



VTHO VETHOR TOKEN WHITEPAPER

Whitepaper under Title II, Article 4 of Regulation (EU) 2023/1114 (“MiCAR”) for the admission to trading on crypto-asset service providers platforms authorized under Article 59 of MiCAR

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01	DATE OF NOTIFICATION	2025-03-05
02	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 person seeking admission to trading of the crypto-asset is solely responsible for the content of this crypto-asset white paper.
03	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) t2023/1114 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
04	STATEMENT IN ACCORDANCE WITH ARTICLE 6(5), POINTS (A), (B), (C) OF REGULATION (EU) 2023/1114	The crypto-asset referred to in this white paper may lose its value in part or in full, may not always be transferable and may not be liquid
05	STATEMENT IN ACCORDANCE WITH ARTICLE 6(5), POINT (D) OF REGULATION (EU) 2023/1114	Not applicable.
06	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.

07	WARNING IN ACCORDANCE WITH ARTICLE 6(7), SECOND SUBPARAGRAPH OF REGULATION (EU) 2023/1114	Warning This summary should be read as an introduction to the crypto-asset white paper. 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. 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. 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 (36) or any other offer document pursuant to Union or national law
08	CHARACTERISTICS OF THE CRYPTO-ASSET	VTHO Token is a crypto-asset to be classified as “<i>crypto-assets other than asset-referenced tokens or e-money tokens</i>” under Title II of MiCAR. VTHO Token serve to pay transaction fees on VeChainThor Blockchain. When participants effect a transaction, the relevant gas fee will then be paid in VTHO Tokens. VTHO Tokens are automatically generated by the VeChainThor Blockchain and assigned to holders of another token issued by VeChain, namely VET Tokens. VTHO Token will then be tradeable on authorized trading platforms. According to this mechanism, holders of VET Tokens will be periodically provided with the VTHO Tokens to cover transaction costs on the VeChainThor Blockchain. Holding VET Tokens for a fixed minimum period so grants holders the assignment of VTHO tokens at a pre-determined velocity and quantity, as better explained in Part G of this Whitepaper.
09	INFORMATION ABOUT THE QUALITY AND QUANTITY OF GOODS OR SERVICES TO WHICH THE UTILITY TOKENS GIVE ACCESS AND RESTRICTIONS ON THE TRANSFERABILITY.	Not applicable.
10	KEY INFORMATION ABOUT THE OFFER TO THE PUBLIC OR ADMISSION TO TRADING	There is no predetermined number of VTHO Tokens to be admitted to trading. The quantity of VTHO Tokens currently traded on third party crypto-assets service providers can be seen in real time on specialized market information sources such as Coinmarketcap. The supply of VTHO Tokens is conceived to grow gradually based on the generation mechanism under the VeChainThor Blockchain. However, 70% of the VTHO Tokens spent to effect transactions on the VeChainThor Blockchain will be burnt and no longer usable or tradeable. As this does not constitute an offer to the public, there are no minimum or maximum target subscription goals, no subscription fees, no discounted phases and no subscription period. Moreover, as the VTHO Tokens are already listed and traded on various third party crypto-assets service providers, there is no fixed issue price and the price for purchasing on those trading platforms depends on the market value and spread or fees applied. There is no placement agreement in place with third party providers offering crypto-assets placement services. Prospective holders are all persons interested in supporting VeChain project as described in this Whitepaper, in participating in the VeChain ecosystem by effecting transactions on the VeChainThor Blockchain The admission to trading consists in third party crypto-assets service providers allowing users to purchase VTHO Tokens at market price, plus spreads or trading fees, which are typically paired with other crypto-assets to determine the market value. VTHO Tokens are already listed on the providers listed below Coinbase; Crypto.com; Revolut; Upbit; Kucoin; Bitget; BitMart; Binance; Bithumb This is a non-exhausted list. VeChain intends to maintain these listings as long as doing so remains compliant with applicable laws and will continue to seek admission to trading for VTHO Tokens across future MiCAR- compliant trading platforms and service providers.

Part A: Information about the offeror or the person seeking admission to trading		
A.1	NAME	VeChain Foundation San Marino S.R.L.
A.2	LEGAL FORM	Limited liability company
A.3	REGISTERED ADDRESS	Strada di Paderna, 2 (47895) Domagnano, San Marino
A.4	HEAD OFFICE	Strada di Paderna, 2 (47895) Domagnano, San Marino
A.5	REGISTRATION DATE	2021-06-07
A.6	LEGAL ENTITY IDENTIFIER	5299001UWKNB61VZCT67
A.7	ANOTHER IDENTIFIER REQUIRED PURSUANT TO APPLICABLE NATIONAL LAW	Not Applicable.
A.8	CONTACT TELEPHONE NUMBER	(+378) 0549 943763 (+39) 366 845 14 34
A.9	E-MAIL ADDRESS	info-sanmarino@vechain.org
A.10	RESPONSE TIME (DAYS)	Under normal circumstances, inquiries are answered within 5 days. For very specific requests, processing may take up to a maximum of 14 days.
A.11	PARENT COMPANY	Not Applicable.
A.12	MEMBERS OF THE MANAGEMENT BODY	Board of Directors: Jie Zhang – President of the BoD and Legal Representative, Strada Di Paderna, 2 (47895) Domagnano, San Marino; Yang LU – Director and CEO, Strada Di Paderna, 2 (47895) Domagnano, San Marino; Renato Grottola – Director, Strada Di Paderna, 2 (47895) Domagnano, San Marino.

Part A: Information about the offeror or the person seeking admission to trading		
A.13	BUSINESS ACTIVITY	VeChain Foundation is the curator of VeChainThor Blockchain, a world-leading smart contract platform spearheading the real-world adoption of blockchain technology. VeChain’s aspiration is to multiply individual impact to unleash our collective potential for sustainability. VeChain will actively support and accelerate the engagement in sustainability efforts, leveraging (blockchain) technology to address diverse challenges. VeChain’s main business and professional activities include technological development, consultancy in the field of information technology, database management, hosting and provisioning of application services. The principal markets where VeChain operates include the European Union and other jurisdictions with robust regulatory frameworks for crypto-assets.
A.14	PARENT COMPANY BUSINESS ACTIVITY	Not Applicable.
A.15	NEWLY ESTABLISHED	False
A.16	FINANCIAL CONDITION FOR THE PAST THREE YEARS	VeChain Foundation San Marino S.R.L. was established on June 7, 2021. Upon incorporation, VET tokens were contributed by shareholders as a reserve. VeChain utilizes these assets to support ongoing operational costs. This robust asset reserve provides a strong foundation for future expansion. The financial statements for the past three years offer a detailed account of VeChain’s financial performance. These statements have been duly filedPage 6 of 26 with the San Marino authority. Notably, there have been no unusual or infrequent events materially affecting VeChain’s operations. Non-financial KPIs include number of unique addresses and transaction volume. VeChain has seen an increase in the number of unique addresses, along with a corresponding rise in transaction volumes, reflecting the increasing utilization of the VeChainThor Blockchain.
A.17	FINANCIAL CONDITION SINCE REGISTRATION	Reference to A.16.

Part D: Information about the crypto-asset project		
D.1	CRYPTO-ASSET PROJECT NAME	VeChain
D.2	CRYPTO-ASSETS NAME	VeThor
D.3	ABBREVIATION	VTHO
D.4	CRYPTO-ASSET PROJECT DESCRIPTION	VTHO Tokens is crypto-asset to be classified as “<i>crypto-assets other than asset-referenced tokens or e-money tokens</i>” under Title II of MiCAR. VTHO Tokens are conceived to serve as payment method of gas fees for executing transactions on the VeChainThor Blockchain. VTHO Tokens can also be transferred on VeChainThor Blockchain.
D.5	DETAILS OF ALL NATURAL OR LEGAL PERSONS INVOLVED IN THE IMPLEMENTATION OF THE CRYPTO-ASSET PROJECT	VeChain Team: Yang Lu, CEO; Antonio Senatore, CTO; Bin Qian, Senior Blockchain Engineer; Tony Li, Senior Full Stack Engineer; Pedro Gomes, Senior Blockchain Engineer; Darren Kelly, Blockchain Developer; Paolo Galli, Full Stack Engineer; Clayton Neal, Head of QA; Leszek Lorek, Senior QA Engineer; Kostas Apostolopoulos, Head of NodeOps; Adam Koyuncu, DevOps Engineer; Hamza Abdullahi, DevOps Engineer; David Oyeku, DevOps Engineer; Neil Brett, Director of Protocol. Third Party: Electi Consulting, Nikolaou Building, Block B, Office 202, Ayias Zonis & Thessalonikis Street Limassol, 3026, Cyprus.
D.6	UTILITY TOKEN CLASSIFICATION	False.
D.7	KEY FEATURES OF GOODS/ SERVICES FOR UTILITY TOKEN PROJECTS	Not Applicable.

Part D: Information about the crypto-asset project

D.8	PLANS FOR THE TOKEN	VeChain started with the aspiration to become a platform of choice for blockchain based business applications offering concrete economic, environmental, and societal value. In 2018, VeChain released whitepaper 1.0, launched the VeChainThor Blockchain, incorporated basic requirements for enterprise adoption. In 2019, VeChain expanded upon commitment to enable mass blockchain adoption by established businesses, with the long-term goal of creating value and solving real world economic problems. In 2023, VeChain issued whitepaper 3.0, with the aspiration to multiply individual impact to unleash our collective potential for sustainability and define the blockchain biosphere for sustainability. In 2024, VeChain launch the VeBetterDAO ecosystem to promote collective sustainability actions.
D.9	RESOURCE ALLOCATION	VeChain has secured financial and operational resources to ensure its successful development and implementation. Sufficient funding has been allocated. Additionally, the project benefits from 60 dedicated team members, including experts in key areas like blockchain development, risk, compliance and legal, marketing, etc. Infrastructure, including cloud services, blockchain nodes, partnerships, has also been established to support the project's growth and functionality. These resources ensure the project is well-positioned to achieve its objectives as outlined in this white paper.
D.10	PLANNED USE OF COLLECTED FUNDS OR CRYPTO-ASSETS	Not Applicable.

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	ATTR
E.2	REASONS FOR PUBLIC OFFER OR ADMISSION TO TRADING	By seeking admission to trading of VTHO Tokens, VeChain aims at allowing any person - who had not the chance to enter VeChain ecosystem at the time of the first initial coin offering dated 2017 – to acquire interests in the VeChain project and actively participate in its tokenization initiative. Admitting VTHO Tokens to trading has the purpose of giving new stakeholders the chance to purchase the tokens and enter the project or existing stakeholders to increase or liquidate their interests in VeChain. Being admitted to trading on several trading platforms enhances VTHO Tokens' liquidity, increasing the number of potential acquirers and the venues where holders are able to sell the VTHO Tokens. In addition, being admitted to trading on several platforms helps the Vechain ecosystem to gain trust and credibility in the market, to be recognized amongst a larger size of potential investors. Finally, admission to trading on different platforms benefits potential investors in terms of price formation and discovery, allowing VTHO Tokens to establish its market value based on market bid / ask orders and to reduce volatility.
E.3	FUNDRAISING TARGET	Not Applicable.
E.4	MINIMUM SUBSCRIPTION GOALS	Not Applicable.
E.5	MAXIMUM SUBSCRIPTION GOAL	Not Applicable.
E.6	OVERSUBSCRIPTION ACCEPTANCE	False.
E.7	OVERSUBSCRIPTION ALLOCATION	Not Applicable.
E.8	ISSUE PRICE	Not Applicable
E.9	OFFICIAL CURRENCY OR ANY OTHER CRYPTO- ASSETS DETERMINING THE ISSUE PRICE	Not Applicable.
E.10	SUBSCRIPTION FEE	Not Applicable.
E.11	OFFER PRICE DETERMINATION METHOD	Not Applicable.

Part E: Information about the offer to the public of crypto-assets or their admission to trading		
E.12	TOTAL NUMBER OF OFFERED/ TRADED CRYPTO- ASSETS	Not Applicable.
E.13	TARGETED HOLDERS	ALL
E.14	HOLDER RESTRICTIONS	The VTHO token is not being offered to the public. Instead, it is intended to be admitted for trading on one or more MiCAR-compliant Crypto-Asset Service Providers (CASPs) within the European Union. Holders of the VeThor token must comply with all applicable regulations and requirements established by the relevant CASP(s) to be eligible to purchase and hold the token. These requirements will include, but are not limited to: • KYC/AML Compliance: Holders will be required to undergo KYC/AML verification as mandated by the relevant CASP(s) and applicable regulations. • Eligibility Criteria: The relevant CASP(s) will have specific eligibility criteria for their users, which holders of the token must meet. • Geographic Restrictions: The relevant CASP(s) will enforce geographic restrictions in accordance with applicable laws and regulations. • Other Requirements: Holders must adhere to any other terms and conditions, trading rules, or other requirements established by the relevant CASP(s). • While the project itself does not impose specific holder restrictions beyond regulatory compliance, prospective holders are advised that they will need to comply with the terms and conditions and policies of any CASP through which they acquire or hold VTHO tokens. VeChain makes no representations or warranties regarding a user’s eligibility to trade on any CASP. Eligibility is solely determined by the respective CASP(s).
E.15	REIMBURSEMENT NOTICE	Not Applicable.
E.16	REFUND MECHANISM	This Whitepaper does not relate to a public offering of crypto-assets but to their admission to trading. Therefore, rights of reimbursement, withdrawal or refund do not apply.
E.17	REFUND TIMELINE	This Whitepaper does not relate to a public offering of crypto-assets but to their admission to trading. Therefore, rights of reimbursement, withdrawal or refund do not apply.
E.18	OFFER PHASES	Not Applicable.
E.19	EARLY PURCHASE DISCOUNT	Not Applicable.
E.20	TIME-LIMITED OFFER	False.

Part E: Information about the offer to the public of crypto-assets or their admission to trading		
E.21	SUBSCRIPTION PERIOD BEGINNING	Not Applicable.
E.22	SUBSCRIPTION PERIOD END	Not Applicable.
E.23	SAFEGUARDING ARRANGEMENTS FOR OFFERED FUNDS/CRYPTO-ASSETS	The withdrawal period does not apply to tokens admitted to trading as per Article 13, paragraph 4, of MICAR in that VTHO Tokens are already listed on trading platforms. There is no time-limited offer for VTHO Tokens.
E.24	PAYMENT METHODS FOR CRYPTO-ASSET PURCHASE	Holders are able to trade VTHO Tokens on third party crypto-assets service providers which will be the solely entities entitled to decide the methods of payment to purchase or sell VTHO Tokens (i.e. versus fiat currencies or other crypto-assets).
E.25	VALUE TRANSFER METHODS FOR REIMBURSEMENT	VTHO Tokens holders are not entitled to be reimbursed by the issuer.
E.26	RIGHT OF WITHDRAWAL	The withdrawal period does not apply to tokens admitted to trading as per Article 13, paragraph 4, of MICAR in that VTHO Tokens are already listed on trading platforms.
E.27	TRANSFER OF PURCHASED CRYPTO-ASSETS	Not Applicable.
E.28	TRANSFER TIME SCHEDULE	Not Applicable.
E.29	PURCHASER'S TECHNICAL REQUIREMENTS	For purchasers to hold VTHO Tokens in the form of a self-hosted custody, they must be provided with a crypto wallet compatible with VeChainThor Blockchain. A list of compatible wallets can be found in this link: https://vechain.org/solutions/ .
E.30	CRYPTO-ASSET SERVICE PROVIDER (CASP) NAME	There is no placement agreement in place with any CASP.
E.31	CASP IDENTIFIER	Not Applicable.
E.32	PLACEMENT FORM	Not Applicable.

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

E.33	TRADING PLATFORMS NAME	• Coinbase • Crypto.com • Revolut • Kucoin • Bitget • BitMart • Binance This is a non-exhausted list. VeChain intends to maintain these listings as long as doing so remains compliant with applicable laws and will continue to seek admission to trading for VTHO Tokens across future MiCAR-compliant trading platforms.
E.34	TRADING PLATFORMS MARKET IDENTIFIER CODE (MIC)	Not Applicable.
E.35	TRADING PLATFORMS ACCESS	Trading platforms where VTHO Tokens are sought to be admitted to trading have their own web addresses where user are able to register to benefit from their services. In respect of EU regulated trading platforms, prior identification of users is required according to applicable AML / CFT regulation
E.36	INVOLVED COSTS	Costs for accessing third party crypto-asset service providers platforms entirely depend on their commercial decisions and possibly subject to increases in the future
E.37	OFFER EXPENSES	Not Applicable.
E.38	CONFLICTS OF INTEREST	No conflicts have been identified as of today in relation to the issuance of VTHO Tokens.
E.39	APPLICABLE LAW	Irish Law
E.40	COMPETENT COURT	Courts of Ireland

Part F: Information about the crypto-assets		
F.1	CRYPTO-ASSET TYPE	VTHO Token is a crypto-asset to be classified as “ <i>crypto-assets other than asset-referenced tokens or e-money tokens</i> ” under Title II of MiCAR.
F.2	CRYPTO-ASSET FUNCTIONALITY	VTHO Tokens are freely transferable between users subject to payment of transaction fees on VeChainThor Blockchain. Transactions on VeChainThor Blockchain are paid, in terms of fees, also through VTHO Tokens. As better described under Part G of this Whitepaper, VET Tokens grant holders the assignment of VTHO Tokens according to a predetermined quantity and velocity. Thus, VTHO Tokens are automatically created by VeChainThor Blockchain according to the following mechanism which is interdependent with VET Tokens holding: There will be a certain number of VTHO Tokens generated from 1 VET Token every time a block is generated. When a transaction is inserted in a block, the infrastructure first calculates the amount of gas required and then the amount of VTHO Tokens to pay gas fees, which means that there would be a certain amount of VTHO Tokens spent. VeChainThor Blockchain generates one block every 10 seconds and each payment transaction requires 21,000 gas. According to the current parameters, for 10k VET Tokens there will be 4.32 VTHO generated every 8,640 blocks (24 hours). The design of the twin-token model intends to maintain some sustainable transaction cost of using VeChainThor Blockchain. Depending on the market participation of the VTHO Tokens market and the demand and supply of VTHO Tokens, VeChain would adjust the minimum price of VTHO Tokens to pay gas fees. If there is a clear long-term trend or the adjustment of minimum VTHO Tokens per gas does not effectively stabilize the transaction cost, the Foundation would adjust VTHO generation velocity
F.3	PLANNED APPLICATION OF FUNCTIONALITIES	Already in place, please refer to F.2.
F.4	TYPE OF WHITE PAPER	OTHR
F.5	THE TYPE OF SUBMISSION	NEVVT

Part F: Information about the crypto-assets

F.6	CRYPTO-ASSET CHARACTERISTICS	VTHO Tokens is a crypto-asset to be classified as “<i>crypto-assets other than asset-referenced tokens or e-money tokens</i>” under Title II of MiCAR. VTHO Tokens are automatically generated by VeChainThor Blockchain and have not a fixed maximum supply. In the VeChainThor Blockchain ecosystem, VTHO tokens are assigned in consequence of the holding of a certain number of VET Tokens for a certain period of time. VTHO Tokens’ holders are not granted with voting rights nor with decision making powers. In the event of dissolution and liquidation of VeChain, VTHO Tokens holders will not be entitled to the distribution of any of liquidation proceeds or VeChain’s assets.
F.7	COMMERCIAL NAME OR TRADING NAME	VeThor Token (VTHO)
F.8	WEBSITE OF THE ISSUER	http://vechain.org
F.9	STARTING DATE OF OFFER TO THE PUBLIC OR ADMISSION TO TRADING	VTHO Token has been admitted to trading in trading platforms listed in E.33.
F.10	PUBLICATION DATE	2025-02-28
F.11	ANY OTHER SERVICES PROVIDED BY THE ISSUER	No.
F.12	IDENTIFIER OF OPERATOR OF THE TRADING PLATFORM	Not Applicable.
F.13	LANGUAGE OR LANGUAGES OF THE WHITE PAPER	English

Part F: Information about the crypto-assets

F.14	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	NN418T24K
F.15	FUNCTIONALLY FUNGIBLE GROUP DIGITAL TOKEN IDENTIFIER, WHERE AVAILABLE	Not Applicable.
F.16	VOLUNTARY DATA FLAG	Mandatory
F.17	PERSONAL DATA FLAG	False
F.18	LEI ELIGIBILITY	Eligible
F.19	HOME MEMBER STATE	Ireland
F.20	HOST MEMBER STATES	Austria, Belgium, Bulgaria, Croatia, Republic of Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden

Part G: Information on the rights and obligations attached to the crypto-assets		
G.1	PURCHASER RIGHTS AND OBLIGATIONS	VTHO Tokens holders are not granted with rights deriving <i>per se</i> from the holding of such tokens.
G.2	EXERCISE OF RIGHTS AND OBLIGATIONS	Not applicable.
G.3	CONDITIONS FOR MODIFICATIONS OF RIGHTS AND OBLIGATIONS	VeChain reserves the right to amend these rights and obligations from time to time and will inform its customers of such changes through amendments of this White Paper and through any other channel of communication, including VeChain Website. As provided by Article 12 of MiCAR regulation, any significant new factor, any material mistake or any material inaccuracy that would be capable of affecting the assessment of VTHO Tokens will be described in a modified version of this Whitepaper and notified to the competent authorities and published on VeChain Website
G.4	FUTURE PUBLIC OFFERS	Not Applicable.
G.5	ISSUER RETAINED CRYPTO-ASSETS	None.
G.6	UTILITY TOKEN CLASSIFICATION	False
G.7	KEY FEATURES OF GOODS/ SERVICES OF UTILITY TOKENS	Not Applicable.
G.8	UTILITY TOKENS REDEMPTION	Not Applicable.

Part G: Information on the rights and obligations attached to the crypto-assets		
G.9	NON-TRADING REQUEST	VTHO token is currently available for trading in compliant exchanges as indicated in E.33.
G.10	CRYPTO-ASSETS PURCHASE OR SALE MODALITIES	Not Applicable.
G.11	CRYPTO-ASSETS TRANSFER RESTRICTIONS	No restrictions apply to the transfer of VTHO Tokens.
G.12	SUPPLY ADJUSTMENT PROTOCOLS	False
G.13	SUPPLY ADJUSTMENT MECHANISMS	Not Applicable.
G.14	TOKEN VALUE PROTECTION SCHEMES	False
G.15	TOKEN VALUE PROTECTION SCHEMES DESCRIPTION	Not Applicable.
G.16	COMPENSATION SCHEMES	False
G.17	COMPENSATION SCHEMES DESCRIPTION	Not Applicable.
G.18	APPLICABLE LAW	Irish Law.
G.19	COMPETENT COURT	Courts of Ireland.

Part H: information on the underlying technology		
H.1	DISTRIBUTED LEDGER TECHNOLOGY	VTHO token is a ERC20 token on the VeChainThor Blockchain, which is a public, decentralized blockchain that ensures security and transparency through its robust and proven network.
H.2	PROTOCOLS AND TECHNICAL STANDARDS	VeChain utilizes industry-standard protocols and technical standards to ensure securing holding, storing and transferring of the token. For holding and storing VTHO Tokens, VeChain supports the following industry standards for wallet creation: BIP-32 (Hierarchical Deterministic Wallets), BIP-39 (Mnemonic Seed Phrase) and BIP-44 (Multi-account Hierarchy for Deterministic Wallets). Wallet technology relies on cryptographic algorithms for the custody of crypto assets, involving the generation and management of public and private keys. Public keys allow users to receive tokens, while private keys are used to authorize transactions and access the tokens. Secure storage solutions include software wallets, hardware wallets, multi-signature accounts, and accounts managed by multi-party computing. The transfer of VTHO tokens is facilitated through the underlying blockchain protocols, which employ cryptographic techniques to secure transactions, which are used so that integrity and immutability can be ensured. Transactions are validated and recorded directly on the blockchain, providing a transparent and tamper-proof ledger of all token transfers.
H.3	TECHNOLOGY USED	VeChain blockchain uses Proof of Authority (PoA) consensus mechanisms to validate transactions securely and efficiently. VeChain uses several industry standard cryptographic functions such as Elliptic Curve Digital Signature Algorithm (ECDSA) for the creation and verification of digital signatures. The hash function Blake2b-256 is used to secure data storage, address generation and signature verification.

Part H: information on the underlying technology

H.4	CONSENSUS MECHANISM	VeChainThor Blockchain is governed by a proof of authority consensus mechanism ("PoA"). Under the PoA, only AMs (authority masternodes) have the authority to validate transactions and add those to the blockchain blocks. The PoA consensus mechanism initially operated as follows: • the VeChainThor Blockchain adds a block every n seconds (currently, every 10 seconds); • each available AM has equal chances of being selected as validator of the block based on a deterministic pseudo-random process ("DPRP") that classifies AM as active or inactive. Only active nodes can be selected to produce and/or validate a block; • the identification of the AM deemed to be selected as "relatively far" future block validator is quite hard based on the DPRP, this granting a sufficient protection from malicious attacks; • the mechanism allows an AM to skip producing a block to enhance unpredictability of the validators' sequence; • in case of fork, the valid (better) branch is that where more AM were active at the time of the last block validation; • in case of an attack or disruption, PoA does not require that the majority of the AM is available in order to validate a block. In November 2021 and November 2022 VeChain implemented upgrades to the PoA to improve security and safeguards against malicious attacks and enhance velocity of transactions' confirmation. PoA 2.0 implemented the following changes: • a Per-EPOCH VRF-Based Random Beacon generation mechanism was introduced to improve the unpredictability of PoA, which is sufficient in practice to prevent adaptive corruption attack. • a "finality gadget", namely Finality with One Bit (FOB), based on a state-of-the-art consensus algorithm, was introduced to enhance the consistency and finality of blockchain transactions within Nakamoto consensus algorithms.
H.5	INCENTIVE MECHANISMS AND APPLICABLE FEES	All transactions effected on VeChainThor Blockchain are paid through VTHO Tokens. Nodes empowered to validate transactions (only AMs) are rewarded through the assignment of 30% of VTHO Tokens paid by the actors of the transaction. The remaining 70% is burnt. The rewarding mechanism, together with the supervision by VeChain on the actions performed by the validating Nodes, strongly improves the security of transactions and disincentivize malicious actions by Nodes.
H.6	USE OF DISTRIBUTED LEDGER TECHNOLOGY	Yes, DLT operated by the issuer.

Part H: information on the underlying technology		
H.7	DLT FUNCTIONALITY DESCRIPTION	Decentralization: The VeChainThor blockchain is a decentralized network operated by 101 authority master nodes. There is no central operator or control point. Transparency and Immutability: Transactions on the VeChainThor blockchain are transparent and recorded on a public, immutable ledger accessible to all users. Security: The VeChainThor blockchain is secure against manipulation and attacks through cryptographic methods. Each transaction is verified and confirmed by the network's validators.
H.8	AUDIT	Yes
H.9	AUDIT OUTCOME	Slow Mist Security Team conducted smart contract security audit and concluded that the contract does not have Overflow, The Race Conditions issue. The audit has shown no critical, high, medium and low issues. Information on the outcomes of the audit can be found at https://github.com/slowmist/Knowledge-Base/blob/master/openreport/VeChainThorNodeToken-Smart-Contract-Security-Audit-Report.md .

Part I: Information on risks		
I.1	OFFER-RELATED RISKS	VTHO Tokens will be admitted to trading on third party crypto-assets service providers. This entails a number of trading risks specified below: Price fluctuations: The price of VTHO Tokens on third-party crypto-asset service providers and their liquidity may not develop as expected. In particular, market trading volumes on these platforms may increase or decrease unexpectedly, resulting in sudden price swings, reduced liquidity, or price drops. In addition, VTHO Tokens are generated automatically by VeChainThor Blockchain this resulting in a potential increase in the supply which may impact on the market price of VTHO Tokens on the trading platforms they are listed on. Delisting / Suspension from trading: Third-party crypto-asset service providers or the issuer may decide, at their discretion, to delist VTHO Tokens in total or in part, resulting in reduced market liquidity and difficulties in selling the tokens. Additionally, certain third-party crypto- asset service providers on which the issuer intends to list VTHO Tokens may decide not to apply for a MiCAR license, be denied a MiCAR license, or lose the license at a later stage. This could result in a potential temporary or definitive closure of trading of VTHO Tokens on those platforms. Jurisdictional limitations: Third-party crypto-asset service providers may also decide to limit the trading of VTHO Tokens or products having VTHO Tokens as underlying assets for certain customers due to jurisdictional restrictions.

Part I: Information on risks

I.2 ISSUER-RELATED RISKS	VeChain, the issuer of VTHO Tokens, is subject to several risks that could impact the stability and reliability of VTHO Tokens. Regulatory Risks: the crypto-assets regulatory landscape is constantly evolving in many jurisdictions including EU. Compliance with varying regulatory requirements across different jurisdictions can be complex and may lead to operational challenges or legal liabilities if not properly managed. Third-party Risks: VeChain relies on third parties to provide services that are important to VeChain Thor Blockchain and VTHO Tokens. PotentialPage 23 of 26 disruptions, cyber incidents, or contractual non-compliance issues may arise with such third parties. Operational Risks: the efficient functioning of VeChain relies on robust internal processes and systems. Any failures or disruptions in these processes, including human errors, system failures, or inadequate internal controls, could adversely affect the issuance and transferability of VTHO Tokens. Technological Risks: The technology underlying VTHO Tokens, including smart contracts and VeChainThor Blockchain, is subject to vulnerabilities, cyber threats or potential delays in transactions' processing. Although VeChainThor Blockchain and its consensus mechanism is designed to reduce to the maximum extent possible the risk of malicious attacks being successful, there is always a risk that this may happen. Financial Risks: any financial instability of VeChain, such as liquidity issues or insolvency, shall not impact the VTHO Tokens directly but in any case, affect their value in consequence of the possible discontinuation of the project. Reputational Risks: any negative publicity, whether due to regulatory actions, security breaches, or operational failures, could harm the company's reputation and reduce confidence among token holders and the broader market. Compliance Risks: Ensuring ongoing compliance with any and all applicable legislation is essential for legal and operational integrity. Failure to effectively implement and monitor compliance procedures could result in legal penalties and damage to VeChain's reputation. Environmental, Social, and Governance (ESG) Risks: regulatory attention to ESG factors is constantly increasing worldwide. Even though VeChain takes into careful account ESG compliance and the Proof of Authority consensus mechanism governing VeChainThor Blockchain significantly reduces environmental impact, any failure to adhere to sustainable and ethical practices could impact the reputation and operations of VeChain, including the operations effected on VeChainThor Blockchain. governance practices.
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Part I: Information on risks	
I.3 CRYPTO-ASSETS-RELATED RISKS	VTHO Tokens entails a number of risks attached, namely: Redemption: The issuer does not guarantee the right of redemption of VTHO Tokens versus fiat currency or other crypto-assets. Potential delisting or limitations in trading on third party crypto-assets service providers may increase holding periods and expose holders to price fluctuations. Moreover, VTHO Tokens may not be immediately payable. Financial Returns: VTHO tokens do not guarantee financial returns and are subject to price fluctuations. VeChain’s strategic decision may affect the generation velocity and quantity of VTHO Tokens to be assigned to VET Token holder, so impacting on the VET Token holders' positions possibly inflating or deflating the total supply. Loss of Access to Tokens: Secure management of private keys is essential for accessing cryptocurrencies. Users should therefore rely on proven wallets and custody services to minimize the risk of loss.
I.4 PROJECT IMPLEMENTATION-RELATED RISKS	The issuer is a leading ICT player in the blockchain ecosystem, having developed a proprietary public blockchain named VeChainThor Blockchain which has been used since 2017 to support blockchain-based business applications offering real economic and social value. The issuer considers existing the following risks related to the project: Lack of or insufficient businesses utilizing VeChainThor blockchain: VeChainThor Blockchain has been used as a platform for third party businesses to manage and transact commodities, products, services, assets and funds in different jurisdictions. Despite the high potential and reliability of VeChainThor Blockchain as experimented in the past, the issuer cannot guarantee that the infrastructure will continue to be used by third party businesses in a constant manner. In case of lacking or sufficient businesses using VeChainThor Blockchain, the issuer may decide to discontinue the project.

Part I: Information on risks		
I.5	TECHNOLOGY-RELATED RISKS	VeChainThor blockchain risks: VTHO Tokens are transacted on VeChainThor Blockchain only, which – similarly to other blockchains - may be subject to technical vulnerabilities and be exposed to attacks (i.e. for example 51% attack and creation of untrue forks) that could potentially undermine the transactions being processed or alter the history of the transactions. Smart contract risks: smart contracts are commonly used on VeChainThor Blockchain. Similarly to other blockchains, smart contracts may be exposed to technical vulnerabilities and exploitations that could lead to losses for holders. Settlement finality and irrevocability transactions: VTHO Tokens transactions may be irreversible. Holders sending VTHO Tokens to non- existing addresses, unwilled or wrong addresses or addresses of an entity not in possession of the private keys may lose in whole or part VTHO Tokens and be unable to reverse the transaction or recover VTHO Tokens. Similarly, transactions of VET Tokens, which are effected using VTHO Tokens to pay transaction costs, are irreversible. Erroneous transactions imply the spending of VTHO Tokens which cannot be assigned back once used. System continuity: in some limited case, when no validator node is active, the VeChainThor Blockchain may experiment an halt in processing transactions. Unanticipated Risks: blockchain technology and tokens are a relatively new and untested technology. In addition to the risks included in this section, there might be other risks that cannot be foreseen. Additional risks may also materialize as unanticipated variations or combinations of the risks discussed within this section.

Part I: Information on risks

I.6	MITIGATION MEASURES	VeChain has set up a professional team to identify, assess, monitor and mitigate risks associated with its business activities, operations, and blockchain technologies. Regulatory Risks: continuous monitoring of regulatory changes and maintaining a robust team to ensure compliance across EU and other jurisdictions. Third-party Risks: third party management process is in place to ensure specific clauses in agreements with third party providers aiming at minimizing the risk of sudden discontinuation of services. Operational Risks: comprehensive training programs for employees, and the implementation of advanced internal control systems. Technological Risks: regular security audits, continuous monitoring for vulnerabilities, and employing state-of-the-art cybersecurity measures. VeChainThor Blockchain has implemented a sophisticated proof of authority consensus mechanism to minimize the risks of sybil attach (51%), by (i) splitting the transactions validation into different phases to ensure that majority of nodes validate previously endorsed transactions (ii) creating an unpredictable mechanism of selection of validating nodes, so that malicious attackers are unable to anticipate which node will be appointed to validate future transactions. Financial Risks: maintaining a robust reserve management strategy and professional financial management to ensure transparency and stability. Reputational Risks: proactive public relations strategies and effective communication channels to manage and mitigate any negative publicity. Compliance Risks: regular compliance reviews and stringent internal compliance protocols. Environmental, Social, and Governance (ESG) Risks: Implementing sustainable business practices, ensuring transparency in governance, and actively participating in social responsibility initiatives. Proof of Authority consensus mechanism governing the validation process on VeChainThor Blockchain has a very low environmental impact in that it does not require computational effort on the part of validating nodes. Lack of or insufficient businesses utilizing VeChainThor Blockchain: VeChain destines a significant number of resources to advertisement and marketing activities, by also sponsoring major sport events. This should allow VeChain to maintain high visibility on the market.
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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	Energy - Energy consumption 23,329.95 kWh - Renewable energy consumption 26.6% - Energy intensity 0.000023 kWh GHG emissions - Scope 1 – Controlled 0 - Scope 2 – Purchased 9.97t - GHG intensity: 0.0000096161 kg Waste production - Generation of waste electrical and electronic equipment (WEEE): 0.286t - Non-recycled WEEE ratio: 58.75% - Generation of hazardous waste: 0.00014t Natural resources - Impact of the use of equipment on natural resources: 142.96 kiloliters water usage



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VTHO VETHOR TOKEN WHITEPAPER

Whitepaper under Title II, Article 4 of Regulation (EU) 2023/1114 (“MiCAR”) for the admission to trading on crypto-asset service providers platforms authorized under Article 59 of MiCAR