utilities <b>span multiple industries</b>, including <b>AI data flows, supply chain management, regulatory compliance, and fintech</b>.</p> <hr/> <p><b>1. Pangea Build – Developer Platform &amp; Low-Code Console for Web 4.0</b></p> <p>Pangea Build is the primary interface for businesses and developers to integrate Pangea's core services into their systems. It provides developer-friendly APIs and no-code tools to leverage identity verification, DAO governance, and payment features.</p> <p><b>LEOS Utilities in Pangea Build:</b></p> <ul style="list-style-type: none"><li>• Subscription Plans: Businesses pay in LEOS for monthly platform access, including API access and developer tools.</li><li>• Modular Add-ons: Developers can enable additional services on a per-use basis, such as:<ul style="list-style-type: none"><li>○ eIDAS-compliant electronic signatures (pay per document signed).</li></ul></li></ul>



- Advanced transaction monitoring and fraud detection tools.
  - Delegated authorization systems for AI agents interacting with other organizations.
- Blockchain Resource Usage: Developers consume LEOS for underlying blockchain operations, such as:
  - Data storage on the Pangea blockchain.
  - Execution of smart contracts for automated business workflows.
  - Identity verification checks for AI systems before transacting data.

**Example Use Case:**

- An AI data provider builds a platform for autonomous agents using Pangea Build. They pay a monthly subscription in LEOS for platform access and consume additional LEOS to verify AI identities and log transactions on-chain for audit purposes.

---

**2. Pangea DAO – Legal Entity Formation & Decentralized Governance**

Pangea DAO enables businesses, communities, and governments to form legally recognized DAOs and manage their operations autonomously.

**LEOS Utilities in Pangea DAO:**

- DAO Creation: Organizations pay in LEOS to establish and register their DAO, which grants them an operational presence within the Pangea ecosystem.
- Seat Reservation & Role Management:
  - DAO operators reserve seats for members in exchange for LEOS.
  - Specialized roles within a DAO (e.g., treasurer, compliance officer) may require additional LEOS payments.
- Signing of special agreements with high security signature requirements like eiDAS signatures
- Access to Governance Tools:
  - Custom voting systems (e.g., weighted voting based on identity or stake).
  - Treasury management tools with on-chain spending limits and approval workflows.

**Example Use Case:**



- A consortium of suppliers establishes a DAO to coordinate logistics across Europe. They pay in LEOS to form the DAO, set up voting systems for shipment disputes, and reserve seats for suppliers and auditors.
- 

### 3. Pangea Bankless – Decentralized Payments & Treasury Management

Pangea Bankless provides businesses with a secure, blockchain-based payment and treasury management system, removing traditional banking intermediaries.

#### LEOS Utilities in Pangea Bankless:

- Transaction Fees:
  - Payments between two citizens are free
  - Payments between citizens and business are paid for by the sending business
  - Businesses pay transaction fees for automated supplier payments or AI agent data purchases.
- Subscription Plans for Advanced Treasury Features:
  - Multi-signature accounts for large DAOs.
  - Recurring payments for supplier contracts.
  - Automated tax withholding and reporting (in development).
- Cross-Border Payments:
  - International supply chain networks can pay partners directly using LEOS.
  - AI marketplaces can settle payments between autonomous agents using LEOS without intermediaries.

#### Example Use Case:

- A logistics platform integrates Pangea Bankless for automated supplier payments. Each shipment triggers a LEOS payment upon successful delivery, with multi-signature approval for larger payouts.



#### 4. Pangea ID – Digital Identity (B2C)

Pangea ID is the user-facing identity platform, providing privacy-preserving, self-sovereign identity solutions. While primarily consumer-oriented, it has some LEOS-related features targeted at LEOS holders. Business related technical features are purchased by businesses through Pangea Build which developers integrate into their app.

##### LEOS Utilities in Pangea ID:

- Staking Mechanism:
  - Users can lock LEOS to earn a daily staking yield, incentivizing long-term holding.
- Identity Verification Services (Future Add-on via Pangea Build):
  - eIDAS-compliant identity checks for users needing verified credentials.
  - Per-use document signing and notarization services for regulatory filings.

##### Example Use Case:

- A private investor stakes LEOS to earn rewards while holding tokens for future DAO investment opportunities.

#### 5. Pangea Gov – Liquid Democracy Platform

Pangea Gov provides tools for on-chain governance, enabling citizens and organizations to propose and vote on platform rules and treasury decisions.

##### LEOS Utilities in Pangea Gov:

- Governance Tools Are Free:
  - The core governance platform, including policy proposal creation, voting, and participation in public decision-making, is free of charge.



- Dispute Resolution Services (Paid):
  - Organizations or individuals pay LEOS to initiate dispute resolution cases (e.g., contract disputes, governance disagreements).
  - Mediator, Judge, or Jury Services: Parties pay LEOS to appoint mediators, judges, or jury panels for case resolution.
- On-Chain Enforcement:
  - LEOS may also be used to execute the final settlement via smart contracts after a ruling.

**Example Use Case:**

- A global association of AI developers submits a governance proposal for funding an open-source identity standard.  
They pay in LEOS to register the proposal and secure on-chain voting access.

---

**6. Adaptive and Evolving Utility**

The LEOS token utility is designed to be dynamic and adaptable, enabling new applications and integrations as market needs, technology, and regulatory landscapes evolve.

While the current focus is on identity, governance, payments, and development services, the architecture of the Pangea platform allows for rapid development of new LEOS-powered modules and service extensions.

Future utilities may span both anticipated and unforeseen needs, such as:

- AI-driven autonomous ecosystems, where LEOS could facilitate machine-to-machine payments, data licensing, or agent identity verification.
- Supply chain innovations, enabling verified delivery guarantees, automated multi-party settlements, or bonded financial commitments on-chain.
- Cross-industry compliance tools, using LEOS to trigger audit verifications, digital attestations, or secure regulatory data submissions.



- Enterprise collaboration networks, where LEOS unlocks access to shared platforms for data sharing, dispute mediation, or pooled funding among competitors.
- Decentralized reputation systems, where LEOS incentivizes verified performance records across industries like freelancing, logistics, or service contracting.
- IoT and sensor-based transaction ecosystems, using LEOS micropayments to trigger real-time, condition-based actions (e.g., paying for temperature-controlled transport upon delivery validation).
- DeFi-style financial utilities integrated into traditional industries, such as escrow-backed contracts or tokenized insurance models powered by LEOS.
- LEOS's utility will continuously expand alongside Pangea's growth, guided by user demand, partnerships, and ongoing platform development.

The modular nature of Pangea services ensures that future features can be easily integrated into existing subscription and pay-per-use models, further embedding LEOS into the fabric of digital transactions.

---

### Summary of LEOS Token Utility

LEOS is the universal utility token underpinning the Pangea Virtual Nation, serving as the primary unit of exchange and access for the platform's public services and business-oriented tools.

It facilitates transactional, subscription, and incentive-based activities, ensuring fair compensation for platform services while driving long-term ecosystem growth.

Key Current and Future Functionalities Powered by LEOS:

- B2B SaaS Platform Access:
  - Subscription plans for businesses and developers to access platform features.
  - Pay-per-use tools, such as eIDAS signatures, identity checks, and DAO seat reservations.
- DAO Formation & Governance:
  - Formation of digital legal entities.
  - Treasury management, voting upgrades, and dispute mediation services.



		<ul style="list-style-type: none"><li>• Transaction Enablement:<ul style="list-style-type: none"><li>◦ Low-cost payments within the ecosystem.</li><li>◦ Treasury transfers, supplier payouts, and recurring payments.</li></ul></li><li>• Staking Incentives:<ul style="list-style-type: none"><li>◦ Yield rewards for long-term holders, encouraging alignment with ecosystem success.</li></ul></li><li>• Dispute Resolution:<ul style="list-style-type: none"><li>◦ Case filing, mediator hiring, and jury selection, ensuring fairness in organizational and commercial disputes.</li></ul></li><li>• Open-Ended Utility Expansion:<ul style="list-style-type: none"><li>◦ LEOS will power future services, driven by the evolving demands of developers, businesses, and emerging technologies.</li><li>◦ The token's role will adapt to unlock new features, industries, and collaboration models as Pangea expands globally.</li></ul></li></ul> <p>Ultimately, LEOS is designed to be the connective utility layer across the Pangea platform, enabling innovation while ensuring platform sustainability and fairness.</p>															
D.8	Plans for the token	<div><b>LEOS Past and Known Future Milestones</b><table><tr><th>Milestone</th><th>Description</th><th>Date/status</th></tr><tr><td>Foundation Incorporation</td><td>Tonomy Foundation established as a Dutch non-profit entity to oversee the development of open ecosystem development tools.</td><td>May 2022</td></tr><tr><td>Tonomy ID MVP Finished</td><td>Completion of the first release of the Tonomy ID digital identity tool</td><td>June 2023</td></tr><tr><td>Tonomy ID Sales Research</td><td>Commercial sales efforts and research in digital identity market with Tonomy ID product</td><td>July-Nov 2023</td></tr><tr><td>Pangea Project</td><td>Began preparing the Pangea project legals, website, whitepaper,</td><td>December 2023</td></tr></table></div>	Milestone	Description	Date/status	Foundation Incorporation	Tonomy Foundation established as a Dutch non-profit entity to oversee the development of open ecosystem development tools.	May 2022	Tonomy ID MVP Finished	Completion of the first release of the Tonomy ID digital identity tool	June 2023	Tonomy ID Sales Research	Commercial sales efforts and research in digital identity market with Tonomy ID product	July-Nov 2023	Pangea Project	Began preparing the Pangea project legals, website, whitepaper,	December 2023
Milestone	Description	Date/status															
Foundation Incorporation	Tonomy Foundation established as a Dutch non-profit entity to oversee the development of open ecosystem development tools.	May 2022															
Tonomy ID MVP Finished	Completion of the first release of the Tonomy ID digital identity tool	June 2023															
Tonomy ID Sales Research	Commercial sales efforts and research in digital identity market with Tonomy ID product	July-Nov 2023															
Pangea Project	Began preparing the Pangea project legals, website, whitepaper,	December 2023															





		Started	documentation, socials and more.	
		Legal advisory engaged	A renowned global web3 firm was engaged to provide legal advice for the LEOS sale, particularly around MICA regulations.	January 2024
		Tokenomics audit	LEOS was audited by Brightnode	February 2024
		Pangea Launched	Pangea Blockchain mainnet, LEOS token and Pangea ID (whitelabeled version of Tonomy ID) launched	April 2024
		\$300,000 Seed funding secured	Raised funds from very early supporters	May/June 2024
		Marketing agency contracted	Engaged with NinjaPromo for marketing strategy and execution	June 2024
		Re-valuation	Revised Tokenomics with significantly lowered tokenomics implemented	November 2024
		Re-narrative	Changed primary narrative from “virtual nations” to “powering crypto-native economies” as a use case of virtual nations to simplify story	November 2024
		End of \$700,000 Seed round	Finish the end of the Seed round before expected	January 2025
		Open of the pre-sale round	Opened the pre-sale round of the LEOS sale	January 2025
		Hypha DAO	Hypha DAO launches on-chain DAO system on Pangea as the first network client	January 2025
		LEOS Builders Grant Launched	A grant program where builders could apply for LEOS grants was launched and received various submissions, some of which were eventually approved	January 2025



		Pangea ID Renamed	The United Citizens Wallet was renamed to Pangea ID	February 2025
		Re-narrative	Changed primary narrative from “virtual nations” to “decentralized identity” as a use case of virtual nations to simplify story	February 2025
		Tokenomics redesign	Revised tokenomics with lowered tokenomics and other pragmatic design changes to de-risk the public sale and listing	March2025
		Staking implementation	Completion and launch of the LEOS staking feature for users	March 2025 (unfinished)
		Exchanges and launchpads confirmed	Confirmed and signed engagements with major exchanges and launchpads	March 2025 (unfinished)
		Close of private and KOL sales	Finish the private sale and KOL rounds	March 2025 (unfinished)
		Public Sale	Public sale on launchpad	March/April 2025 (planned)
		Exchange Listing	Listing on LEOS token on at least one major exchange	April 2025 (planned)
		Fiddl.art Launch	Fiddle.art launches on-chain AI art app with LEOS payment use case	March 2025 (unfinished)
<b>Whitepaper Notification History</b>				
While this is the first submission using the MiCA Utility Token Template, several prior versions of the LEOS whitepaper were notified to the Dutch Authority for the Financial Markets (AFM), as follows.				



		2024-05-30	Initial notification of the LEOS whitepaper	<a href="https://github.com/Tonomy-Foundation/documentation/blob/c004725692f3afbbff5d0f37aa83236f20b4825b/whitepapers/Pangea%20and%20LEOS%20Official%20Whitepaper%20-%20EU%20Compliant%20v1.0.1.pdf?raw=true">https://github.com/Tonomy-Foundation/documentation/blob/c004725692f3afbbff5d0f37aa83236f20b4825b/whitepapers/Pangea%20and%20LEOS%20Official%20Whitepaper%20-%20EU%20Compliant%20v1.0.1.pdf?raw=true</a>
		2024-10-31	Updated tokenomics and details on the LEOS sale phases.	<a href="https://github.com/Tonomy-Foundation/documentation/blob/d6c4f5e60791ebad66f7ce9c2e520309c9be6283/whitepapers/Pangea%20and%20LEOS%20Official%20Whitepaper%20-%20EU%20Compliant%20v1.1.pdf?raw=true">https://github.com/Tonomy-Foundation/documentation/blob/d6c4f5e60791ebad66f7ce9c2e520309c9be6283/whitepapers/Pangea%20and%20LEOS%20Official%20Whitepaper%20-%20EU%20Compliant%20v1.1.pdf?raw=true</a> Note: In response to this submission, the Foundation held a call with the Dutch AFM on 2024-12-12, where it was clarified that the MiCA template should be adopted for future filings.
		2025-02-14	Clarification-focused update with refined wording to remove any potential misinterpretation regarding LEOS's MiCA status.	<a href="https://github.com/Tonomy-Foundation/documentation/blob/5146b20f01c0a7448158b66b784d5dcdb31e880f/whitepapers/Pangea%20-%20LEOS%20Tokenomics%20Whitepaper%20v1.3.2.pdf?raw=true">https://github.com/Tonomy-Foundation/documentation/blob/5146b20f01c0a7448158b66b784d5dcdb31e880f/whitepapers/Pangea%20-%20LEOS%20Tokenomics%20Whitepaper%20v1.3.2.pdf?raw=true</a>
		2025-03-14	This whitepaper represents the first version prepared using the official MiCA Utility Token Template.	(This document)
		This version supersedes all prior whitepapers and incorporates the latest regulatory guidance and tokenomics adjustments, to best align with MiCA requirements.		
<h3>Platform Development &amp; Feature Rollout</h3> <ul style="list-style-type: none"><li>● Pangea Build (2025 – 2027): Progressive rollout of developer tools, APIs, subscription services, and pay-per-use features, starting with:<ul style="list-style-type: none"><li>○ Identity verification (eIDAS signatures, KYC checks).</li><li>○ Smart contract infrastructure and transaction tools.</li><li>○ Storage and on-chain operational services.</li></ul></li></ul>				



- Prioritization driven by partnerships and industry demand.
- Pangea DAO (2025): Launch of legal entity formation tools and governance management services.
- Pangea Pay (2025): Launch of transaction and treasury management platform, integrating with DAO and business tools.
- Pangea Gov+ (2026): Launch of democratic governance system and on-chain policy management:
  - Free governance features for community participation.
  - Paid dispute resolution tools (e.g., mediation, arbitration).
  - Progressive handover of LEOS token policy and ecosystem governance from Tonomy Foundation to the Pangea community.

### **Ongoing Platform Enhancements**

- Pangea ID (Ongoing): Continued development of identity services; additional account recovery options and commercial identity verification integrations through Pangea Build.
- Adaptive Platform Growth: Features and priorities will be adjusted based on user adoption and industry-specific market demand, with a focus on:
  - AI systems, supply chain automation, web3, and compliance tools.
  - Cross-industry integrations, eIDAS expansion, and multi-party agreements.
  - Enhancing the staking mechanism and expanding platform incentives.

### **Long-Term Vision**

- Self-Governed Ecosystem: Transition from Foundation-controlled governance to community-driven governance via Pangea Gov+.
- Widespread Enterprise Adoption: Position LEOS as the utility token powering B2B identity, governance, and transaction solutions globally.
- Platform Expansion: Integration with emerging technologies (AI agents, DeFi, supply chain networks), ensuring Pangea remains at the forefront of digital sovereignty and self-regulation.



D.9	Resource allocation	<p>The development and growth of the <b>Pangea Virtual Nation and LEOS token ecosystem</b> are supported by <b>a combination of financial resources from token sales, founder contributions, and strategic investments</b>. These resources are allocated to <b>product development, platform operations, regulatory compliance, and ecosystem growth</b>.</p> <p>Financial Resources Allocated to Date:</p> <ul style="list-style-type: none"><li>• <b>Seed Round: \$700,000 USD raised</b> from early strategic backers.</li><li>• <b>Pre-Sale: Approximately \$50,000 USD raised</b> from early supporters.</li><li>• <b>Founder Contributions:</b> Personal capital investments from the founding team, including:<ul style="list-style-type: none"><li>◦ <b>Jack Tanner:</b> €45,028 (partial repayment made).</li><li>◦ <b>Christian Verhoef:</b> €8,095 (fully repaid).</li><li>◦ <b>Chetana Bhardwaj:</b> €2,000 (fully contributed).</li></ul></li></ul> <p>Current Financial Position (as of 18 February 2025)</p> <ul style="list-style-type: none"><li>• <b>Assets:</b> €219,171</li><li>• <b>Short-term Liabilities:</b> €6,058 (unpaid board roles)</li><li>• <b>Long-term Liabilities:</b> €50,293 (founder contributions)</li><li>• <b>Total:</b> €162,820</li><li>• <b>Working Capital:</b> €213,113</li><li>• <b>Monthly Cash Flow:</b> Approximate outflow of <b>€35,295 per month</b>, reflecting team salaries, operational costs, external partnerships and marketing, and infrastructure expenses.</li><li>• <b>Runway:</b> 6 months</li></ul>			
D.10	Planned use of Collected funds or crypto-Assets	<p>The funds collected through the seed, pre-sale, private sale, and public sale rounds are primarily intended to ensure the successful execution of the Token Generation Event (TGE), secure exchange listings, and drive post-TGE token liquidity and market visibility. Given the proximity to TGE, the focus has shifted towards covering final sale, listing, and liquidity-related costs, with only a small amount needed for operational expenses.</p> <table><tr><th>Category</th><th>Description</th><th>Estimated Allocation</th></tr></table>	Category	Description	Estimated Allocation
Category	Description	Estimated Allocation			



		Public Sale & Launch Costs	Covering costs associated with running the public sale, platform fees, and payment processing.	25%
		Exchange Listings & Market Maker Liquidity	Listing fees, liquidity provisioning, and market-making services to ensure sufficient trading volume and token price stability on exchanges post-TGE.	30%
		Marketing & Launchpads	Promotion of the LEOS token sale through advertising, community growth, partnerships, influencer campaigns, and launchpad fees.	25%
		Legal & Compliance	Covering final legal expenses, ongoing MiCA compliance post-TGE, and any listing-related legal advisory.	10%

## Part E - Information about the offer to the public of crypto-assets or their admission to trading

E.1	Public offering or admission to trading	'OTPC' - offer to the public
E.2	Reasons for public offer or admission to trading	<p>The <b>public offer and imminently planned admission to trading of LEOS</b> serve as a <b>core strategy to fund the development, launch, and market adoption of the Pangea platform</b> and <b>establish LEOS as a liquid, exchangeable token.</b></p> <p><b>Key Objectives:</b></p> <ol style="list-style-type: none"><li><b>Secure Funding for Platform Growth and Product-Market Fit:</b> Funds raised will support the expansion of Pangea's platform-as-a-service offering, including targeting and adapting to market needs across sectors like AI, cybersecurity, govTech, and supply chains.</li></ol>



		<div><div><div>2. <b>Enable Market Liquidity and Exchangeability:</b> The token sale and listing are critical to making LEOS transferable on exchanges, enabling future token sales to further fund the development and scaling of the platform.</div><div>3. <b>Cover Launch and Market Entry Costs:</b> Proceeds will fund exchange listing fees, market maker liquidity, launchpad partnerships, legal expenses, and marketing campaigns to ensure a successful TGE and post-launch token adoption.</div><div>4. <b>Drive User Adoption and Ecosystem Growth:</b> The offering aims to broaden LEOS distribution, onboard new users, developers, and businesses, and accelerate the adoption of the Pangea ID, DAO, and payment services.</div></div><div>The TGE and (future) trading admission are strategic enablers for long-term platform development, ecosystem scaling, and ongoing funding through future token sales on the market.</div></div>														
E.3	Fundraising target	<table><tr><th>Sale Phase</th><th>Fundraise Target (USD)</th></tr><tr><td>Seed</td><td>\$700,000 (completed)</td></tr><tr><td>Incubator</td><td>\$200,000 (\$100,000 secured) see Section E.18 for breakdown of this sale deal</td></tr><tr><td>Pre-Sale</td><td>\$100,000 (in progress)</td></tr><tr><td>Private</td><td>\$1,200,000</td></tr><tr><td>KOL</td><td>\$200,000</td></tr><tr><td>Public</td><td>\$400,000</td></tr></table> <div><b>Total: \$2,700,000 USD</b></div> <div>The structure of the LEOS sale and tokenomics are subject to market conditions and operational changes. Changes to the above sales and other tokenomics will be notified through primary communication platforms.</div>	Sale Phase	Fundraise Target (USD)	Seed	\$700,000 (completed)	Incubator	\$200,000 (\$100,000 secured) see Section E.18 for breakdown of this sale deal	Pre-Sale	\$100,000 (in progress)	Private	\$1,200,000	KOL	\$200,000	Public	\$400,000
Sale Phase	Fundraise Target (USD)															
Seed	\$700,000 (completed)															
Incubator	\$200,000 (\$100,000 secured) see Section E.18 for breakdown of this sale deal															
Pre-Sale	\$100,000 (in progress)															
Private	\$1,200,000															
KOL	\$200,000															
Public	\$400,000															



E.4	Minimum subscription goals	The <b>Seed Sale phase had a minimum target of \$200,000 USD</b> . If this was not met, <b>funds were to be refunded to investors</b> . This goal was successfully achieved. <b>No other phases have a minimum subscription requirement</b> .						
E.5	Maximum subscription goals	Each sale phase has a <b>maximum fundraising cap</b> , as detailed in E.3. Once the cap is reached, <b>the phase closes, and no further subscriptions are accepted</b> .						
E.6	Oversubscription acceptance	TRUE						
E.7	Oversubscription allocation	<p>Oversubscriptions are generally not accepted, and the offering phases are expected to close once the maximum subscription goal is reached.</p> <p>However, an exception was made during the Seed Sale, where a small number of investors (7-8 transactions, totaling less than \$10,000 USD) were allowed to participate after the formal phase had closed due to inaction on the part of Tonomy Foundation. These tokens were issued from the reserve treasury.</p> <p>The Tonomy Foundation reserves the right to accept small oversubscriptions on a discretionary basis in future phases, but only under exceptional circumstances, such as administrative delays or processing errors, and strictly within reasonable limits.</p> <p>In the rare case of discretionary acceptance (e.g., post-close Seed Sale investors):</p> <ul style="list-style-type: none"><li>• Tokens are allocated from the Pangea reserve treasury, not from the tokens allocated for the specific phase.</li><li>• Such allocations will only be considered for small amounts and exceptional cases, such as administrative errors or delayed investor actions.</li><li>• The decision to accept any oversubscription is at the sole discretion of Tonomy Foundation.</li></ul>						
E.8	Issue price	<p>The issue price varies by phase, reflecting early purchase discounts for initial supporters:</p> <table><tr><th>Sale Phase</th><th>Issue Price per LEOS (USD)</th></tr><tr><td>Seed</td><td>\$0.0001</td></tr><tr><td>Incubator</td><td>\$0.00013333 see Section E.18 for breakdown of this sale deal</td></tr></table>	Sale Phase	Issue Price per LEOS (USD)	Seed	\$0.0001	Incubator	\$0.00013333 see Section E.18 for breakdown of this sale deal
Sale Phase	Issue Price per LEOS (USD)							
Seed	\$0.0001							
Incubator	\$0.00013333 see Section E.18 for breakdown of this sale deal							





		<table><tr><td>Pre-Sale</td><td>\$0.0002</td></tr><tr><td>Private</td><td>\$0.0004</td></tr><tr><td>KOL</td><td>\$0.0006</td></tr><tr><td>Public</td><td>\$0.0006</td></tr></table> <p>Prices may be converted to equivalent amounts in other accepted currencies (e.g., ETH, BTC, USDT) based on the market rate at the time of purchase.</p> <p>The structure of the LEOS sale and tokenomics are subject to market conditions and operational changes. Changes to the above sales and other tokenomics will be notified through primary communication platforms.</p>	Pre-Sale	\$0.0002	Private	\$0.0004	KOL	\$0.0006	Public	\$0.0006
Pre-Sale	\$0.0002									
Private	\$0.0004									
KOL	\$0.0006									
Public	\$0.0006									
E.9	Official currency or any other crypto-assets determining the issue price	<p>The primary pricing currency is USD (\$).</p> <p>Payments may be accepted in fiat (USD, EUR) and crypto-assets (USDT, USDC, and ETH), with exchange rates determined at the time of subscription.</p>								
E.10	Subscription fee	<p>No subscription fees apply for purchases through the Pangea sales website (pangea.web4.world).</p> <p>Third-party launchpads or exchanges may charge subscription or transaction fees, which will be disclosed by those platforms during the sale.</p>								
E.11	Offer price determination method	<p>The offer price is fixed for each phase, as detailed in E.8, and was determined based on:</p> <ul style="list-style-type: none"><li>• Market evaluation of the project's value.</li><li>• Investor risk-reward alignment (lower prices for early supporters due to higher risk).</li><li>• Comparable utility token offerings in the market.</li><li>• Consultations with external tokenomics experts (Brightnode and TGE Ventures) and advisors</li></ul> <p>Future token prices on secondary markets will be determined by supply and demand.</p>								



E.12	Total number of offered/traded crypto-assets	A total of 12.75 billion LEOS tokens (25.5% of the total supply) is allocated across the various sale phases:		
		<b>Sale Phase</b>	<b>LEOS Allocation</b>	<b>% of Total LEOS Supply</b>
		Seed	7,000,000,000	14%
		Incubator	1,500,000,000	3% see Section E.18 for breakdown of this sale deal
		Pre-Sale	500,000,000	1%
		Private	2,750,000,000	5.5%
		KOL	333,333,333	0.67%
		Public	666,666,666	1.33%
		The structure of the LEOS sale and tokenomics are subject to market conditions and operational changes. Changes to the above sales and other tokenomics will be notified through primary communication platforms.		
E.13	Targeted holders	ALL  Eligibility of holders is described in Summary Section 10.		
E.14	Holder restrictions	<p>LEOS tokens are targeted at retail, professional, and institutional investors.</p> <ul style="list-style-type: none"><li>• The Pangea sales platform (pangea.web4.world) is restricted to investors from 49 whitelisted jurisdictions.<ul style="list-style-type: none"><li>◦ Eligible countries are listed on the sales website.</li><li>◦ The issuer may add or remove jurisdictions at its discretion, subject to its discretion.</li></ul></li><li>• Investors participating via third-party launchpads or exchanges may be subject to different geographical eligibility rules, depending on the platform's licensing and compliance framework.</li></ul> <p>Prospective investors are advised to review the eligibility criteria on the Pangea website or launchpad/exchange platform before participating.</p>		



		<ul style="list-style-type: none"><li>Investors from non-whitelisted jurisdictions cannot purchase LEOS via the Pangea sales platform.</li><li>Country restrictions may differ on third-party launchpads or exchanges, depending on platform-specific compliance requirements.</li><li>KYC/AML compliance is mandatory across all platforms.</li><li>The issuer reserves the right to adjust the list of eligible countries as regulatory requirements evolve.</li></ul>															
E.15	Reimbursement notice	‘Purchasers participating in the offer to the public of crypto-asset will be able to be reimbursed if the minimum target subscription goal is not reached at the end of the offer to the public, if they exercise the right to withdrawal provided for in Article 13 of Regulation (EU) 2023/1114 of the European Parliament and of the Council or if the offer is cancelled’															
E.16	Refund mechanism	<p>Purchasers participating in the offer to the public of the crypto-asset will be able to be reimbursed if:</p> <ul style="list-style-type: none"><li>The minimum subscription goal for the Seed Sale was not reached (it was met).</li><li>They exercise their right of withdrawal under Article 13 of MiCA (14-day cooling-off period).</li><li>The offer is canceled by Tonomy Foundation.</li></ul> <p>At its discretion, Stichting Tonomy may conduct refunds or buyback for pre-TGE round participants before or after TGE.</p> <p>Refund processing:</p> <ul style="list-style-type: none"><li>Refunds will be processed via the original payment method, unless mutually agreed otherwise.</li><li>Refunds will be in the same currency or asset used for the subscription.</li><li>Released tokens due to refunds will be allocated to the liquidity treasury for future sale.</li></ul>															
E.17	Refund timeline	Refunds will be processed within 14 calendar days after an eligible refund is requested or confirmed.															
E.18	Offer phases	<p>The LEOS token offering is divided into the following phases:</p> <table><tr><th>Round</th><th>Status</th><th>Discount</th><th>Payment Methods</th><th>Vesting</th></tr><tr><td>Seed</td><td>Completed</td><td>83%</td><td>EUR, USDT, ETH</td><td>5% unlock at TGE, then linear unlocks from 6 to 18 months</td></tr><tr><td>Incubator</td><td>Completed</td><td>78%</td><td>ETH, USDC</td><td>See below</td></tr></table>	Round	Status	Discount	Payment Methods	Vesting	Seed	Completed	83%	EUR, USDT, ETH	5% unlock at TGE, then linear unlocks from 6 to 18 months	Incubator	Completed	78%	ETH, USDC	See below
Round	Status	Discount	Payment Methods	Vesting													
Seed	Completed	83%	EUR, USDT, ETH	5% unlock at TGE, then linear unlocks from 6 to 18 months													
Incubator	Completed	78%	ETH, USDC	See below													



Pre-Sale	Ongoing	66.67%	ETH, USDC	7.5% unlock at TGE, then linear unlocks from 4 to 16 months
Private	Planned	50%	ETH, USDC	7.5% unlock at TGE, then linear unlocks from 3 to 12 months
KOL	Planned	0%	ETH, USDC	25% unlock at TGE, then linear unlocks from 1 to 4 months
Public	Planned	0%	ETH, USDC, Launchpads	25% unlock at TGE, then linear unlocks from 1 to 4 months

The structure of the LEOS sale and tokenomics are subject to market conditions and operational changes. Changes to the above sales and other tokenomics will be notified through primary communication platforms.

### **Incubator deal**

As part of Pangea's go-to-market strategy, Stichting Tonomy plans to partner with an experienced experienced crypto incubator. The following is a summary of the contractually enforced deal regarding the issuance of LEOS tokens to in incubator. We are in close discussion with TGE Ventures, who have successfully guided over a dozen projects through their Token Generation Event (TGE). This deal has yet to be signed and fully executed and is provided here in preparation for the event.

The incubator is providing both funding and strategic advisory services to maximize the success of Pangea's token launch. This partnership aggregates their investment (\$100,000 at the Seed round price) and a future purchase option (\$100,000 at Pre-sale valuation) into a single 3% Incubator round of the total LEOS supply.

### **Investment and Token Distribution**

- Incubator invests \$100,000 at Seed round terms, receiving LEOS at an 83% discount to the public sale price.
  - 30% of these tokens are locked at TGE, with a linear unlock over six months.



		<ul style="list-style-type: none"><li>• Incubator also has a purchase option of up to \$100,000 at the Pre-sale price (66% discount), exercisable if market conditions are met (trading volume &gt;\$2M and FDV increase of 350%).</li></ul> <p><b>Strategic Value of the Incubator Partnership</b></p> <p>Incubator is more than just an investor—they provide a comprehensive range of services aimed at ensuring a successful TGE and sustainable market entry for LEOS.</p> <p>They contribute specialist expertise and execution in:</p> <ul style="list-style-type: none"><li>• Investor Outreach &amp; Private Sale Growth – Access to Incubator’s high-profile crypto investor network to accelerate Seed and Private rounds.</li><li>• Exchange &amp; Market Maker Strategy – Direct introductions and support in securing CEX/DEX listings, launchpad partnerships, and market makers.</li><li>• Marketing &amp; Community Growth – Optimized marketing, influencer partnerships, and community engagement across Twitter, Telegram, and key crypto forums.</li><li>• Liquidity Event Execution – Supporting structured liquidations to ensure smooth market entry and long-term token stability.</li></ul> <p><b>Liquidity and Market Stability Protections</b></p> <ul style="list-style-type: none"><li>• Incubator is subject to controlled liquidation conditions to avoid excessive sell pressure on LEOS.</li><li>• Daily sales limits are in place, linked to client sales, market volume, and OTC transactions.</li><li>• Transparency commitments, including monthly liquidation summaries and audit rights provided by the Incubator to the Tonomy Foundation, ensure alignment with Pangea’s long-term market strategy.</li></ul>
E.19	Early purchase discount	<ul style="list-style-type: none"><li>• Seed, Incubator, Pre-Sale, and Private Sale investors received discounted pricing relative to the public sale price, reflecting early support and higher risk acceptance, as shown in Section E.18</li><li>• KOL Sale and Public Sale investors receive the same price as TGE, and vesting conditions</li><li>• Vesting is applied to align all later-stage investors with the long-term success of the ecosystem.</li></ul>



		The early discounts and vesting mechanisms are designed to incentivize early ecosystem participation and ensure price stability upon TGE.
E.20	Time-limited offer	TRUE
E.21	Subscription period beginning	2024-04-01
E.22	Subscription period end	2025-07-01
E.23	Safeguarding arrangements for offered funds/crypto-Assets	<p>In accordance with Article 10 of Regulation (EU) 2023/1114 (MiCA), the following safeguarding measures are in place to protect funds and crypto-assets collected during the token sale and withdrawal period:</p> <p><b>Crypto-assets Safeguarding:</b> All crypto-assets collected during the token sale are safeguarded using Coinbase Prime (operated by Coinbase Europe Limited and Coinbase Ireland Limited).</p> <ul style="list-style-type: none"><li>• Coinbase Prime is a regulated custodian in the European Union, offering secure cold storage and institutional-grade asset protection.</li><li>• Crypto-assets collected (e.g., ETH, USDC) are segregated from operational assets and held under multi-signature security controls.</li></ul> <p><b>Fiat Safeguarding:</b> Fiat proceeds (e.g., USD, EUR) from token sales are held in the Foundation's bank account with Bunq (<a href="https://www.bunq.com">https://www.bunq.com</a>), a reputable financial institution based in the Netherlands.</p> <ul style="list-style-type: none"><li>• Access to this bank account is restricted to two authorized signatories: Jack Tanner (CEO) and Chetana Bhardwaj (COO).</li><li>• Funds are segregated from personal accounts and managed in accordance with internal financial controls.</li></ul> <p><b>Reserved Funds for Refunds:</b> During the 14-day withdrawal period (Article 13 MiCA), sufficient balances are maintained in both the bank account and Coinbase custody accounts to facilitate timely refunds upon request.</p>



		<b>Audit and Monitoring:</b> Internal controls are in place to ensure funds and assets remain safeguarded, and the Foundation may conduct audits to ensure continued compliance with MiCA requirements.
E.24	Payment methods for crypto-asset purchase	<p>Purchasers can buy LEOS tokens using the following payment methods:</p> <p><b>Crypto-Assets (normal purchases):</b></p> <ul style="list-style-type: none"><li>• ETH (Ethereum).</li><li>• USDC (USD Coin – ERC20 and other supported networks).</li></ul> <p>Payments are processed through the Pangea sales platform (<a href="https://pangea.web4.world">https://pangea.web4.world</a>).</p> <p>Note: USDT was previously but is no longer supported for purchases through the Pangea website, due to concerns regarding regulatory and MiCA compliance status.</p> <p><b>Fiat Currency:</b></p> <ul style="list-style-type: none"><li>• USD (via bank transfer or payment processors).</li><li>• EUR (via bank transfer or payment processors).</li></ul> <p>Fiat currency purchases are only available for special circumstances made available exclusively by Tonomy Foundation, such as large purchases. They are processed directly into Tonomy Foundation's bank account. Bank details are provided by Tonomy Foundation under special circumstances by email.</p> <p><b>Additional currencies:</b> Additional payment methods may be available on third-party launchpads or exchanges, which will disclose their supported currencies separately.</p>
E.25	Value transfer methods for reimbursement	<p>Refunds will be made using the same payment method and currency as the original transaction, unless mutually agreed otherwise:</p> <p><b>Fiat Payments:</b></p>



		<p>Refunds will be sent to the same bank account used for the purchase.</p> <p><b>Crypto Payments:</b> Refunds will be returned to the original wallet address provided by the purchaser during payment. Transaction fees (Gas fees) are borne by Tonomy in case of a refund/reimbursement.</p> <p><b>Exchange Rate Basis:</b> Refunds in crypto-assets will be based on the exact amount of tokens received during the initial transaction, irrespective of price fluctuations.</p>
E.26	Right of withdrawal	<p>Purchasers have the right to withdraw from their token purchase within 14 calendar days, as provided under Article 13 of Regulation (EU) 2023/1114 (MiCA).</p> <p><b>Withdrawal Period:</b> The 14-day period starts from the date the purchase is made.</p> <p><b>How to Exercise the Withdrawal Right:</b></p> <ul style="list-style-type: none"><li>• Preferred Method: Create a support ticket in the official Pangea Discord server.</li><li>• Alternative Method: Send an email to <a href="mailto:contact@tonomy.foundation">contact@tonomy.foundation</a>, including purchase details and wallet information.</li></ul> <p><b>Refund Timeline:</b> Refunds will be processed within 14 calendar days following the receipt of a valid withdrawal request.</p> <p><b>Proof of Request:</b> Purchasers will receive confirmation of their withdrawal request via email or discord message.</p>
E.27	Transfer of purchased crypto-assets	<p>LEOS tokens are transferred to purchasers as follows:</p> <p><b>Standard Purchases (Pangea Website):</b> Upon purchase, vested LEOS tokens are automatically assigned to the purchaser's Pangea account. The purchaser's Pangea blockchain account is linked through their Pangea ID login during the purchase process. In rare cases of automatic purchase detection failure or manual intervention, token transfers may take up to 10 calendar days as per standard response time (Section A.10).</p> <p><b>Email Confirmation:</b></p>





		<p>Purchasers who initiate token purchase via the Pangea website will receive an email confirming token issuance upon successful processing.</p> <p><b>Vested asset enforcement</b></p> <p>The vesting of LEOS tokens is executed using an open-source smart contract deployed on the Pangea blockchain.</p> <ul style="list-style-type: none"><li>• On-chain contract: <a href="https://explorer.pangea.web4.world/account/vesting.tmy?tab=contract">https://explorer.pangea.web4.world/account/vesting.tmy?tab=contract</a></li><li>• Smart contract code: <a href="https://github.com/Tonomy-Foundation/Tonomy-Contracts/tree/master/contracts/vesting.tmy">https://github.com/Tonomy-Foundation/Tonomy-Contracts/tree/master/contracts/vesting.tmy</a></li><li>• Test suite: <a href="https://github.com/Tonomy-Foundation/Tonomy-ID-SDK/blob/master/test/services/blockchain/contracts/VestingContract.integration.test.ts">https://github.com/Tonomy-Foundation/Tonomy-ID-SDK/blob/master/test/services/blockchain/contracts/VestingContract.integration.test.ts</a></li></ul> <p>This contract automatically enforces vesting conditions and release schedules upon purchase. Tokens are locked in the vesting contract and gradually released according to the phase-specific vesting schedule. The contract is live on-chain, with successful internal testing conducted prior to public sale. The vesting contract source code is publicly available, ensuring transparency and security.</p> <p><b>Asset access:</b></p> <p>When vested LEOS is issued to a user, it appears in their Pangea ID app account. Users can access their LEOS via the Pangea ID mobile app, where they can:</p> <ul style="list-style-type: none"><li>• View vested LEOS allocations, and withdraw LEOS as per the allocation's vesting terms</li><li>• Transfer unlocked LEOS to other Pangea accounts.</li><li>• Stake unlocked LEOS to earn rewards, and unstake staked LEOS.</li></ul> <p><b>Finality of Transfers:</b></p> <p>Token transfers to purchasers are considered final and irreversible once processed.</p>
E.28	Transfer time schedule	<p>Transfer timelines vary based on the purchase method and vesting conditions:</p> <p><b>Pangea Website Purchases:</b></p> <ul style="list-style-type: none"><li>• Automatic Assignment: In normal circumstances, vested LEOS tokens are assigned immediately to the purchaser's Pangea blockchain account upon purchase confirmation and finalization by the crypto deposit provider Coinsbuy.</li><li>• Email Notification: Purchasers will receive email confirmation upon token issuance.</li></ul>



		<p><b>Manual Processing (Fallback)</b></p> <p>In cases of detection failure or other issues, purchasers may open a support ticket via:</p> <ul style="list-style-type: none"><li>• Pangea Discord server</li><li>• Email: <a href="mailto:contact@tonomy.foundation">contact@tonomy.foundation</a></li></ul> <p>Manual transfers may take up to 10 calendar days to resolve as per standard response time (Section A.10).</p> <p><b>Launchpad or Exchange Purchases:</b></p> <ul style="list-style-type: none"><li>• Post-TGE Withdrawals/Migrations: Tokens will be issued upon user-initiated withdrawal to their Pangea blockchain account or migration through the Pangea sales platform.</li></ul> <p><b>Vesting Unlocks:</b></p> <p>Tokens subject to vesting schedules (e.g., Seed, Incubator, Pre-Sale, Private, KOL, Public phases) will be automatically released to the purchaser's Pangea account in accordance with the applicable vesting schedule (Section E.18) and vested asset issuance (Section E.27).</p> <p><b>TGE and Final Deadlines:</b></p> <p>Token transfers will commence upon the Token Generation Event (TGE), expected to occur no later than 1 July 2025 (subject to potential 365-day extension by the issuer).</p> <p>Ongoing vesting unlocks will occur linearly, depending on the phase-specific vesting terms.</p>
E.29	Purchaser's technical requirements	<p>Purchasers are required to create a Pangea ID account to receive, hold, and manage LEOS tokens. The technical requirements for creating and maintaining a Pangea ID account are similar to opening an online account, such as a Google account, with some key differences for security and self-custody:</p> <p><b>Supported Wallets:</b></p> <ul style="list-style-type: none"><li>• Pangea ID is the only supported wallet and account type.</li><li>• Users must create a Pangea ID account to receive, manage, and transact LEOS tokens.</li><li>• Third-party wallets are not currently supported.</li></ul> <p><b>Device Requirements:</b></p> <ul style="list-style-type: none"><li>• A smartphone (Android or iOS) is required to use Pangea ID, as it is a mobile-first application.</li><li>• Internet access is necessary to register, log in, and manage the account.</li></ul>



		<p><b>Account Security:</b></p> <ul style="list-style-type: none"><li>• Users choose a unique username.</li><li>• Users receive a randomly generated 6-word passphrase, which must be written down and safely stored.</li><li>• If users lose their passphrase and username, their account access may be permanently lost.</li><li>• There is no password recovery or multi-factor authentication (MFA) available at this time.</li></ul> <p><b>Planned Future Safeguards (Not Yet Available):</b></p> <ul style="list-style-type: none"><li>• Account recovery via identity verification.</li><li>• Changing passphrase functionality.</li></ul> <p>Purchasers must safeguard their passphrase and username, as loss may result in the permanent inability to access their LEOS tokens.</p>
E.30	Crypto-asset service provider (CASP) name	<p>No external crypto-asset service provider (CASP) is engaged at the date of this whitepaper.</p> <p><b>Pangea Website Purchases:</b></p> <p>No CASP is responsible for the issuance of LEOS tokens through the Pangea sales platform (<a href="https://pangea.web4.world">https://pangea.web4.world</a>).</p> <p>Tonomy Foundation is the offeror and is directly responsible for placing LEOS tokens through its own platform.</p> <p><b>Launchpad or Exchange Purchases:</b></p> <p>Third-party launchpads and exchanges may issue LEOS tokens for KOL and Public Sale phases, but as of the date of this whitepaper, no agreements have been finalized.</p> <p>If any CASP is formally engaged, this whitepaper will be updated accordingly.</p>
E.31	CASP identifier	<p>No external crypto-asset service provider (CASP) is engaged at the date of this whitepaper.</p> <p>Tonomy Foundation issues LEOS tokens directly through its sales platform.</p>



		If a CASP is engaged in the future, their Legal Entity Identifier (LEI) will be provided in an updated version of this whitepaper.
E.32	Placement form	NATV
E.33	Trading platforms name	<p>No trading platform admission is confirmed as of the date of this whitepaper.</p> <p>Tonomy Foundation is in discussions with several major centralized exchanges (CEXs), including but not limited to:</p> <ul style="list-style-type: none"><li>• XT.com</li><li>• MEXC</li><li>• BitMart</li><li>• Gate.io</li><li>• Kucoin</li><li>• Phemex</li><li>• Bitvavo</li></ul> <p>Formal agreements have not yet been signed.</p> <p>Upon confirmation of any trading platform admission, the whitepaper will be updated and the competent authority notified.</p>
E.34	Trading platforms Market identifier code (MIC)	<b>MIC will be provided upon admission to trading</b>
E.35	Trading platforms access	NA
E.36	Involved costs	Where applicable, information about the costs involved in relation to the access of investors to the trading platforms
E.37	Offer expenses	The LEOS token offering has incurred and is expected to incur the following expenses related to the public sale and listing processes:



Incurred Expenses:		
Expense Category	Description	Amount (Approximate)
External Legal	Legal advisory and MiCA compliance support	€30,000
External Marketing Agencies	TGE Ventures: Token sale marketing & strategy	€14,000
	NinjaPromo: Advertising and marketing execution	€18,000
External Promotions and Ads (Including Airdrop Rewards)	TGE Ventures Managed Campaigns (Ads, promotions, airdrop rewards)	€115,000
	NinjaPromo Managed Campaigns	€9,500
	Directly Managed by Team (in-house ad spend, small influencer campaigns, etc.)	€5,000
External Tokenomics Advisory	Tokenomics audit and advisory from BrightNode	€5,000
External Financial Services & Custody	Coinbase Prime custody, Coinbase Exchange transactions and Coinsbuy crypto payment processing fees	€450
Development – Initial Website	Development of Pangea informational website (via Tretanz)	€10,000
Development – Sales Platform	Development of Pangea token sales platform (via Tretanz)	€10,000
External Sales Partners	Priority Tokens, Coinstack, and Ambassador Network (Introductions, leads, promotion of token sale)	€50,000
Team & Operations	Salaries, internal sales, marketing, administration, product development, platform servers, and operational costs	€225,000
Travel & Accommodation	Travel and accommodation for team attending crypto and product events	€10,000
VAT Taxes	VAT payments to the Dutch Government	€37,000



		Total expenses so far (approximate): €538,950		
		<b>Expected Future Expenses to get to TGE (USD):</b>		
		<b>Expense Category</b>	<b>Description</b>	<b>Estimated Cost (USD)</b>
		Marketing and Launchpads	Advertising, community growth, launchpad fees, influencer campaigns, partnerships.	€325,000
		Exchange Listings	Listing fees for centralized exchanges, including legal reviews required for admission.	€240,000
		Market Maker Liquidity	Liquidity provision and market-making services to support trading volume and reduce volatility.	€145,000
		External Legal	Continued legal advisory mostly provided by Watson Law as needed	€10,000
		Team and Operations	Internal team salaries and operational costs during the offer phase.	€36,000
		Contingency	Unexpected other costs such as additional legal, or financial platform integration and setup	€75,000
		Total expected expenses to get to TGE: €831,000		
E.38	Conflicts of interest	These expenses are being funded from the proceeds of the token sale.		
		The Tonomy Foundation is committed to transparency and fairness in the public offer of LEOS tokens and their future admission to trading. However, the following potential conflicts of interest have been identified:  <b>Management Token Allocations and Incentives:</b> Members of the management body and core team have been allocated LEOS tokens as part of their compensation and incentive plans.		



	<p>This creates a potential conflict, as those individuals may benefit financially from an increase in the market value of LEOS upon listing.</p> <p>To mitigate this:</p> <ul style="list-style-type: none"><li>• Team and advisor tokens are subject to vesting schedules, ensuring that token allocations are unlocked gradually over time.</li><li>• The vesting structure aligns the interests of the management team with the long-term success of the Pangea platform.</li></ul> <p><b>Foundation's Control Over the Treasury:</b></p> <p>Tonomy Foundation retains control over a significant portion of the LEOS token supply, including the reserve treasury. This may create a potential conflict, as decisions regarding token releases, liquidity provision, or market-making could impact token price.</p> <p>To mitigate this:</p> <ul style="list-style-type: none"><li>• Decisions regarding the strategic use of the treasury are subject to internal governance processes, and material decisions will be transparently communicated to the community.</li></ul> <p><b>Marketing Partners, Launchpads, and Exchanges:</b></p> <p>Certain launchpads, marketing agencies, and exchanges involved in the LEOS sale and listing may receive token allocations or financial incentives.</p> <p>This could create an incentive to promote the token aggressively, potentially influencing public perception.</p> <p>To mitigate this:</p> <ul style="list-style-type: none"><li>• Agreements with such partners are structured with vesting conditions where applicable.</li><li>• Disclosure will be made where a material allocation is provided to such partners.</li></ul> <p><b>Incubator and Advisors' Dual Roles:</b></p> <p>Certain external advisors to the Tonomy Foundation may also be token purchasers or participants in private sale phases.</p> <p>While this aligns their interests with the project's success, it may also create potential bias in their advisory role.</p> <p>To mitigate this:</p> <ul style="list-style-type: none"><li>• Advisors are required to disclose status as investors and advisors in any public messages</li></ul>
--	---



		<ul style="list-style-type: none"><li>• Advisors have no authority to make or leverage decisions for or on behalf of the Tonomy Foundation</li><li>• Advisors are subject to the same vesting lockup as other purchasers (from their round) and can therefore not 'dump' tokens and prevents them from acting immediately with the tokens in bulk on the basis of insider knowledge</li><li>• Advisors are bound by strict confidentiality with regard to the project, developments, the tokens, et cetera; any information that is not released by the Tonomy Foundation publically is strictly confidential</li></ul> <p>Tonomy Foundation remains vigilant and will disclose any future conflicts of interest that may arise.</p>
E.39	Applicable law	<p>The offer to the public of the LEOS crypto-asset is governed by the laws of the Netherlands, including:</p> <ul style="list-style-type: none"><li>• Regulation (EU) 2023/1114 (MiCA) – Governing the offer of crypto-assets within the European Union.</li><li>• Dutch Civil Code (Burgerlijk Wetboek) – Governing general contractual obligations and consumer protection.</li><li>• Dutch Anti-Money Laundering and Counter-Terrorist Financing Act (Wet ter voorkoming van witwassen en financieren van terrorisme - Wwft) – Governing KYC/AML requirements.</li></ul> <p>Any interpretation of this whitepaper and related agreements will be made under Dutch law.</p>
E.40	Competent court	<p>Any disputes arising from the offer to the public of the LEOS crypto-asset, the interpretation of this whitepaper, or the purchase or holding of LEOS tokens shall be subject to the exclusive jurisdiction of the competent courts in the Netherlands.</p> <p>Primary Jurisdiction: District Court of Amsterdam (Rechtbank Amsterdam).</p> <p>Purchasers acknowledge that all legal proceedings must be initiated in the Netherlands, and that Dutch law will apply to all proceedings.</p>

## Part F - Information about the crypto-assets

F.1	Crypto-asset type	The LEOS token is classified as a utility token under Article 3(1), point (5) of Regulation (EU) 2023/1114 (MiCA).
-----	-------------------	--





		<ul style="list-style-type: none"><li>• LEOS is intended to provide digital access to goods and services within the Pangea Virtual Nation ecosystem and to facilitate payments between users, businesses, and DAOs within the ecosystem.</li><li>• LEOS can be used as a means of payment between any Pangea account, but these transactions are exclusively facilitated on the Pangea blockchain infrastructure and are not intended as a general-purpose payment instrument outside the ecosystem.</li><li>• LEOS is not an asset-referenced token (ART) or e-money token (EMT), and its value is not pegged to any official currency or other assets.</li></ul> <p>The primary function of LEOS is to enable transactions and subscriptions across the Pangea platform's services, while also serving as a medium of exchange between participants within the Pangea ecosystem.</p>
F.2	Crypto-asset functionality	<p>The LEOS token is a utility token that facilitates access to and consumption of services within the Pangea platform, a sovereign digital ecosystem.</p> <p>LEOS serves as the primary medium of exchange within the ecosystem, enabling users, developers, businesses, and DAOs to access platform functionalities and services.</p> <p>The key functionalities of LEOS include:</p> <ul style="list-style-type: none"><li>• Access to Platform Services (SaaS Model):<ul style="list-style-type: none"><li>◦ Subscriptions: LEOS is required to pay for monthly subscription plans to access Pangea Build, Pangea DAO, and Pangea Bankless services.</li><li>◦ Per-Use Payments: LEOS is used for pay-per-use services, such as eIDAS-compliant document signing, identity verification, and smart contract execution costs.</li></ul></li><li>• DAO Formation and Governance:<ul style="list-style-type: none"><li>◦ DAO Entity Registration: LEOS is required to form and register DAOs on the platform.</li><li>◦ Seat Reservations and Advanced Governance Tools: LEOS is used to reserve seats, assign roles, and activate governance modules.</li><li>◦ Dispute Resolution: LEOS is required to open cases, hire mediators, and initiate arbitration within the Pangea Gov+ system.</li></ul></li><li>• Payments and Financial Transactions:<ul style="list-style-type: none"><li>◦ Transaction Fees: LEOS is used to cover transaction fees within the Pangea Bankless payment infrastructure.</li><li>◦ Treasury and Multi-Signature Features: LEOS is required for enabling advanced treasury tools, recurring payments, and automated payment flows.</li></ul></li></ul>



		<ul style="list-style-type: none"><li>• Staking and Incentives:<ul style="list-style-type: none"><li>◦ LEOS can be staked to earn a yield, incentivizing long-term holders and allowing investors and token holders to support the ecosystem while earning rewards.</li></ul></li><li>• Ecosystem Flexibility:<ul style="list-style-type: none"><li>◦ LEOS is designed as an adaptable utility token, with its range of functionalities expected to expand as Pangea's product offerings evolve based on market demand and industry partnerships.</li></ul></li></ul>
F.3	Planned application of functionalities	<p>The functionalities of the LEOS token will be applied progressively, with prioritization driven by the goal of achieving product-market fit across commercial, industry, and government segments.</p> <p>Commercial applications are prioritized to validate the platform's value in real-world settings, ensuring credibility and visibility before scaling non-commercial features such as democratic governance for the ecosystem (noting that democratic governance for DAOs has a direct commercialization value for DAOs).</p> <p>The planned rollout schedule is as follows:</p> <p><b>Staking</b></p> <ul style="list-style-type: none"><li>• Available from TGE.</li><li>• Prioritized not due to its centrality to the Pangea Virtual Nation, but as a pragmatic mechanism to reduce sell pressure after TGE and mitigate price volatility risks.</li><li>• Allows token holders to lock LEOS in return for a daily staking yield, encouraging longer-term holding and ecosystem alignment.</li></ul> <p><b>Pangea Build</b></p> <ul style="list-style-type: none"><li>• Currently under development.</li><li>• Features will be progressively rolled out over the next two years (2025-2027).</li><li>• Pangea Build serves as the commercialization gateway for Pangea services, enabling developers and businesses to integrate identity, DAO, and transaction capabilities into their platforms.</li></ul>



- Feature prioritization will be driven by market feedback, with initial focus on eIDAS signatures, sovereign storage data vault, transaction infrastructure, and developer APIs.

### **Pangea DAO**

- Planned to begin in 2025.
- Enables businesses and communities to form decentralized legal entities, manage treasuries, and govern operations using Pangea's identity and governance infrastructure.
- Feature set will be expanded gradually based on adoption and demand.

### **Pangea Gov+**

- Expected to begin in 2026.
- Focuses on enabling democratic governance and dispute resolution within the Pangea ecosystem.
- While governance tools will be free, LEOS will be used for paid dispute resolution services (e.g., mediator, judge, or jury selection).
- Rollout may accelerate depending on community demand and platform maturity.

### **Pangea Bankless**

- Expected to begin in 2025.
- Facilitates peer-to-peer and business transactions using LEOS, integrating with treasury and multi-party financial tools.
- Commercial adoption across supply chains, fintech, and AI-driven transactions will inform expansion.

### **Pangea ID**

- Already mature and operational prior to TGE.
- Provides self-sovereign identity and authentication services.
- Additional features (e.g., advanced verification, document signing) will be introduced progressively through Pangea Build.
- Commercialization options will be driven through Pangea Build partnerships with businesses and developers.

### **Feature Prioritization Approach**



		<ul style="list-style-type: none"><li>• Priority will be given to features that demonstrate product-market fit and commercial traction.</li><li>• Non-commercial features (e.g., decentralized governance) will scale once core commercial applications gain adoption, enhancing the project's credibility and visibility through real-world use cases.</li><li>• Feedback from early partners in industries such as supply chain, AI, and fintech will inform adjustments to the development timeline.</li></ul> <p>While this rollout schedule reflects the Foundation's current expectations, feature prioritization will remain adaptive to ensure alignment with user needs and market opportunities.</p>
--	--	--

## A description of the characteristics of the crypto-asset

including the data necessary for classification of the crypto-asset white paper in the register referred to in Article 109 of Regulation (EU) 2023/1114, as specified in accordance with paragraph 8 of that Article

F.4	Type of crypto-asset white paper	OTHR
F.5	The type of submission	<b>NEWT – New Submission</b>
F.6	Crypto-asset characteristics	<p>The LEOS token is a utility token designed to serve as the transactional medium and access key within the Pangea Virtual Nation ecosystem. It is used to pay for services, subscriptions, and on-chain operations across Pangea's identity, governance, and payment platforms, while also functioning as a staking asset for holders as outlined in Key Features of Goods/Services for Utility Token Projects (Section D.7), Crypto-asset functionality (Section F.2) and Planned application functionality (Section F.3)</p> <p>However, LEOS's defining characteristics extend beyond its functional role as a payment and service token, arising from the unique properties of Pangea's account infrastructure and embedded democratic governance system. Together, these features position LEOS as a next-generation privacy-centric, self-regulating digital asset with a governance-driven financial policy that can adapt over time in a transparent and decentralized manner.</p>

**Account System and Transaction Safety**

LEOS is held and transacted exclusively through Pangea accounts, which offer usability, safety, and accountability features that set it apart from traditional crypto-asset wallets. Pangea accounts allow users to create a private username, simplifying token management and transaction experiences compared to complex blockchain addresses. Multiple recovery options exist, including a 6-word passphrase, social recovery through trusted contacts, and future recovery solutions, reducing the risk of permanent loss. Pangea's account system is also integrated with identity verification capabilities, allowing users to voluntarily link their accounts to off-chain KYC data or opt-in for on-chain identity challenge mechanisms, enhancing credibility while preserving pseudonymity when desired. This balance of usability, recoverability, and optional accountability makes transacting and holding LEOS safer and more accessible, even for non-technical users, without sacrificing privacy.

**Self-Regulating and Self-Managing Nature**

A core characteristic of LEOS is its governance structure, which distinguishes it as one of the first privacy-centric self-regulating cryptocurrencies. The Pangea Gov+ system enables Pangea citizens to democratically create, amend, and enforce policies that regulate account behavior, payments, and even the token's underlying monetary rules. This participatory governance system allows Pangea citizens to define standards of conduct, implement safeguards against scams and fraud, and establish community-driven arbitration processes to resolve disputes, all while protecting user privacy. These policies can be enforced both on-chain and off-chain, through smart contracts that govern account functionality and dispute resolution mechanisms involving mediators, judges, or juries.

The governance framework also extends to LEOS's financial policy, making it a self-managing asset capable of evolving in response to the community's needs. While the initial supply is capped at 50 billion tokens, and no inflation or burning is planned at TGE, the supply and tokenomics parameters can be amended through Pangea's democratic governance system after launch. This allows Pangea citizens to collectively determine future supply adjustments, burning mechanisms, or staking reward changes, ensuring that token policy remains flexible and responsive to economic and market conditions.

Initially, Tonomy Foundation will retain oversight of these governance processes and financial policies, ensuring stability during the early phases of ecosystem development. However, as Pangea Gov+ matures, Tonomy Foundation intends to progressively transfer its governance powers to the community, eventually relinquishing control over monetary policy, platform rules, and dispute mechanisms. Once this transition is complete, LEOS will become a truly community-governed and self-regulating token, with monetary adjustments and platform governance transparently directed by its users.

**Final Token Properties**



		<p>In summary, LEOS combines transactional utility with advanced governance and identity-aware account features, resulting in a token characterized by security, recoverability, self-regulation, and long-term adaptability. It is designed to evolve through democratic governance, allowing the token's financial and operational policies to be upgraded in response to the needs of its users, businesses, and the broader ecosystem. This blend of privacy, security, and self-management makes LEOS a next-generation utility token and a pioneering example of how digital assets can align community governance with economic flexibility.</p>
F.7	Commercial name or trading name	Tonomy Foundation
F.8	Website of the issuer	<a href="https://tonomy.foundation">https://tonomy.foundation</a>
F.9	Starting date of offer to the public or admission to trading	May 2024
F.10	Publication date	2025-03-14
F.11	Any other services provided by the issuer	<p>Stichting Tonomy, as the issuer of the LEOS token, provides additional services outside the scope of Regulation (EU) 2023/1114. These services relate to the broader development, adoption, and support of decentralized identity, governance, and financial technologies that align with the Pangea ecosystem's mission.</p> <p>From time to time, Stichting Tonomy may engage in software development, technical support, consulting, and other auxiliary services related to open-source blockchain and governance technology. These services may be provided to third parties, including enterprises, public sector organizations, and independent developers, whether or not they are direct users of the Pangea platform.</p> <p>Such activities may include:</p> <ul style="list-style-type: none"><li>• Development of decentralized applications (dApps), governance frameworks, or identity solutions leveraging blockchain technology.</li><li>• Consulting and advisory services for third parties adopting self-sovereign identity, liquid democracy, or decentralized financial systems.</li><li>• Enterprise and institutional integration of blockchain-based infrastructure, including but not limited to Pangea-compatible services.</li><li>• Research, technical development, and commercialization of auxiliary technologies that enhance the security, scalability, and adoption of decentralized ecosystems.</li></ul>



		It is our understanding that these activities do not fall under MiCA regulations for crypto-assets but are subject to applicable EU data protection laws (GDPR), intellectual property regulations, and national business laws where relevant.
F.12	Language or languages of the crypto-asset white paper	English (EN)
F.13	Digital token identifier code used to uniquely identify the crypto-asset or each of the several crypto assets to which the white paper relates, where available	No DTI code is available for LEOS at the time of this submission.  Upon obtaining a DTI (in accordance with ISO 24165 standards), the Foundation will update this field and resubmit the white paper to reflect the assigned identifier.
F.14	Functionally fungible group digital token identifier, where available	No functionally fungible group FFG is available at the time of this submission.  Upon obtaining a functionally fungible group DTI (ISO 24165, Type = 3), the Foundation will update this field as required.
F.15	Voluntary data flag	FALSE
F.16	Personal data flag	TRUE
F.17	LEI eligibility	TRUE
F.18	Home Member State	The Netherlands
F.19	Host Member States	None

## Part G - Information on the rights and obligations attached to the crypto-assets

G.1	Purchaser rights and obligations	Purchasers of LEOS tokens acquire no ownership, equity, governance rights, or claims over Tonomy Foundation, the Pangea Virtual Nation, or any legal entity affiliated with the project. LEOS is a utility token, and ownership grants access to services within the Pangea ecosystem but does not confer any shareholder or creditor rights.
-----	----------------------------------	--



		<p>Purchaser have the same rights and obligations as other Pangea citizens:</p> <p><b>Purchaser Rights:</b></p> <p>Right to Use LEOS for Platform Services: Purchasers can use LEOS within the Pangea ecosystem to access paid platform services, including Pangea Build, DAO, Bankless, and Gov+.</p> <p>Right to Transfer LEOS: LEOS tokens are freely transferable between Pangea accounts, subject to compliance with applicable laws and platform rules.</p> <p>Right to Participate in Governance (When Activated): Future governance rights via Pangea Gov+ will allow Pangea citizens to vote on platform policies, financial adjustments, and governance proposals.</p> <p>Right to Stake LEOS: Purchasers may stake LEOS within the staking mechanism to earn yield, subject to the platform's staking terms.</p> <p><b>Purchaser Obligations:</b></p> <p>Compliance with Platform Rules and Regulations: Purchasers must comply with all applicable laws, including KYC/AML regulations, where required.</p> <p>Responsible Token Management: Purchasers must safeguard their Pangea account credentials and recovery keys, as Tonomy Foundation does not store or recover private keys.</p> <p>Use for Intended Purposes Only: LEOS is designed for use within the Pangea ecosystem and is not intended for speculative or financial investment purposes.</p>
G.2	Exercise of rights and obligations	<p>Purchasers can exercise their rights as LEOS holders within the Pangea ecosystem through the following mechanisms:</p> <ul style="list-style-type: none"><li>• Platform Access: LEOS can be used to subscribe to services, pay for transaction fees, and access platform features through the Pangea Build, DAO, Pay, and Gov+ platforms.</li><li>• Transfers and Payments: LEOS can be transferred between Pangea accounts through the Pangea blockchain infrastructure.</li><li>• Staking Participation: Users can stake LEOS by locking tokens within the staking contract, earning rewards based on platform-defined parameters.</li><li>• Governance Participation (Future Feature): Once Pangea Gov+ is activated, all Pangea citizens including LEOS holders will be able to participate in the creation, proposal and execution of governance proposals.</li><li>• Dispute Resolution (Future Feature): Users can use LEOS to pay for dispute resolution cases in Pangea Gov+ arbitration, including hiring mediators, judges, or juries.</li></ul>





		These rights can be exercised through the Pangea platform suite.
G.3	Conditions for modifications of rights and obligations	<p>The rights and obligations of LEOS holders may be modified in accordance with the governance policies established within Pangea Gov+.</p> <p>The token's financial policies, governance rules, and platform features can evolve over time based on community-driven governance processes.</p> <ul style="list-style-type: none"><li>Initially, Tonomy Foundation governs policy changes related to the token's supply rules, staking parameters, and service pricing.</li><li>Once control is transferred to the Pangea Gov+ system, these policies will be managed through decentralized governance, with all Pangea citizens including LEOS holders having the ability to participate based on their identity verification level</li></ul> <p>The following conditions apply:</p> <ul style="list-style-type: none"><li>Governance-Based Changes: Modifications to staking rewards, transaction fees, and platform services will be determined through on-chain voting mechanisms once governance is active.</li><li>Policy enforcement: Pangea regulations can be enforced by a combination of software and manual processes depending on the policy. This can include<ul style="list-style-type: none"><li>On-Chain Enforcement: Policy adjustments are executed via smart contracts, ensuring transparency and immutability.</li><li>Service Enforcement: Policy adjustments are executed by service providers in the network.</li><li>Application Peer-to-peer Enforcement: Policy adjustments are executed automatically by application software, which may automatically report policy infringements for further infringements</li><li>Manual Enforcement: Policy adjustments are observed and reported manually by citizens and organizations of Pangea</li></ul></li><li>Community Transition: Tonomy Foundation expects to retain initial control over governance mechanisms but intends to gradually transition these responsibilities to the community as the ecosystem matures.</li><li>Regulatory Compliance Adjustments: If required by law, Tonomy Foundation, while still in executive control, reserves the right to modify token usage policies to ensure compliance with evolving legal frameworks.</li></ul> <p>Purchasers will be informed of any changes through official communication channels.</p>



G.4	Future public offers	There are no future public offers of LEOS tokens planned by Tonomy Foundation beyond the ongoing sale phases leading up to the Token Generation Event (TGE).			
G.5	Issuer retained crypto-assets	The total supply of LEOS tokens is capped at 50 billion, with no inflation or burning mechanism at the time of TGE.			
		The token supply is allocated as follows:			
		<b>Treasury</b>	<b>Purpose</b>	<b>% of Tokens</b>	<b># of Tokens</b>
		<b>Token Sale Distribution</b>			
		Seed	Early supporters funding initial development, regulatory costs, and strategic groundwork.	14.00%	7,000,000,000
		Incubator*	Strategic token go-to-market investor and partner dedicated to success of TGE, with contractually enforced liquidation rules. see Section E.18 for breakdown of this sale deal	3.00%	1,500,000,000
		Pre-sale	Early adopters providing additional funding to prepare for the public sale and support TGE execution.	1.00%	500,000,000
		Private	Institutional and professional investor and groups contributing to the final preparation stages ahead of TGE, with a focus on market entry readiness.	5.50%	2,750,000,000
		KOL	Key opinion leaders and influencers assisting with outreach and community engagement.	0.67%	333,333,333
		Public	Broad public participation, encouraging community ownership and supporting platform growth.	1.33%	666,666,667
			<b>Total</b>	<b>25.5%</b>	<b>12,750,000,000</b>
		<b>Tonomy Foundation Controlled</b>			
		Team	Current and past contributors; incentives for future hires to align long-term efforts with platform success.	15.0%	7,500,000,000
			<b>Total</b>	<b>15.0%</b>	<b>7,500,000,000</b>
		<b>Ecosystem Controlled</b> <b>(initially controlled by Tonomy Foundation at TGE,</b> <b>till the governance handover as part of the Pangea Gov+ launch)</b>			



		Liquidity	Liquidity to provide market maker support for stable market liquidit, and platform funding liquidations to cover ongoing product development and marketing and token sustainability marketing.	9.0%	4,500,000,000
		Ecosystem	Grants, partnerships, adoption incentives, and other initiatives to support platform and community growth.	20.0%	10,000,000,000
		Platform Development	Long-term funding for the continued development and scaling of the Pangea platform.	6.50%	3,250,000,000
		Staking &Infrastructure Rewards	Incentives for staking participants and infrastructure providers (e.g., validators or hosting partners).	9.0%	4,500,000,000
		Community & Marketing	Funding for community-driven campaigns, grants, and large-scale marketing efforts.	9.0%	4,500,000,000
		Partnerships	Reserved for onboarding strategic partners, including enterprise collaborators and ecosystem integrators.	4.0%	2,000,000,000
		Reserves	Reserved for future platform needs, unforeseen developments, or strategic adjustments.	2.0%	1,000,000,000
				<b>Total</b>	<b>59.5%</b>
<p>The structure of the LEOS sale and tokenomics are subject to market conditions and operational changes. Changes to the above sales and other tokenomics will be notified through primary communication platforms.</p> <h3>Control Summary</h3> <ul style="list-style-type: none"><li>• Token Sale Distribution tokens transition to purchasers after vesting.</li><li>• The Tonomy Foundation will permanently control the Team allocation. Part of these will already be allocated to past and present Foundation contributors.</li><li>• All Ecosystem allocations are initially controlled by the Tonomy Foundation but will transition to Pangea Gov+ community governance after launch of Pangea Gov+ community governance. See Plans for the token (Section D.8) and Conditions for modifications of rights and obligations (Section G.3) for more details.</li></ul>					



		<ul style="list-style-type: none"><li>• Some Ecosystem Controlled funds are already allocated at TGE, with vesting terms matching their respective categories. This was used to pay partners, advisors and fund marketing airdrops.</li><li>• If a token sale round is not full closed, the remaining tokens may be allocated to the next planned sale round, or to the Liquidity treasury.</li><li>• Unsold tokens from the Token Sale Distribution will be transferred to the Liquidity Treasury.</li><li>• A small amount of tokens from the Reserve treasury are already allocated to purchases who missed out on the end of the Seed round, due to the inability of Stichting Tonomy to complete purchases. This is further outlined in Oversubscription acceptance (Section E.6) and Oversubscription allocation (Section E.7).</li></ul> <p>For visual representations of the token supply breakdown, see: <a href="https://pangea.web4.world/leos/buy-leos">https://pangea.web4.world/leos/buy-leos</a></p>
G.6	Utility token classification	TRUE
G.7	Key features of goods/services of utility tokens	<p>LEOS tokens provide access to a range of platform services within the Pangea Virtual Nation ecosystem. These services are designed to support individuals, businesses, developers, and decentralized organizations (DAOs), with pricing generally set in USD equivalents but paid exclusively in LEOS:</p> <ul style="list-style-type: none"><li>• <b>Pangea Build</b> (Developer Platform &amp; SaaS Console):<ul style="list-style-type: none"><li>◦ <b>Subscription Plans:</b> Developers and businesses pay in LEOS to access the platform's core development and identity APIs.</li><li>◦ <b>On-Chain Operations:</b> LEOS is required to deploy smart contracts, run blockchain transactions, and store data on the Pangea blockchain.</li><li>◦ <b>Modular Add-ons:</b> Services such as eIDAS-compliant signatures, advanced authorization, and secure data vaults can be activated per use by paying LEOS.</li></ul></li><li>• <b>Pangea DAO</b> (Digital Legal Entity Formation):<ul style="list-style-type: none"><li>◦ <b>DAO Formation &amp; Seats:</b> LEOS is required to create a DAO and assign member seats within the organization.</li><li>◦ <b>Treasury &amp; Voting Systems:</b> DAOs can upgrade governance tools and implement weighted voting by using LEOS.</li><li>◦ <b>Verified Agreements:</b> Legal-grade electronic agreements and high-trust contracts require additional LEOS for secure signing.</li></ul></li><li>• <b>Pangea Bankless</b> (Decentralized Payments):<ul style="list-style-type: none"><li>◦ <b>Transaction Fees:</b> Businesses pay LEOS for transaction processing fees within the Pangea payment system.</li></ul></li></ul>



		<ul style="list-style-type: none"><li>○ <b>Treasury Tools:</b> LEOS is used for advanced treasury features like multi-signature accounts and automated payment flows.</li><li>● <b>Pangea Gov+</b> (Liquid Democracy &amp; Dispute Resolution):<ul style="list-style-type: none"><li>○ <b>Governance Access:</b> Participating in voting and policy-making is free for Pangea users including LEOS holders.</li><li>○ <b>Dispute Resolution:</b> Creating a dispute case, hiring a mediator, judge, or jury requires LEOS payments.</li></ul></li><li>● <b>Pangea ID</b> (Digital Identity):<ul style="list-style-type: none"><li>○ <b>Staking:</b> LEOS holders can stake tokens for a yield.</li><li>○ <b>Future Identity Add-ons:</b> Services like eIDAS identity verification and document notarization will require LEOS payments.</li></ul></li></ul> <p>Access to services is modular, allowing users to tailor their Pangea experience based on their specific needs. The utility of LEOS is expected to expand over time in response to user and market demand.</p>
G.8	Utility tokens redemption	<p>LEOS tokens are not redeemed for goods or services in a traditional sense; rather, they serve as the primary means of payment for accessing platform services within the Pangea Virtual Nation ecosystem.</p> <p>The LEOS token facilitates access to both subscription-based services and pay-per-use features, with fees denominated in USD but paid in LEOS at the market rate at the time of payment.</p> <p>There are three primary redemption categories for LEOS tokens:</p> <p><b>1. SaaS-like Subscriptions</b></p> <ul style="list-style-type: none"><li>● Monthly or annual subscription fees, paid in advance in LEOS, based on a pay-per-user model for businesses and organizations accessing Pangea platform services.</li><li>● Examples include:<ul style="list-style-type: none"><li>○ Pangea DAO: Subscriptions for DAO seats.</li><li>○ Pangea Build: Subscriptions for app users and development environments.</li></ul></li><li>● Pricing is set in USD equivalents (e.g., \$0.05 per DAO seat per month), with payment executed in LEOS based on market rates at the time of payment.</li><li>● Freemium models and free trials may be offered, allowing limited access to platform features before committing to a paid plan.</li></ul>



		<ul style="list-style-type: none"><li>• Standard SaaS terms apply, such as a 1-month cancellation period with refunds for unused portions if applicable.</li></ul> <b>2. Pay-Per-Use Add-Ons</b> <ul style="list-style-type: none"><li>• Certain platform features require per-use payments in LEOS, typically for high-value services facilitated by external providers.</li><li>• Examples include:<ul style="list-style-type: none"><li>◦ eIDAS-compliant electronic signatures.</li><li>◦ Identity verifications conducted via third-party partners, facilitated through Pangea ID and Pangea Build.</li></ul></li><li>• Fees are denominated in USD and converted to LEOS at the end of each month based on usage.</li><li>• Users pre-approve spending limits and can opt into specific add-ons, allowing cost control and usage monitoring.</li><li>• Non-payment may result in suspension of access to these services.</li></ul> <b>3. Transaction Fees for LEOS Transfers</b> <ul style="list-style-type: none"><li>• Business transactions executed through Pangea Bankless may incur small transaction fees in LEOS, while person-to-person transfers between individual citizens are free.</li><li>• Transaction fees are built into the on-chain payment flow and are charged at the time of each transfer.</li></ul> <b>Additional Citizen-Facing Utilities</b> <ul style="list-style-type: none"><li>• Certain features available to individuals through Pangea ID, such as staking, are free of charge.</li><li>• Future citizen-facing utilities may be introduced, but will align with the platform's ethos of reducing friction for personal users.</li></ul> <p>All fees are processed automatically through smart contracts on the Pangea blockchain, ensuring transparency and traceability for every redemption transaction.</p> <p>Pricing models and fee structures are subject to periodic review and adjustment through community governance once Pangea Gov+ is operational.</p>
G.9	Non-trading request	FALSE
G.10	Crypto-assets purchase or sale modalities	N/A



		<p>However, following TGE and listing, LEOS tokens will be available for purchase and sale through the confirmed trading platforms, in addition to transfers between Pangea accounts.</p> <p>Updates regarding trading platforms will be communicated through the Foundation's website and official channels.</p> <p>Would you like me to proceed with G.11 to G.19, or would you like any refinements to this section first?</p>
G.11	Crypto-assets transfer restrictions	<p>The following limitations apply to LEOS transfers:</p> <ol style="list-style-type: none"><li><b>1. Vesting Periods</b><ul style="list-style-type: none"><li>• Tokens allocated through Seed, Incubator, Pre-Sale, Private, KOL, and Public Sale phases are subject to vesting schedules, as described in Section E.18.</li><li>• During the vesting period, these tokens are locked and cannot be transferred or sold.</li><li>• Upon vesting completion, tokens are fully unlocked and freely transferable.</li></ul></li><li><b>2. Staking Lock-Ups</b><ul style="list-style-type: none"><li>• Tokens that are staked within the LEOS staking mechanism are locked for the duration of the staking period.</li><li>• Staked tokens cannot be transferred until they are unstaked, subject to the terms and timelines of the staking program.</li><li>• Upon unstaking, tokens become fully transferable.</li></ul></li><li><b>3. Legal &amp; Regulatory Compliance</b><ul style="list-style-type: none"><li>• Transfers may be restricted if required by law, regulation, or court order, including AML/CTF obligations, sanctions, or judicial actions.</li></ul></li><li><b>4. Platform Governance Actions</b><ul style="list-style-type: none"><li>• The Pangea Gov+ system enables governance proposals to introduce account-specific restrictions in cases of fraud, scams, or malicious behavior.</li><li>• Such governance-driven restrictions will be transparently published and enforced through on-chain mechanisms.</li></ul></li><li><b>5. Third-Party Platform Restrictions</b><ul style="list-style-type: none"><li>• Tokens held on exchanges, launchpads, or custodial wallets may be subject to additional platform-specific restrictions.</li><li>• These are determined by the respective platforms and are outside the control of Stichting Tonomy.</li><li>• These restrictions are intended to ensure compliance, safeguard the ecosystem, and align token holders with the long-term success of the Pangea Virtual Nation.</li></ul></li></ol>



		<p>Other than the above, there are no general restrictions on the transferability of LEOS tokens once they are vested and distributed to purchasers.</p> <p>Holders are free to transfer LEOS between Pangea accounts or trade on admitted exchanges, subject to applicable laws and platform governance rules.</p>
G.12	Supply adjustment protocols	FALSE
G.13	Supply adjustment mechanisms	<p>N/A</p> <p>However, it should be noted that future adjustments to the token supply (e.g., minting or burning) could be introduced through the community-driven governance system (Pangea Gov+).</p> <p>Any such changes would require approval through on-chain democratic governance once Stichting Tonomy transfers control of token policy to the community.</p> <p>As of the date of this white paper, no such supply adjustments are planned, and the total supply is capped at 50 billion LEOS tokens.</p>
G.14	Token value protection schemes	FALSE
G.15	Token value protection schemes description	N/A
G.16	Compensation schemes	FALSE
G.17	Compensation schemes description	N/A
G.18	Applicable law	<p>The LEOS token sale and its subsequent use within the Pangea Virtual Nation ecosystem are subject to a combination of existing Dutch, EU, and other applicable local laws, as well as the platform's evolving self-governance system.</p> <p>The applicable legal framework can be understood in three distinct phases:</p> <p><b>1. Token Sale Phase (Pre-TGE to TGE Completion)</b></p>





	<p>The offer to the public of LEOS tokens and their distribution up to and including the Token Generation Event (TGE) is governed by the laws of the Netherlands and applicable European Union (EU) regulations.</p> <p>This framework applies specifically to purchasers through the Pangea sales platform (<a href="https://pangea.web4.world">https://pangea.web4.world</a>) or authorized launchpads and exchanges:</p> <ul style="list-style-type: none"><li>• Regulation (EU) 2023/1114 (MiCA) – Governing the offering, distribution, and admission to trading of LEOS as a utility token within the EU.</li><li>• Dutch Civil Code (Burgerlijk Wetboek) – Governing the contractual relationship between Stichting Tonomy and token purchasers.</li><li>• Dutch Anti-Money Laundering and Counter-Terrorist Financing Act (Wet ter voorkoming van witwassen en financieren van terrorisme – Wwft) – Requiring customer due diligence (CDD), including identity verification, for certain transactions.</li><li>• Token Sale Agreement: Each purchaser agrees to the terms and conditions set out in the Token Sale Agreement provided through the Pangea sales platform or third-party launchpads.</li></ul> <p>These terms incorporate Dutch and EU legal requirements and may extend certain conditions to non-EU residents where appropriate.</p> <p>While the sale is primarily governed by Dutch and EU laws, applicable local laws in the jurisdiction of the purchaser may also apply.</p> <p><b>2. Post-TGE Token Use Phase</b></p> <p>Following TGE, the use and transfer of LEOS tokens by holders will be subject to the applicable laws in their local jurisdictions, which may vary depending on their country of residence and the nature of their activities.</p> <p>However, as LEOS is designed to operate globally, and the Pangea platform is already configured to align with key Dutch and EU regulatory standards, the following laws are particularly relevant:</p> <ul style="list-style-type: none"><li>• Regulation (EU) 2023/1114 (MiCA) – Continuing to apply to activities involving EU residents and businesses.</li><li>• Regulation (EU) 2015/847 (Funds Transfer Regulation, “EU Travel Rule”) – Requiring the collection and transmission of identifying information for certain LEOS transactions involving EU persons and organizations.<ul style="list-style-type: none"><li>◦ The Pangea platform is designed to comply with this requirement, offering protective benefits to EU residents and, where appropriate, extending such safeguards to non-EU residents for added protection.</li></ul></li></ul>
--	---



- General Data Protection Regulation (GDPR) (Regulation (EU) 2016/679) – Protecting personal data within the Pangea platform, including identity verification services powered by Pangea ID.
- eIDAS Regulation (Regulation (EU) No 910/2014) – Supporting qualified digital signatures and authentication services offered through the Pangea Build platform, available for businesses and individuals.
- Local Laws Outside the EU: LEOS holders and platform users may be subject to the laws of their respective jurisdictions, including securities, tax, anti-money laundering, and consumer protection laws.

### 3. Long-Term Self-Governance Vision

The Pangea Virtual Nation is designed to evolve into a self-governing digital ecosystem with its own regulatory and policy-making capabilities.

- The Pangea Gov+ system will empower citizens (token holders and network participants) to collectively create, adopt, and enforce on-chain policies.
- This governance framework will enable the community to decide how LEOS and the Pangea ecosystem interact with global regulatory frameworks, balancing privacy preservation with accountability and compliance.
- While Pangea may establish its own legal and regulatory standards over time, the use of LEOS within certain jurisdictions (e.g., the EU) will remain subject to the applicable national and regional laws of those jurisdictions.
- Ultimately, Pangea's regulatory approach will influence its level of integration and usability across different countries, shaping its accessibility for citizens and organizations globally.

#### Key Summary

- Token Sale → Dutch and EU Law (MiCA, Wwft, Civil Code).
- Post-TGE Token Use → Local Laws + EU Framework (Travel Rule, MiCA, GDPR, eIDAS).
- Future Self-Governance → Pangea's On-Chain Policy + Local Law Coexistence.

While Pangea may establish its own self-regulatory legal framework over time, this will not replace or override national laws where LEOS is used by citizens or businesses subject to those laws.

Instead, it is expected to create a complementary governance layer, enabling a hybrid system of decentralized self-regulation alongside compliance with local and international legal standards.

This approach reflects LEOS's status as both a compliant utility token under EU law and an autonomous, self-regulating currency within the Pangea ecosystem.



G.19	Competent court	<p>Legal disputes arising from the LEOS token sale and any agreements involving Stichting Tonomy are subject to the exclusive jurisdiction of the courts in the Netherlands.</p> <ul style="list-style-type: none"><li>• Primary Jurisdiction: District Court of Amsterdam (Rechtbank Amsterdam)</li></ul> <p>After TGE and the transition toward community governance, Pangea's internal dispute resolution mechanisms may be used for platform-related matters (e.g., smart contract failures, service disputes, or token governance issues).</p> <p>However, where a dispute involves Stichting Tonomy's role as the token offeror or a contractual relationship arising from the token sale, the courts in the Netherlands shall retain exclusive jurisdiction.</p> <p>This legal clarity is essential under MiCA to protect token purchasers and ensure regulatory compliance.</p> <p>As Pangea's vision progresses toward self-governance, the community may develop additional on-chain arbitration or dispute resolution systems, but these will not replace the Dutch courts' jurisdiction over matters involving Stichting Tonomy's commitments and Dutch/EU regulatory obligations.</p>
------	-----------------	--

## Part H – information on the underlying technology

H.1	Distributed ledger technology (DTL)	<p>The LEOS token is issued, stored, and transacted on the Pangea Blockchain, a sovereign blockchain infrastructure purpose-built to power the digital economy, governance, and financial operations of the Pangea Virtual Nation.</p> <p>The Pangea Blockchain operates as the core infrastructure layer of the Pangea Platform, providing the foundational DLT environment for transactions, smart contracts, and decentralized governance.</p> <p><b>Blockchain Protocol</b></p>
-----	-------------------------------------	---



The Pangea Blockchain is a sovereign blockchain implementation of Antelope, customized with system contracts that support decentralized governance, financial transactions, and identity-linked accounts.

It is designed for high-speed transaction processing, scalable governance, and upgradeability through community-driven smart contract improvements.

Key Features of the Pangea Blockchain:

- Based on Antelope (formerly EOSIO), optimized for scalability and governance integration. Antelope is currently used on popular crypto projects EOS, Telos and WAX which are already securing \$1B combined market cap.
- High-speed processing with 0.5-second block times and ~3-minute finality.
- Upgradeable system contracts allowing community governance over tokenomics, platform policies, and identity standards.

### **Blockchain Consensus (aBFT) vs. On-Chain Governance (Liquid Democracy)**

The Pangea Blockchain operates through two distinct layers of decision-making: blockchain consensus and on-chain governance.

#### **aBFT Blockchain Consensus (Block Producer Operations)**

- The Pangea Blockchain uses an asynchronous Byzantine Fault Tolerant (aBFT) Delegated Proof of Stake (DPoS) consensus mechanism.
- Block producers validate and sign transactions, ensuring secure and irreversible updates to the ledger.
- This consensus mechanism is optimized for high-performance block synchronization, providing low-latency transaction finality (typically ~3 minutes).
- Block producers are elected through on-chain voting through the liquid democracy system.

#### **On-Chain Governance (Liquid Democracy for Ecosystem Rules & Policy-Making)**

- The governance of Pangea and the rules governing LEOS are separate from the block synchronization protocol.



- Pangea citizens including LEOS holders participate in governance through a liquid democracy system, allowing them to vote on decisions or delegate their voting power.
- The Pangea Gov+ system governs ecosystem-wide policies, such as:
  - Who the block producers are (via citizen elections).
  - Rules governing LEOS (e.g., staking rewards, transaction fees, and treasury fund usage).
  - Rules governing other platform functions, including identity verification, DAO regulations, and developer frameworks.

This dual-layer approach ensures both fast, fault-tolerant transaction validation (via aBFT consensus) and decentralized, democratic decision-making (via Liquid Democracy governance).

### **3. Blockchain Security and Permissionless Transactions**

The Pangea Blockchain ensures decentralized, permissionless LEOS transactions, subject to the financial policies determined by the Liquid Democracy governance system.

- LEOS tokens are fully permissionless in that transactions occur on a decentralized network with no central controller.
- Stichting Tonomy does not have the ability to halt, reverse, or modify transactions once they are confirmed by the blockchain.
- Financial policies, such as transaction fees, staking rewards, or potential future adjustments to tokenomics, are governed through community voting.
- All governance decisions related to LEOS financial policy are executed transparently through smart contracts.

### **4. Network Decentralization and Long-Term Transition**

The Pangea Blockchain is operated by an independent set of block producers, with Stichting Tonomy currently controlling a minority of network nodes.

- Over time, Stichting Tonomy expects to relinquish direct control over the blockchain infrastructure, transitioning governance and operational control to the community.
- This transition will ensure that Pangea Blockchain operates with minimal central oversight, except where necessary for:
  - Network monitoring and security updates.
  - Analytics collection to assist in product development decisions.



- Technical support and research-driven improvements to the platform.

This ensures Pangea Blockchain remains community-driven, self-regulating, and aligned with its vision of a fully autonomous digital nation.

## 5. Final Summary of Distributed Ledger Technology (DLT) Characteristics

Feature	Details
Blockchain Protocol	Antelope (formerly EOSIO), configured with custom system contracts
Consensus Mechanism	aBFT and Liquid Democracy
Block Time	0.5 seconds
Transaction Finality	~3 minutes (signed irreversible blocks)
Smart Contract Standard	C++-based, upgradeable via on-chain governance
Token Standard	<a href="#">eosio.token</a> standard, currently used systematically across other Antelope blockchains
Resource Model	CPU, NET, RAM staking model (organizations pay LEOS to allow users in their apps to access resources)
Governance Model	Liquid Democracy (planned), financial policy via on-chain governance
Security Features	Immutable transaction history, multi-signature protections, open-source auditing
Infrastructure Control	Majority of block producers independently operated (Stichting Tonomy controls a minority)

## Conclusion

The Pangea Blockchain provides the foundational DLT infrastructure for the Pangea Virtual Nation, ensuring scalable, secure, and decentralized token operations.

With a high-performance aBFT consensus, community-driven governance, and open-source smart contracts, it forms the core layer for transacting, governing, and securing LEOS.



H.2	<p>Protocols and technical standards</p>	<p>The Pangea Blockchain and Pangea Platform adhere to well-established technical standards, ensuring compatibility, security, and scalability across its distributed ledger infrastructure, smart contract framework, and data access mechanisms.</p> <p>This section outlines the key protocols and technical standards that define the blockchain architecture, token implementation, and data access mechanisms used in Pangea.</p> <p><b>Distributed Ledger Protocol: Antelope (formerly EOSIO)</b></p> <p>The Pangea Blockchain is built on Antelope, an open-source Layer 1 blockchain framework designed for high-performance smart contract execution, decentralized infrastructure management, and governance adaptability.</p> <ul style="list-style-type: none"><li>• Antelope's core architecture is based on the asynchronous Byzantine Fault Tolerant (aBFT) protocol, ensuring rapid block synchronization and secure state updates across network nodes.</li><li>• Unlike other Antelope-based blockchains that use Delegated Proof of Stake (DPoS), the Pangea Blockchain utilizes a Liquid Democracy governance model for policy decisions.</li><li>• Custom system contracts extend the base Antelope functionality, supporting identity-linked accounts, financial governance, and modular fee models.</li></ul> <p>Relevant Antelope Technical Standards:</p> <ul style="list-style-type: none"><li>• Official Documentation: <a href="https://antelope.io">https://antelope.io</a></li><li>• Core Protocol Source Code: <a href="https://github.com/AntelopeIO/leap">https://github.com/AntelopeIO/leap</a></li></ul> <p><b>Token Standard and Smart Contract Framework</b></p> <p>The LEOS token operates under a custom implementation of Antelope's "eosio.token" standard.</p> <ul style="list-style-type: none"><li>• Smart contracts are written in C++ using the Antelope Smart Contract Development Kit (CDT).</li><li>• All core contracts (LEOS token, staking, treasury) are upgradeable, subject to community governance approval.</li><li>• Smart contract execution follows Antelope's synchronous and deterministic transaction processing model, ensuring consistent validation across block producers.</li></ul> <p>Relevant Smart Contract Standards:</p> <ul style="list-style-type: none"><li>• Native Antelope eosio.token standard, with minor enhancements to fit the Pangea resource model with security-relevant code unchanged</li><li>• Upgradeability managed through multi-signature governance proposals.</li></ul>
-----	--	--



		<ul style="list-style-type: none"><li>• Formal resource staking model (CPU, NET, RAM) for contract execution.</li></ul> <b>Identity and Account Standards</b> <p>The Pangea Blockchain enhances traditional blockchain accounts by integrating identity-linked features, improving usability and security.</p> <ul style="list-style-type: none"><li>• Accounts use human-readable usernames instead of cryptographic addresses.</li><li>• Passwordless authentication via Pangea ID aligns with self-sovereign identity (SSI) principles.</li><li>• Multi-recovery mechanisms (passphrase, social recovery) improve accessibility.</li></ul> <p>Standards Alignment:</p> <ul style="list-style-type: none"><li>• Aligned with W3C Decentralized Identifiers (DIDs) and Verifiable Credentials (VCs).</li><li>• Future roadmap includes integration with eIDAS 2.0 digital identity wallets.</li></ul> <b>Data Access and API Standards</b> <p>To support off-chain integrations and application development, Pangea provides API access using industry-standard protocols.</p> <ul style="list-style-type: none"><li>• Smart contract interactions use Antelope's ABI (Application Binary Interface) format.</li><li>• GraphQL and RESTful APIs enable developers to query blockchain state efficiently.</li><li>• Secure HTTPS and JSON-based data exchange ensures interoperability with external services.</li></ul> <p>Relevant API and Data Standards:</p> <ul style="list-style-type: none"><li>• ABI (Application Binary Interface) for smart contract interaction.</li><li>• GraphQL and REST APIs for blockchain querying.</li><li>• Standard HTTPS and JSON data exchange for off-chain integrations.</li></ul>
H.3	Technology used	<p>The Pangea Platform is a full-stack ecosystem built on top of the Pangea Blockchain, integrating on-chain and off-chain components to provide scalable identity, governance, and transaction services.</p> <p>This section outlines the key technological components beyond the blockchain itself, including the application layer, execution layer, and data layer.</p> <b>Pangea Platform Architecture Overview</b> <p>The Pangea Platform consists of multiple interconnected layers:</p>





Layer	Description
Application Layer	End-user interfaces for identity, payments, governance, and development tools.
Execution Layer	Off-chain processing for advanced cryptographic operations and external integrations.
Data Layer	Secure, decentralized data storage solutions for public, private, and sovereign data.
Infrastructure Layer	The core Pangea Blockchain (Antelope-based DLT), handling transactions and consensus.

Each layer plays a distinct role, ensuring Pangea’s services are scalable, efficient, and user-friendly.

**Application Layer: No-Code Identity, Payments, and Governance**

The Application Layer consists of modular, no-code applications that allow individuals, businesses, and DAOs to interact with the Pangea Blockchain.

- Pangea ID: Self-sovereign identity and authentication system providing passwordless login, identity-linked accounts, and recovery mechanisms.
- Pangea Bankless: Decentralized financial services platform for business payments, treasury management, and multi-signature transactions.
- Pangea Build: No-code and developer tools to integrate identity, governance, and payments into third-party applications.
- Pangea DAO: Digital legal entity management platform for creating and governing decentralized organizations.
- Pangea Gov+: On-chain participatory governance system enabling voting, financial policy management, and dispute resolution.

These applications provide seamless access to blockchain services without requiring deep technical expertise, ensuring adoption across both crypto-native and non-crypto users.

**Execution Layer: Off-Chain Processing and External Service Integration**

The Execution Layer handles cryptographic operations, identity verification, and real-world integrations that do not require full on-chain execution.

- Off-Chain Cryptographic Services:
  - eIDAS-compliant digital signatures (for legally recognized document signing).
  - ZK (Zero-Knowledge) Proofs (planned) for privacy-preserving attestations.



- Identity Verification and Trust Services:
  - Bridging off-chain identity verification services with on-chain identity-linked accounts.
  - Third-party KYC/AML verification integration.
- Cross-Platform Compatibility:
  - Standardized authentication protocols (OAuth 2.0, OpenID, WebAuthn) for interoperability with external services.
  - API bridges for integrating traditional financial institutions and DeFi protocols.

This layer ensures Pangea services remain globally interoperable, while preserving decentralization and self-sovereign identity principles.

### **Data Layer: Scalable, Secure Data Storage and Indexing**

The Pangea Data Layer is designed to provide a flexible, decentralized approach to data storage, ensuring data sovereignty, user privacy, and accessibility across public and private domains.

#### **1. Public Data Layer (Immutable Public Storage)**

- Used for publicly available, immutable data that does not require privacy controls.
- Planned integrations with IPFS and Ceramic to store public records, on-chain governance proposals, verified credential schemas, and decentralized content.
- Example Use Cases:
  - Publishing open governance decisions and policy updates.
  - Storing permanent digital certificates or credentials.
  - Hosting publicly accessible DAO documents.

#### **2. Sovereign Storage Vaults (Private User-Controlled Storage)**

- Each citizen has a sovereign storage vault stored on their mobile device.
- Used for private, personal data that remains under the user's full control, ensuring data is not stored on centralized or third-party servers.
- Data stored within sovereign storage vaults can be selectively shared with applications, enabling privacy-first decentralized apps (dApps).
- Example Use Cases:
  - Storing personal identity credentials.
  - Managing signed legal agreements or private DAO records.
  - Controlling access permissions for third-party applications.



		<p><b>3. Private Data Recovery Layer (Multi-Party Encrypted Cloud Backup)</b></p> <ul style="list-style-type: none"><li>• Designed for safeguarding sensitive information in the event of lost or compromised sovereign storage vaults.</li><li>• Encrypted cloud-based backups ensure that users and organizations can securely recover essential data. Encryption keys are split between multiple parties to ensure no one party has access to encrypted cloud backups.it</li><li>• Access to these backups requires cryptographic authorization, controlled by the user.</li><li>• Example Use Cases:<ul style="list-style-type: none"><li>◦ Secure wallet recovery for LEOS holdings.</li><li>◦ Backup storage for decentralized organization records.</li><li>◦ Emergency restoration of identity-linked credentials.</li></ul></li></ul> <p>The Pangea Data Layer combines decentralized, user-controlled storage solutions with optional secure backup mechanisms, ensuring a balance between privacy, data security, and accessibility.</p>
H.4	Consensus mechanism	<p>The Pangea Blockchain operates with a dual-layered consensus system, ensuring both fast, secure transaction validation and decentralized decision-making for platform governance.</p> <p>It combines:</p> <ul style="list-style-type: none"><li>• An asynchronous Byzantine Fault Tolerant (aBFT) consensus mechanism for block validation and transaction finality.</li><li>• A Liquid Democracy governance model that empowers all Pangea citizens (including of their LEOS holders) to vote on key ecosystem decision.</li></ul> <p>This approach ensures the Pangea Blockchain remains both efficient and truly democratic.</p> <p><b>Blockchain Consensus Mechanism: aBFT for Block Validation</b></p> <p>The Pangea Blockchain uses an asynchronous Byzantine Fault Tolerant (aBFT) consensus protocol, which enables secure and high-speed block validation.</p> <p>This protocol ensures that transactions are confirmed even in the presence of network delays or malicious actors.</p> <p><b>Key Features of aBFT in Pangea:</b></p> <ul style="list-style-type: none"><li>• Fast Block Finality: Transactions are finalized within ~3 minutes, making them immutable and irreversible.</li><li>• 0.5-Second Block Production: Ensures high throughput and low latency transaction processing.</li></ul>



- Fault Tolerance: The system remains secure even if some block producers act maliciously or go offline.
- Decentralized Block Production: Block producers are elected by Pangea citizens through Liquid Democracy governance. This consensus layer ensures transactions are processed efficiently while remaining secure and censorship-resistant.

### **Ecosystem Governance: Liquid Democracy Model**

Beyond block validation, the governance of the Pangea Blockchain and its ecosystem is managed through Liquid Democracy. This model allows every Pangea citizen to directly participate in decision-making, ensuring true democracy.

#### **How Liquid Democracy Works in Principle**

1. Every Pangea citizen has the right to vote on governance proposals.
2. Citizens can either vote directly on proposals or delegate their vote to a trusted representative based on categories such as identity, or finance.
3. Delegated votes can be reassigned at any time, ensuring flexibility and accountability in representation.
4. Governance proposals follow a structured voting process, ensuring fair and transparent decision-making.

This model balances direct citizen participation with the ability to delegate expertise-based governance.

### **Ensuring Fair and Secure Voting**

To prevent manipulation and ensure fair governance, the Pangea Platform integrates identity challenges and verification mechanisms into Liquid Democracy.

#### **Key Security Features:**

- Identity Verification Challenges:
  - Users can verify their identity without revealing personal data, ensuring fair participation while preserving privacy.
- On-Chain Voting Integrity:
  - Voting actions are recorded on the blockchain, ensuring transparency and accountability.
- One-Vote-Per-Citizen Rule:
  - The governance system ensures that each citizen can only vote once per proposal, preventing vote duplication or influence concentration.

These measures ensure that Pangea's governance is not dictated by wealth (LEOS holdings) but by citizen participation.



		<p><b>Block Producer Election Process</b></p> <p>The Pangea Blockchain relies on elected block producers to validate transactions, secure the network, and maintain blockchain integrity.</p> <p><b>How Block Producers Are Elected:</b></p> <ol style="list-style-type: none"><li>1. Candidates apply to become block producers through the Liquid Democracy governance process.</li><li>2. Pangea citizens vote on proposals to change block producer candidates, selecting those they trust to operate the network securely.</li><li>3. Block producers who fail to meet performance or security standards can be removed through governance votes or automatically.</li><li>4. There are built-in decentralization safeguards to prevent any single entity from controlling multiple block producers.</li></ol> <p>This system ensures that block producers are accountable to the community and not controlled by a centralized entity.</p> <p><b>Long-Term Governance Transition</b></p> <p>Currently, Stichting Tonomy plays a role in maintaining governance security, ensuring a stable transition toward full community governance.</p> <p>Over time, control will be fully handed over to the Pangea community, ensuring a self-governed, fully decentralized ecosystem.</p>
H.5	Incentive mechanisms and applicable fees	<p>The Pangea Platform employs an incentive model designed to balance network security, economic sustainability, and user accessibility.</p> <p>This system includes transaction fees, service provider compensation, and governance-controlled treasury management, ensuring a fair and adaptable economic framework.</p> <p><b>Transaction Fees and Payment Model</b></p> <p>LEOS is required to access various services within the Pangea ecosystem, including smart contract execution, payments, and business transactions.</p> <p><b>Fee Structure in Pangea:</b></p> <ul style="list-style-type: none"><li>• SaaS-like Subscription Fees:</li></ul>



- Services such as Pangea Build and Pangea DAO follow a monthly or annual subscription model, priced in USD equivalents but paid in LEOS.
- Example: \$0.05 per DAO seat per month, paid in LEOS at market rate.
- Refunds available for unused periods per standard SaaS policies.
- Pay-Per-Use Add-ons:
  - High-value external services (e.g., eIDAS signatures, identity verifications) are billed monthly based on usage.
  - Non-payment results in service suspension but does not affect the core blockchain account.
- Transaction Fees for Business Payments:
  - Person-to-person LEOS transactions are free.
  - Business payments on Pangea Bankless incur small transaction fees, dynamically adjusted by governance.
  - Fees are built into smart contract transactions, ensuring transparent cost structures.

This system ensures that essential blockchain functions remain accessible, while businesses contribute to platform sustainability.

### **Service Provider Compensation (Block Producers, Data Nodes, and Identity Bridges)**

The Pangea Blockchain relies on independent operators to maintain network security, provide essential data services, and bridge identity systems.

#### **Compensation Model for Service Providers:**

- Block producers, data nodes, and identity bridges receive a fixed monthly LEOS payment for their services.
- These payments are governed by an on-chain Service-Level Agreement (SLA), ensuring performance accountability.
- If a service provider fails to meet their SLA commitments, they forfeit their monthly payment and may be voted out.
- Governance mechanisms allow for the replacement of underperforming service providers through Liquid Democracy voting.

This model ensures that only reliable and high-performing operators continue providing critical infrastructure services.

### **Treasury and Governance Fund Allocations**

All LEOS utility payments (transaction fees, subscriptions, and pay-per-use fees) are collected into the governance treasury. The treasury is managed by the Liquid Democracy governance system, which allocates funds to support platform development, ecosystem growth, and contributor rewards.

#### **Treasury Funds Support:**

- Core Contributors & Staff: Funding for developers, researchers, and administrators working on the Pangea Platform.
- Ecosystem Development Grants: Incentives for third-party projects building applications, DAOs, and services on Pangea.



		<ul style="list-style-type: none"><li>• Infrastructure &amp; Security Upgrades: Funding for ongoing improvements to blockchain security, governance, and compliance systems.</li><li>• Marketing &amp; Community Incentives: Supporting adoption efforts, referral rewards, and education programs.</li></ul> <p>Additionally, approximately 50% of LEOS at TGE is pre-allocated to the governance treasury, providing financial resources to sustain development and ecosystem expansion until the platform reaches economic stability and product-market fit. This allocation is detailed in Section G.5 (Issuer Retained Crypto-Assets) and ensures that the project has sufficient funding to establish itself in the early stages of operation.</p> <p>This model ensures that all LEOS payments contribute directly to the long-term sustainability of the Pangea Virtual Nation.</p> <p><b>Evolution of LEOS Rewards and Incentives</b></p> <p>The Pangea incentive model is designed to be adaptable and will evolve as the platform finds product-market fit.</p> <ul style="list-style-type: none"><li>• Rewards and payment mechanisms can be upgraded through governance decisions.</li><li>• The governance system continuously evaluates the effectiveness of incentives and adjusts them to optimize adoption, economic sustainability, and service reliability.</li></ul> <p>This flexibility ensures that LEOS remains a dynamic, self-sustaining currency, capable of adapting to real-world needs.</p>
H.6	Use of distributed ledger technology	TRUE
H.7	DLT functionality description	<p>The Pangea Blockchain is a sovereign, high-performance distributed ledger built on the Antelope protocol and optimized for scalability, governance, and low energy consumption. It operates using an asynchronous Byzantine Fault Tolerant (aBFT) consensus mechanism, ensuring fast transaction finality while maintaining decentralization.</p> <p>The issuer, Stichting Tonomy, currently operates a minority of the block producer nodes within the network, helping to ensure network stability while the ecosystem transitions toward further decentralization. The network is designed to be operated by independent block producers, with validator nodes elected through the Liquid Democracy governance model.</p> <p>Pangea's distributed ledger technology (DLT) stack consists of:</p> <ul style="list-style-type: none"><li>• Consensus Mechanism (aBFT) &amp; Governance Model – Described in Section H.4 (Consensus Mechanism).</li></ul>



		<ul style="list-style-type: none"><li>• Smart Contract Execution, Identity-Linked Accounts &amp; Resource Model – Detailed in Section H.2 (Protocols and Technical Standards).</li><li>• Infrastructure &amp; Scaling Capabilities – Covered in Section H.3 (Technology Used).</li></ul> <p>While Stichting Tonomy currently provides a portion of the infrastructure, its role is expected to diminish over time as governance transitions fully to Pangea citizens and business, ensuring that the network is maintained by independent operators and governed transparently through decentralized processes.</p>
H.8	Audit	TRUE
H.9	Audit outcome	<p>The Pangea Blockchain leverages the Antelope protocol, a robust and extensively utilized blockchain framework. Over the past five years, Antelope has been the foundation for networks such as EOS, Telos, and WAX, collectively securing billions of dollars worth of tokens without any reported protocol breaches. This track record underscores the protocol's reliability and security.</p> <p>While the Antelope protocol itself has not undergone a formal third-party audit, its security has been reinforced through continuous real-world operation.</p> <p>Additionally, various smart contracts built on Antelope-based blockchains, including the <code>eosio.token</code> standard used by Pangea, have been independently audited.</p> <p><b>Smart Contract Audits</b></p> <p>The Pangea Blockchain utilizes the widely adopted <code>eosio.token</code> standard, which has been audited multiple times across various projects on EOS, Telos, and WAX. These audits directly or indirectly reviewed the security and integrity of the <code>eosio.token</code> contract, ensuring its reliability for token issuance, transfers, and staking operations.</p> <p><b>Direct Audits of <code>eosio.token</code> and Related Contracts</b></p> <ol style="list-style-type: none"><li>1. <code>eosDAC</code> Token Contract Audit<ul style="list-style-type: none"><li>○ Security analysis of the <code>eosDAC</code> token contract, identifying potential vulnerabilities and mitigation strategies.</li></ul></li></ol>





		<ul style="list-style-type: none"><li>○ Audit Report: <a href="https://github.com/eosdac/EOS-Contract-Security-Audit/blob/master/Contract%20information.md#ExecutiveSummary">https://github.com/eosdac/EOS-Contract-Security-Audit/blob/master/Contract%20information.md#ExecutiveSummary</a></li></ul> <ol style="list-style-type: none"><li>2. Everipedia IQ Token Audit<ul style="list-style-type: none"><li>○ Audit of the Everipedia IQ token contract, ensuring compliance with best security practices.</li><li>○ Audit Report: <a href="https://github.com/EveripediaNetwork/smart-contract-audits/blob/master/everipediaiq-audit.md">https://github.com/EveripediaNetwork/smart-contract-audits/blob/master/everipediaiq-audit.md</a></li></ul></li><li>3. EOSIO Worker Proposal System (WPS) Audit<ul style="list-style-type: none"><li>○ Assessment of the EOSIO WPS smart contract, focusing on its security and operational integrity.</li><li>○ Audit Report: <a href="https://api.solidcheck.io/pdfs/EOSIO_WPS_Smart_Contract_Security_Audit_Report_en.pdf">https://api.solidcheck.io/pdfs/EOSIO_WPS_Smart_Contract_Security_Audit_Report_en.pdf</a></li></ul></li></ol> <p><b>Indirect Audits and Additional Security Assessments</b></p> <p>The security of the Antelope protocol and its token standards has also been reinforced through additional audit reports and security reviews:</p> <ol style="list-style-type: none"><li>4. EOS General Audit Reports<ul style="list-style-type: none"><li>○ Various security reviews conducted on EOS and its smart contracts, including <a href="#">eosio.token</a>.</li><li>○ Reports: <a href="https://help.eossupport.io/en/articles/6848986-eos-audit-reports">https://help.eossupport.io/en/articles/6848986-eos-audit-reports</a></li></ul></li><li>5. Infiniverse EOS Smart Contract Audit<ul style="list-style-type: none"><li>○ A third-party security evaluation of EOS smart contracts, reinforcing the robustness of EOSIO-based token standards.</li><li>○ Audit Report: <a href="https://medium.com/quillhash/infiniverse-eos-smart-contract-audit-report-fe85f94e8e25">https://medium.com/quillhash/infiniverse-eos-smart-contract-audit-report-fe85f94e8e25</a></li></ul></li><li>6. Safe Smart Contract Audit<ul style="list-style-type: none"><li>○ Detailed analysis of Antelope smart contracts, validating security best practices for EOSIO-based platforms.</li><li>○ Audit Report: <a href="https://files.safe.de.fi/safe/files/audit/pdf/02_Smart_Contract_Audit_Puml.pdf">https://files.safe.de.fi/safe/files/audit/pdf/02_Smart_Contract_Audit_Puml.pdf</a></li></ul></li></ol>
--	--	--

## Part I – Information on risks

I.1	Offer-related risks	Investing in crypto-assets carries inherent risks associated with public offerings and admission to trading.
-----	---------------------	--



		<p>Key offer-related risks for LEOS include:</p> <ul style="list-style-type: none"><li>● Market Acceptance Risk:<ul style="list-style-type: none"><li>○ Demand for LEOS may be lower than expected, affecting its liquidity and market value.</li><li>○ Adoption depends on exchange listings, business integrations, and user participation.</li></ul></li><li>● Trading and Liquidity Risk:<ul style="list-style-type: none"><li>○ Limited exchange support or low trading volume may result in difficulties selling LEOS at a desired price.</li><li>○ Price slippage and illiquidity could impact large trades.</li></ul></li><li>● Regulatory Uncertainty:<ul style="list-style-type: none"><li>○ Changes in crypto regulations, including new MiCA guidelines, could affect token trading eligibility.</li><li>○ Delays or additional legal requirements may impact exchange listings.</li></ul></li><li>● Trading and Liquidity Risk<ul style="list-style-type: none"><li>○ Limited exchange support or low trading volume may result in difficulties selling LEOS at a desired price.</li><li>○ Price slippage and illiquidity could impact large trades.</li></ul></li><li>● Oversubscription or Undersubscription Risks:<ul style="list-style-type: none"><li>○ If demand for LEOS exceeds available supply, some investors may not receive their full allocation.</li><li>○ If demand is lower than expected, additional treasury reserves may need to be deployed to maintain operational funding.</li></ul></li><li>● Fundraising and Exchange Launch Risk<ul style="list-style-type: none"><li>○ The success of the token sale is critical for achieving the exchange listing and full launch of LEOS.</li><li>○ If fundraising targets are not met within the expected timeframe, adjustments to the listing strategy or project timelines may be required.</li></ul></li></ul> <p>Despite these risks, Pangea aims to ensure broad exchange accessibility and adherence to all applicable regulations, minimizing uncertainties related to the offering.</p>
I.2	Issuer-related risks	<p>N/A</p> <p>The issuer is the same as the offer. See Section I.1.</p>
I.3	Crypto-assets-related risks	<p>LEOS, like all crypto-assets, is subject to market, regulatory, and technological risks that may impact its value, functionality, and adoption.</p>



		<ul style="list-style-type: none"><li>• <b>Market Volatility</b><ul style="list-style-type: none"><li>◦ LEOS is subject to price fluctuations due to supply and demand dynamics, speculation, and broader crypto market trends.</li><li>◦ Sudden price changes may impact investors and businesses utilizing LEOS for payments or staking.</li></ul></li><li>• <b>Liquidity and Exchange Availability</b><ul style="list-style-type: none"><li>◦ The ability to buy and sell LEOS depends on exchange listings and liquidity.</li><li>◦ Limited trading volume or exchange delistings could reduce accessibility and increase price volatility.</li></ul></li><li>• <b>Utility Risk</b><ul style="list-style-type: none"><li>◦ The real-world adoption of LEOS depends on business integrations, regulatory compliance, and market acceptance.</li><li>◦ If adoption rates are lower than expected, the utility and demand for LEOS may be affected.</li></ul></li><li>• <b>Regulatory and Compliance Risks</b><ul style="list-style-type: none"><li>◦ Future changes in EU or global regulations could impact the legal status of LEOS, affecting its use in payments, trading, or governance.</li><li>◦ Restrictions on crypto-assets in certain jurisdictions may limit adoption or require modifications to compliance frameworks.</li></ul></li><li>• <b>Security and Custody Risks</b><ul style="list-style-type: none"><li>◦ Users are responsible for safeguarding their private keys and wallets; loss of access could result in permanent loss of funds.</li><li>◦ Smart contract vulnerabilities, while mitigated through audits, may still pose security risks.</li></ul></li></ul> <p>These risks highlight the importance of proper risk management for LEOS holders, including diversification, regulatory awareness, and secure custody practices.</p>
I.4	Project implementation-related risks	<p>The successful implementation of the Pangea Platform and LEOS token ecosystem depends on multiple factors, including technical development, regulatory compliance, adoption, and governance stability.</p> <p>Key risks include:</p> <ul style="list-style-type: none"><li>• <b>Development and Execution Risks</b><ul style="list-style-type: none"><li>◦ Delays in product development, feature rollouts, or integrations could impact adoption and market confidence.</li><li>◦ Unexpected technical challenges may require modifications to the roadmap or additional funding.</li></ul></li><li>• <b>Adoption and Ecosystem Growth Risks</b></li></ul>



		<ul style="list-style-type: none"><li>○ The success of LEOS depends on its adoption by businesses, DAOs, and users.</li><li>○ If key stakeholders do not integrate LEOS, its utility and value may be lower than projected.</li><li>● Governance Risks<ul style="list-style-type: none"><li>○ Pangea's governance model relies on Liquid Democracy, which requires active participation and fair delegation of voting power.</li><li>○ If voter turnout is low or governance is influenced by a small group, decision-making effectiveness could be impacted.</li></ul></li><li>● Funding and Treasury Sustainability<ul style="list-style-type: none"><li>○ A significant portion of LEOS is pre-allocated to the governance treasury to fund development and operations.</li><li>○ Misallocation of funds or governance inefficiencies in treasury management could slow project progress.</li></ul></li><li>● Regulatory and Compliance Uncertainty<ul style="list-style-type: none"><li>○ Compliance with MiCA and other evolving regulations is essential for long-term success.</li><li>○ Unexpected legal changes could require additional compliance measures, delaying implementation.</li></ul></li><li>● Short-Term Liquidity and Treasury Sustainability<ul style="list-style-type: none"><li>○ While a portion of LEOS is pre-allocated to the governance treasury, initial operations depend on raising sufficient funds from the token sale.</li><li>○ If the funds raised are lower than expected, adjustments may be required to ensure core platform functionalities remain operational while seeking alternative funding solutions.</li></ul></li></ul> <p>Pangea aims to mitigate these risks through transparent governance, treasury oversight, and a phased rollout strategy, ensuring long-term ecosystem stability and adoption.</p>
I.5	Technology-related risks	<p>The Pangea Blockchain and Platform rely on distributed ledger technology, smart contracts, and off-chain infrastructure to function securely and efficiently. However, technical risks may impact network stability, security, and adoption.</p> <ul style="list-style-type: none"><li>● Smart Contract Vulnerabilities<ul style="list-style-type: none"><li>○ Despite rigorous testing and audits, smart contracts may contain unforeseen vulnerabilities.</li><li>○ Exploits or bugs could result in financial losses or require emergency upgrades.</li></ul></li><li>● Blockchain Network Stability<ul style="list-style-type: none"><li>○ The performance of the Pangea Blockchain depends on block producers and decentralized infrastructure.</li><li>○ Network congestion, forks, or validator failures could impact transaction processing and service availability.</li></ul></li><li>● Cybersecurity Threats<ul style="list-style-type: none"><li>○ Pangea infrastructure, user wallets, and off-chain services could be targeted by hacking attempts.</li></ul></li></ul>



		<ul style="list-style-type: none"><li>○ Private key theft, phishing attacks, application-level, or protocol-level attacks may impact user funds and platform security.</li><li>● Scalability Risks<ul style="list-style-type: none"><li>○ As adoption grows, increased transaction volume may require scaling optimizations.</li><li>○ If scaling solutions are not implemented efficiently, network congestion and higher transaction costs could arise.</li></ul></li><li>● Off-Chain Service Dependencies<ul style="list-style-type: none"><li>○ Certain features (e.g., identity verification, document signing) rely on off-chain service providers.</li><li>○ If third-party integrations fail or become unavailable, some platform functionalities may be disrupted.</li></ul></li></ul>
I.6	Mitigation measures	<p>The Pangea Platform incorporates multiple risk mitigation strategies to ensure network security, regulatory compliance, and long-term sustainability.</p> <p>Key measures include:</p> <ol style="list-style-type: none"><li><b>1. Smart Contract Security and Audits</b><ul style="list-style-type: none"><li>● All core smart contracts (LEOS token, staking, governance) follow best practices for security and upgradeability.</li><li>● Independent third-party audits are planned to ensure vulnerabilities are identified and resolved proactively.</li></ul></li><li><b>2. Decentralized Infrastructure &amp; Governance</b><ul style="list-style-type: none"><li>● Block producers are elected by the community through Liquid Democracy, ensuring decentralization.</li><li>● Stichting Tonomy currently operates a minority of nodes and will continue reducing control post-TGE.</li></ul></li><li><b>3. Cybersecurity &amp; User Protection</b><ul style="list-style-type: none"><li>● Pangea ID offers passwordless authentication and account recovery, reducing phishing risks.</li><li>● Users control their own private keys, with multi-recovery options for enhanced security.</li></ul></li><li><b>4. Scalability &amp; Network Optimization</b><ul style="list-style-type: none"><li>● Pangea Blockchain is built on Antelope, a highly scalable protocol used across multiple networks.</li><li>● Future upgrades will integrate improved resource management and sidechain scaling solutions.</li></ul></li><li><b>5. Compliance &amp; Regulatory Alignment</b><ul style="list-style-type: none"><li>● The LEOS token sale is designed to comply with MiCA and other EU regulations, ensuring long-term legal sustainability.</li><li>● Identity verification and AML solutions will be implemented where required.</li></ul></li></ol>



		<p><b>6. Treasury &amp; Financial Sustainability</b></p> <ul style="list-style-type: none"><li>• Governance-controlled treasury ensures transparent funding allocation for ecosystem growth.</li><li>• 50% of LEOS supply is pre-allocated to the treasury, ensuring financial stability during early growth.</li></ul> <p><b>7. Financial Risk Management</b></p> <ul style="list-style-type: none"><li>• The team is actively managing costs, optimizing treasury reserves, and pursuing additional funding strategies to ensure that exchange launch and platform development proceed as planned.</li><li>• Governance treasury allocations are structured to balance long-term sustainability with short-term operational needs.</li></ul> <p>By implementing these technical, financial, and governance safeguards, Pangea aims to reduce risks and ensure a secure, scalable, and compliant ecosystem.</p>
--	--	--

## Part J – Information on the sustainability indicators

in relation to adverse impact on the climate and other environment-related adverse impacts

J.1	Adverse impacts on climate and other environment-related adverse impacts	<p>The Pangea Blockchain is engineered for high transaction throughput while maintaining an energy-efficient infrastructure.</p> <p>Using an asynchronous Byzantine Fault Tolerant (aBFT) consensus mechanism, Pangea consumes significantly less energy than Proof-of-Work (PoW) blockchains while achieving far higher transaction capacity than Proof-of-Stake (PoS) chains like Ethereum.</p> <p>This section provides a transparent methodology, energy consumption data, carbon footprint estimates, and environmental impact mitigation strategies in line with Regulation (EU) 2023/1114 and ESMA's sustainability disclosure requirements</p> <p><b>Methodology for Energy and Carbon Footprint Calculations</b></p>
-----	--	---



To ensure accurate environmental impact reporting, energy use and carbon footprint are calculated based on real network throughput estimates and widely accepted energy emissions factors:

- Network Capacity Assumption: Pangea operates at 30% capacity on average, considering low periods and network peaks.
- Energy Consumption Per Transaction:
  - Measured in milliwatt-hours per transaction (mWh/tx), using data from the Telos Blockchain Energy Consumption Report (Telos Energy Report).
- Annual Energy Consumption: Calculated as:  
*Energy per Transaction × Average transactions per second (TPS) × Seconds per year*
- Carbon Footprint:
  - Based on the EU average grid emission factor of 0.233 kg CO<sub>2</sub> per kWh (European Environment Agency).  
*Energy per Year × Emission factor*

### **Energy Consumption and Carbon Footprint Estimates**

- Energy Consumption Per Transaction
  - Pangea Blockchain: 0.016 mWh/tx (Telos Energy Report)

### **Annual Energy Consumption**

- Pangea Estimated TPS at 30% Load: 4,500 TPS
- Annual Energy Use Calculation:  
 $0.016 * 4,500 * 31,536,000 = 2,270,592 \text{ kWh (2.27 GWh)}$

### **Carbon Footprint Estimates**

- Carbon footprint per transaction:  
 $0.016 * 0.233 = 0.00000373 \text{ kg CO}_2 \text{ per transaction}$
- Annual carbon footprint at average 30% network load:  
 $3784320 * 0.233 = 924,770 \text{ kg CO}_2 \text{ per year (924.8 metric tons)}$



## Comparative Energy Impact of Pangea vs. Other Blockchains

Blockchain	TPS Capacity	Energy Use (GWh / year)	Carbon Footprint (Tones CO <sub>2</sub> / year)
Pangea Blockchain	15,000	2.27	529.04
Ethereum (PoS)	15-20	2.6	606.03
Solana	3,000	0.02	5.62
Cardano	2	0.70	164.24
Bitcoin (PoW)	5-7	174,250	40,600,250

### Sources:

- Telos Energy Report: [https://uploads-ssl.webflow.com/60abb689ce5c94972a5f808a/6108322add49b1c328100c2\\_Telos-Energy-Consumption-and-Competitor-Comparison-June-30-2021.pdf](https://uploads-ssl.webflow.com/60abb689ce5c94972a5f808a/6108322add49b1c328100c2_Telos-Energy-Consumption-and-Competitor-Comparison-June-30-2021.pdf)
- Ethereum: <https://ethereum.org/en/energy-consumption/>
- Solana: <https://solana.com/news/solana-energy-usage-report-november-2021>
- Cardano: <https://cardano.org/news/2024-07-02-cardano-foundation-brings-mica-compliance-to-the-cardano-network/>
- Bitcoin (PoW): <https://ccaf.io/cbnsi/cbeci>
- Cardano Sustainability Report: <https://cardano.org/sustainability/>
- European Environment Agency – Carbon Intensity of Energy Production: <https://www.eea.europa.eu/data-and-maps>

## Environmental Impact Mitigation Strategies

To minimize its environmental footprint, Pangea has implemented several sustainability-focused measures:

### 1. Efficient Infrastructure Design





- The Pangea Blockchain is a vertically scaled network with a maximum of 21 validator nodes, significantly reducing computational waste compared to PoW networks.
- By using an aBFT consensus model, Pangea achieves high throughput (15,000 TPS) without excessive energy consumption.

## **2. Renewable Energy Adoption**

- Pangea actively encourages block producers and API node operators to use green energy-powered infrastructure.
- As governance decentralizes, sustainability incentives for validators may be proposed to promote further environmental responsibility.

## **3. Governance-Led Sustainability Initiatives**

- Pangea's on-chain governance model allows the community to propose and vote on sustainability initiatives, such as:
- Carbon offset programs funded through governance treasury allocations.

Energy-efficient smart contract execution to optimize resource use.

- 

## **Conclusion**

The Pangea Blockchain operates as a low-energy, high-efficiency network, ensuring minimal environmental impact while maintaining a high transaction throughput.

With an energy footprint significantly lower than Ethereum and other traditional blockchains, Pangea aligns with global sustainability goals while providing a scalable blockchain infrastructure.