Mantra (OM)
White paper

In accordance with Title II of Regulation (EU) 2023/1114 (MiCA)

N	Field	Content
0	Table of content	

01	Date of notification	2025-06-19
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 operator of the trading platform 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) 2023/1114 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	false
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. The crypto-asset referred to in this white paper is not covered by the deposit guarantee schemes under Directive 2014/49/EU of the European Parliament and of the Council.

<table>
<tr><td colspan="3">Summary</td></tr>
<tr><td>07</td><td>Warning in accordance with Article 6(7), second subparagraph of Regulation (EU) 2023/1114</td><td>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 admission to trading 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.</td></tr>
<tr><td>08</td><td>Characteristics of the crypto-asset</td><td>OM is the native crypto-asset of the MANTRA Chain network. It is a fungible gas and governance token.

OM grants holders the ability to participate in on-chain governance and staking within the MANTRA Chain.

OM was distributed as follows:

<table>
<tr><th>Category</th><th>Allocation</th></tr>
<tr><td>Initial Distribution</td><td>888 888 888 OM</td></tr>
<tr><td>Public Sale</td><td>8,5%</td></tr>
<tr><td>Private Sale</td><td>9%</td></tr>
<tr><td>Team & Advisors</td><td>17,5%</td></tr>
<tr><td>Referrals</td><td>12,5%</td></tr>
<tr><td>Grants</td><td>12,5%</td></tr>
<tr><td>Reserves</td><td>10%</td></tr>
<tr><td>Staking rewards</td><td>30%</td></tr>
<tr><td>Second Distribution</td><td>888 888 888 OM</td></tr>
<tr><td>Upgrade to Mainnet Incentive</td><td>35%</td></tr>
<tr><td>Core Contributors</td><td>33,8%</td></tr>
</table>
</td></tr>
</table>

		<table><tr><td>Mainnet Pre-Seed</td><td>11,2%</td></tr><tr><td>Mainnet Seed</td><td>10,2%</td></tr><tr><td>Genesis Airdrop and Incentivised testnet</td><td>5,6%</td></tr><tr><td>Ecosystem</td><td>4,2%</td></tr></table> OM tokens are freely transferable, in whole or in part, to third parties, and all associated usage rights and obligations follow the token upon transfer.
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	Kraken seeks admission to trading of the OM token so as to be compliant with MiCA and in keeping with its mission to make available for trading to its clients a wide range of assets.
Part I – Information on risks		
I.1	Offer-Related Risks	**General Risk Factors Associated with Crypto-Asset Offerings:** The admission to trading of crypto-assets, including OM, is subject to general risks inherent to the broader cryptocurrency market. **Market Volatility:** The value of OM may experience substantial fluctuations driven by investor sentiment, macroeconomic developments, and market conditions. **Regulatory Risks:** Changes in legislation, applicable laws, compliance requirements or the implementation of new regulatory frameworks could affect the availability, trading, or use of such assets.

		Security Risks: The risk of exploitation, hacking or security vulnerabilities of the underlying protocol and or contracts of the token leading to a loss. **Reputational Risks:** The potential for damage to an organization's credibility or public trust, which can negatively impact stakeholder confidence and overall business viability.
I.2	Issuer-Related Risks	**Organizational & Governance Risk:** The MANTRA Chain Association (issuer) is responsible for the development and governance of the project. If the Association fails to effectively maintain the network or loses key personnel, the project's progress could suffer. **Legal and Compliance Risk for Issuer:** The Association operates in a complex regulatory landscape (with activities spanning Switzerland, Dubai, and other jurisdictions). If the issuer were to face legal challenges, license revocation, or financial difficulties, this could impair its ability to support the MANTRA network and ecosystem. **Limited Financial Resources:** If the Association's funding (partly derived from token reserves) diminishes significantly, it may reduce spending on development or community initiatives, potentially impacting the project's growth and the value of OM.
I.3	Crypto-Assets-related Risks	**Market Volatility:** The crypto-asset market is subject to significant price volatility, which may affect the value of OM. Prices can fluctuate rapidly and unpredictably due to various factors, including market sentiment, economic indicators, technological developments, regulatory news, and macroeconomic trends. This high level of volatility may lead to sudden gains or losses and can impact the liquidity and tradability of the crypto-asset. **Liquidity:** Liquidity refers to the ability to buy or sell a crypto-asset without causing significant price impact. OM may experience periods of low liquidity, meaning that it could be difficult to enter or exit positions at desired prices or volumes. Reduced liquidity may result from limited market participation, exchange restrictions, or broader market conditions. This can lead to increased price volatility, slippage, and difficulty in executing transactions. **Cybersecurity & Technology Risks:** Risks arising from vulnerabilities in the blockchain technology used by the project or platforms. Example risks include smart contract exploits, compromise of platforms, forking scenarios, compromise of cryptographic algorithms.

		Adoption Risks: The risk associated with the project not achieving its goals leading to lower than expected adoption and use within the ecosystem, the impact leading to a reduced utility and value proposition. **Custody & Ownership Risk:** The risk related to the inadequate safekeeping and control of crypto-assets e.g. loss of private keys, custodian insolvency leading to a loss.
I.4	Project Implementation-Related Risks	**Development Risk:** There is a risk that certain planned features or integrations (such as expanded real-world asset tokenization or new DeFi modules) may be delayed or not achieve the expected adoption. **Adoption Risk:** The value and utility of OM depend on a healthy ecosystem of dApps, users, and real-world asset partners using MANTRA Chain. There is a risk that the ecosystem growth may stagnate. If the project fails to deliver expected functionalities or to remain competitive, user adoption of the network and demand for OM could suffer.
I.5	Technology-Related Risks	**Smart contract risks:** OM uses smart contracts to facilitate automated transactions and processes. While these contracts enhance efficiency and decentralization, they also introduce specific technical risks. Vulnerabilities such as coding errors, design flaws, or security loopholes within the smart contract code may be exploited by malicious actors. Such exploits could result in the loss of assets, unauthorized access to sensitive information, or unintended and irreversible execution of transactions. **Blockchain Network Risks:** OM operates on a public blockchain infrastructure, which is maintained by a decentralized network of participants. The functionality and reliability of the crypto-asset are dependent on the performance and security of the underlying blockchain. Risks may include network congestion, high transaction fees, delayed processing times, or, in extreme cases, outages and disruptions. Additionally, vulnerabilities or failures in the consensus mechanism, attacks on the network (e.g., 51% attacks), or protocol-level bugs could impact the operation and availability of OM. **Risk of Cryptographic Vulnerabilities:** Technological advancements, such as quantum computing, could pose potential risks to cryptocurrencies.

		Privacy: Transactions involving OM are recorded on a public blockchain, where transaction data is transparent and permanently accessible. While public addresses do not directly reveal personal identities, transaction histories can be analyzed and, in some cases, linked to individuals through data aggregation or external information sources. This transparency may pose privacy concerns for users seeking confidentiality in their financial activity. Participants should be aware that transaction data on public blockchains is not inherently private and could be subject to scrutiny by third parties, including regulators, analytics firms, or malicious actors.
I.6	Mitigation measures	**Security Audits:** The OM smart contract and related platform contracts have undergone security auditing by Oak Security, Code4Rena, and Hacken. This audit process helps identify and address potential vulnerabilities, thereby reducing the risk of smart contract failures or exploits. **Validator Slashing:** To deter malicious behavior, validators who act against protocol rules, such as double-signing blocks or prolonged downtime, are subject to slashing. This means a portion of their staked OM can be irreversibly forfeited. Slashing provides a direct economic disincentive for misbehavior and ensures that validators are penalized for actions that could compromise network security. **Community Governance:** MANTRA's governance system enables stakeholders to vote on protocol changes. This decentralized process allows the community to respond to risks (e.g. economic imbalances) by adjusting parameters, funding audits, or implementing emergency upgrades through transparent decision-making. While not a technical safeguard, governance serves as an adaptive mechanism to mitigate long-term systemic and coordination risks.
Part A - Information about the offeror or the person seeking admission to trading		
A.1	Name	N/A
A.2	Legal form	N/A
A.3	Registered address	N/A

A.4	Head office	N/A
A.5	Registration Date	N/A
A.6	Legal entity identifier	N/A
A.7	Another identifier required pursuant to applicable national law	N/A
A.8	Contact telephone number	N/A
A.9	E-mail address	N/A
A.10	Response Time (Days)	N/A
A.11	Parent Company	N/A
A.12	Members of the Management body	N/A
A.13	Business Activity	N/A
A.14	Parent Company Business Activity	N/A
A.15	Newly Established	N/A

A.16	Financial condition for the past three years	N/A
A.17	Financial condition since registration	N/A
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	true
B.2	Name	MANTRA Chain Association
B.3	Legal form	Association
B.4	Registered address	Baarerstrasse 10, 6300 Zug, Switzerland
B.5	Head office	Baarerstrasse 10, 6300 Zug, Switzerland
B.6	Registration Date	2023-04-21
B.7	Legal entity identifier	CHE-155.373.439
B.8	Another identifier required pursuant to applicable national law	CH-170-6000538-3

<table>
<tr><td>B.9</td><td>Parent Company</td><td>Not available</td></tr>
<tr><td>B.10</td><td>Members of the Management body</td><td>
<table>
<tr><th>Full Name</th><th>Business Address</th><th>Function</th></tr>
<tr><td>John Patrick Mullin</td><td>Baarerstrasse 10, 6300 Zug, Switzerland</td><td>Chairman of the Committee</td></tr>
<tr><td>Patrick Storchenegger</td><td>Baarerstrasse 10, 6300 Zug, Switzerland</td><td>Committee Member</td></tr>
<tr><td>Jayant Brahmandam Ramanand</td><td>Baarerstrasse 10, 6300 Zug, Switzerland</td><td>Authorised Signatory</td></tr>
</table>
</td></tr>
<tr><td>B.11</td><td>Business Activity</td><td>Not available</td></tr>
<tr><td>B.12</td><td>Parent Company Business Activity</td><td>Not applicable</td></tr>
<tr><td colspan="3">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</td></tr>
<tr><td>C.1</td><td>Name</td><td>Payward Global Solutions LTD</td></tr>
<tr><td>C.2</td><td>Legal form</td><td>N/A</td></tr>
<tr><td>C.3</td><td>Registered address</td><td>N/A</td></tr>
</table>

<table>
<tr><td>C.4</td><td>Head office</td><td>N/A</td></tr>
<tr><td>C.5</td><td>Registration Date</td><td>11-07-2023</td></tr>
<tr><td>C.6</td><td>Legal entity identifier of the operator of the trading platform</td><td>9845003D98SCC2851458</td></tr>
<tr><td>C.7</td><td>Another identifier required pursuant to applicable national law</td><td>N/A</td></tr>
<tr><td>C.8</td><td>Parent Company</td><td>N/A</td></tr>
<tr><td>C.9</td><td>Reason for Crypto-Asset White Paper Preparation</td><td>Kraken seeks admission to trading of the OM token so as to be compliant with MiCA and in keeping with its mission to make available for trading to its clients a wide range of assets.</td></tr>
<tr><td>C.10</td><td>Members of the Management body</td><td>
<table>
<tr><th>Full Name</th><th>Business Address</th><th>Function</th></tr>
<tr><td>Shannon Kurtas</td><td>70 Sir John Rogerson's Quay, Dublin 2, Ireland</td><td>Board Member</td></tr>
<tr><td>Andrew Mulvenny</td><td>70 Sir John Rogerson's Quay, Dublin 2, Ireland</td><td>Board Member</td></tr>
<tr><td>Shane O'Brien</td><td>70 Sir John Rogerson's Quay, Dublin 2, Ireland</td><td>Board Member</td></tr>
<tr><td>Laura Walsh</td><td>70 Sir John Rogerson's Quay, Dublin 2, Ireland</td><td>Board Member</td></tr>
<tr><td>Michael Walsh</td><td>70 Sir John Rogerson's Quay, Dublin 2, Ireland</td><td>Board Member</td></tr>
</table>
</td></tr>
<tr><td>C.11</td><td>Operator Business Activity</td><td>PGSL is the operator of a Trading Platform for Crypto Assets, in accordance with Article 3(1)(18) of Regulation (EU) 2023/1114 (MiCA).</td></tr>
</table>

C.12	Parent Company Business Activity	Payward, Inc., a Delaware, USA corporation, is the parent company of a worldwide group of subsidiaries (the following paragraphs use the term "Payward" or "Payward Group" to refer to the group) collectively doing business as "Kraken." Payward's primary business is the operation of an online virtual asset platform that enables clients to buy and sell virtual assets on a spot basis, including the transfer of crypto-assets to and from external wallets. Payward, through its various affiliates, offers a number of other services and products, including: * A trading platform for futures contracts on virtual assets ("Kraken Derivatives"); * A platform for buying and selling NFTs; * An over-the-counter ("OTC") desk; * Extensions of margin to support spot trading of virtual assets; * A benchmark administrator; and * Staking services.
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	Mantra

D.2	Crypto-assets name	Mantra (OM)
D.3	Abbreviation	OM
D.4	Crypto-asset project description	MANTRA is a Layer-1 blockchain network built on Cosmos SDK. The project's objectives are to provide a secure, regulatory-friendly platform for asset tokenization and DeFi. The network provides tools enabling identity verification, asset tokenization, and on-chain governance.
D.5	Details of all natural or legal persons involved in the implementation of the crypto-asset project	The project was co-founded by a team including John Patrick Mullin (CEO), Will Corkin, Rodrigo Quan Miranda, among others. The MANTRA Chain Association oversees ongoing development, technical implementation and regulatory compliance aspects. Its address is Baarerstrasse 10, 6300 Zug, Switzerland
D.6	Utility Token Classification	false
D.7	Key Features of Goods/Services for Utility Token Projects	N/A
D.8	Plans for the token	The project was founded in mid-2020 alongside the issuance of the OM token. An incentivized testnet (codename Hongbai) was launched in November 2023 to trial MANTRA Chain's features. In October 2024, the MANTRA Chain mainnet officially went live, with OM adopted as the native staking coin of the network. Refer to the project team website for any further information regarding future milestones.
D.9	Resource Allocation	In August 2020, an initial public token offering raised approximately $5.93 million to support development. Additionally, a portion of OM's token supply was pre-allocated for various purposes: 12.5% (111.11 million OM) for community referrals and growth incentives, 10% (88.89 million OM) for reserves (held by the foundation for

		strategic initiatives).
D.10	Planned Use of Collected Funds or Crypto-Assets	At TGE, 111.11 million OM tokens were allocated for community referrals and growth incentives. An additional 88.89 million OM were held by the foundation for strategic initiatives.
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	Making secondary trading available to the consumers on the Kraken Trading platform in compliance with the MiCA regulatory framework
E.3	Fundraising Target	N/A
E.4	Minimum Subscription Goals	N/A
E.5	Maximum Subscription Goal	N/A
E.6	Oversubscription Acceptance	N/A
E.7	Oversubscription Allocation	N/A
E.8	Issue Price	N/A

E.9	Official currency or other crypto-assets determining the issue price	N/A
E.10	Subscription fee	N/A
E.11	Offer Price Determination Method	N/A
E.12	Total Number of Offered/Traded crypto-assets	The current total supply is 1 669 049 146 with no maximum supply ceiling. The MANTRA Chain implements a continuous inflation rate of about 3% per year on the native OM to reward stakers and validators.
E.13	Targeted Holders	ALL
E.14	Holder restrictions	N/A
E.15	Reimbursement Notice	N/A
E.16	Refund Mechanism	N/A
E.17	Refund Timeline	N/A
E.18	Offer Phases	N/A
E.19	Early Purchase Discount	N/A

E.20	time-limited offer	N/A
E.21	Subscription period beginning	N/A
E.22	Subscription period end	N/A
E.23	Safeguarding Arrangements for Offered Funds/crypto-assets	N/A
E.24	Payment Methods for crypto-asset Purchase	N/A
E.25	Value Transfer Methods for Reimbursement	N/A
E.26	Right of Withdrawal	N/A
E.27	Transfer of Purchased crypto-assets	N/A
E.28	Transfer Time Schedule	N/A
E.29	Purchaser's Technical Requirements	N/A

E.30	crypto-asset service provider (CASP) name	N/A
E.31	CASP identifier	N/A
E.32	Placement form	NTAV
E.33	Trading Platforms name	N/A
E.34	Trading Platforms Market Identifier Code (MIC)	N/A
E.35	Trading Platforms Access	N/A
E.36	Involved costs	N/A
E.37	Offer Expenses	N/A
E.38	Conflicts of Interest	All listings decisions made by Payward Global Solution Ltd are made independently by staff of the entity in line with internal policies. PGSL publishes a conflicts of interest disclosure on its website advising of potential conflicts that may arise.
E.39	Applicable law	Any dispute relating to this white paper shall be governed by and construed and enforced in accordance with the laws of Ireland without regard to conflict of law rules or principles (whether of Ireland or any other jurisdiction) that would cause the application of the laws of any other jurisdiction, irrespective of whether OM tokens qualify as right or property under the applicable law.
E.40	Competent court	Any disputes or claims arising out of this white paper will be subject to the exclusive jurisdiction of the Irish courts.

Part F - Information about the crypto-assets		
F.1	Crypto-Asset Type	OM is classified as a crypto-asset other than an asset referenced token or e-money token under MiCA, (EU) 2023/1114.
F.2	Crypto-Asset Functionality	OM functions as the gas of the network; transactions and smart contract operations on MANTRA Chain require OM for fees, which are paid into the protocol. As MANTRA Chain is based on Proof-of-Stake consensus, validators and delegators stake OM to secure the network and, in return, earn staking rewards. OM grants participation in MANTRA's on-chain governance. Holders can propose or vote on network upgrades and parameter changes, influencing the protocol's development. OM is also used to access certain ecosystem features— for example, staking a threshold of OM (after completing KYC) is required to utilize the Guard compliance module for regulated dApps.
F.3	Planned Application of Functionalities	There are no additional OM functionalities pending implementation. All key features of OM (staking, fee payment, governance, etc.) are active on MANTRA Chain from launch. Should new token functionalities be developed in the future (beyond those already live), they will be communicated in updates to the community. (No unreleased functionality is awaiting activation at this time.)
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 white paper	OTHR
F.5	The type of submission	NEWT
F.6	Crypto-Asset Characteristics	OM was originally created with a fixed supply cap of 888 888 888 OM on Ethereum. In October 2024, an additional 888 888 888 OM were minted on MANTRA Chain's genesis block. The MANTRA Chain implements a continuous inflation rate of about 3% per year on the native OM to reward stakers and validators. This brings the combined total generated supply to approximately 1.777 billion OM (≈1.81 billion including minor inflation to date). At this time, there is no maximum supply ceiling defined.

F.7	Commercial name or trading name	N/A
F.8	Website of the issuer	https://www.mantrachain.io/
F.9	Starting date of offer to the public or admission to trading	2020-08-19
F.10	Publication date	2025-07-17
F.11	Any other services provided by the issuer	N/A
F.12	Identifier of operator of the trading platform	PGSL
F.13	Language or languages of the white paper	English
F.14	Digital Token Identifier	11B60HRDS
F.15	Functionally Fungible Group Digital Token Identifier	N/A
F.16	Voluntary data flag	Mandatory

F.17	Personal data flag	Yes
F.18	LEI eligibility	N/A
F.19	Home Member State	Ireland
F.20	Host Member States	Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Iceland, Liechtenstein, Norway
Part G - Information on the rights and obligations attached to the crypto-assets		
G.1	Purchaser Rights and Obligations	**Right of Transfer:** The holder can transfer the OM tokens to third parties. Upon transfer, all rights and obligations are transferred to the new holder. **Trading:** If the OM token is listed on cryptocurrency exchanges, holders can trade their tokens there. **Usage and Staking Rights:** OM holders have the right to use the token within the Mantra ecosystem. This includes submitting proposals on-chain, as well as delegating OM to validators that secure the MANTRA network. Transactions on the MANTRA network are subject to gas fees, ultimately settled in OM.
G.2	Exercise of Rights and obligations	Transferring OM requires the holder to initiate a transaction from their wallet (and pay a transaction fee in OM). To stake OM and participate in validation, a holder must follow the on-chain staking process.
G.3	Conditions for modifications of rights and obligations	The rights and obligations attached to OM as described in this white paper reflect information available at the time of issuance. This white paper is issued by Kraken and does not constitute a commitment or guarantee by Mantra or any other party regarding future modifications. No promises, warranties, or assurances are made herein regarding future token functionality, and this section is provided solely for informational purposes.
G.4	Future Public Offers	N/A

G.5	Issuer Retained Crypto-Assets	The MANTRA team's original allocation was 155 555 555 OM (17,5% of the initial supply).In February 2024, the community approved doubling the supply, and at the October 2024 mainnet launch an additional 300,444,444 OM (33.8% of the new supply) was allocated to the team.
G.6	Utility Token Classification	false
G.7	Key Features of Goods/Services of Utility Tokens	N/A
G.8	Utility Tokens Redemption	N/A
G.9	Non-Trading request	This white paper reflects a request to admit the token to trading.
G.10	Crypto-Assets purchase or sale modalities	N/A
G.11	Crypto-Assets Transfer Restrictions	Kraken may, in accordance with applicable laws and internal policies and terms, impose restrictions on buyers and sellers of these tokens.
G.12	Supply Adjustment Protocols	false
G.13	Supply Adjustment Mechanisms	N/A
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	Any dispute relating to this white paper shall be governed by and construed and enforced in accordance with the laws of Ireland without regard to conflict of law rules or principles (whether of Ireland or any other jurisdiction) that would cause the application of the laws of any other jurisdiction, irrespective of whether OM tokens qualify as right or property under the applicable law.
G.19	Competent court	Any disputes or claims arising out of this white paper will be subject to the exclusive jurisdiction of the Irish courts.
Part H – information on the underlying technology		
H.1	Distributed ledger technology	N/A
H.2	Protocols and technical standards	The OM token is based on the Mantra Chain, which leverages the Cosmos SDK protocol, employing decentralized Distributed-Ledger Technology (DLT). Cosmos IBC Token Standard: Utilizing the Inter-Blockchain Communication (IBC) protocol inherent to Cosmos SDK, the OM token ensures compatibility and interoperability with wallets, decentralized exchanges, and decentralized applications (DApps) within the Cosmos ecosystem.
H.3	Technology Used	The OM token uses Cosmos SDK's native token format.
H.4	Consensus Mechanism	Delegated Proof-of-Stake (Tendermint BFT): MANTRA Chain's consensus mechanism is a Byzantine Fault Tolerant delegated Proof-of-Stake. A set of validators (up to a fixed maximum, e.g., 100 validators initially) propose and vote on blocks using the Tendermint consensus engine. OM token holders who are

		not validators can participate by delegating their OM to validators of their choice. Validators are selected to produce blocks in a weighted round-robin fashion proportional to their total stake (self-bonded + delegated).
H.5	Incentive Mechanisms and Applicable Fees	The network incentivizes validators and delegators through an inflationary block reward system. This system mints new OM and distributes it to stakers (validators and their delegators) in each block as staking rewards. Every transaction on MANTRA Chain incurs a fee payable in OM. Fee levels are algorithmically determined by network parameters (gas and minimum gas price). These transaction fees are collected and directed to the protocol's treasury module (and a portion can be burned, if specified by governance).
H.6	Use of Distributed Ledger Technology	false
H.7	DLT Functionality Description	N/A
H.8	Audit	Yes
H.9	Audit outcome	The MANTRA Chain codebase underwent security audits in late 2024 and early 2025. An audit by Hacken (completed November 2024) concluded with 1 critical vulnerability found; minor issues identified were remedied prior to mainnet launch. Additionally, a community audit contest was run by Code4rena (Nov 29, 2024 – Jan 6, 2025), which resulted in further review of the blockchain's smart contracts and modules.
Part J - Information on the suitability indicators in relation to adverse impact on the climate and other environment-related adverse impacts		
S.1	Name	Payward Global Solutions Limited
S.2	Relevant legal entity identifier	9845003D98SCC2851458
S.3	Name of the crypto-asset	MANTRA
S.4	Consensus Mechanism	MANTRA is present on the following networks: Base, Binance Smart Chain, Ethereum, Mantra Oma, Osmosis, Polygon.

		Base is a Layer-2 (L2) solution on Ethereum that was introduced by Coinbase and developed using Optimism's OP Stack. L2 transactions do not have their own consensus mechanism and are only validated by the execution clients. The so-called sequencer regularly bundles stacks of L2 transactions and publishes them on the L1 network, i.e. Ethereum. Ethereum's consensus mechanism (Proof-of-stake) thus indirectly secures all L2 transactions as soon as they are written to L1. Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof of Staked Authority (PoSA), which combines elements of Delegated Proof of Stake (DPoS) and Proof of Authority (PoA). This method ensures fast block times and low fees while maintaining a level of decentralization and security. Core Components: 1. Validators (so-called “Cabinet Members”): Validators on BSC are responsible for producing new blocks, validating transactions, and maintaining the network’s security. To become a validator, an entity must stake a significant amount of BNB (Binance Coin). Validators are selected through staking and voting by token holders. There are 21 active validators at any given time, rotating to ensure decentralization and security. 2. Delegators: Token holders who do not wish to run validator nodes can delegate their BNB tokens to validators. This delegation helps validators increase their stake and improves their chances of being selected to produce blocks. Delegators earn a share of the rewards that validators receive, incentivizing broad participation in network security. 3. Candidates: Candidates are nodes that have staked the required amount of BNB and are in the pool waiting to become validators. They are essentially potential validators who are not currently active but can be elected to the validator set through community voting. Candidates play a crucial role in ensuring there is always a sufficient pool of nodes ready to take on validation tasks, thus maintaining network resilience and decentralization. Consensus Process. 4. Validator Selection: Validators are chosen based on the amount of BNB staked and votes received from delegators. The more BNB staked and votes received, the higher the chance of being selected to validate transactions and produce new blocks. The selection process involves both the current validators and the pool of candidates, ensuring a dynamic and secure rotation of nodes. 5. Block Production: The selected validators take turns producing blocks in a PoA-like manner, ensuring that blocks are generated quickly and efficiently. Validators validate transactions, add them to new blocks, and broadcast these blocks to the network.

		6. Transaction Finality: BSC achieves fast block times of around 3 seconds and quick transaction finality. This is achieved through the efficient PoSA mechanism that allows validators to rapidly reach consensus. Security and Economic Incentives 7. Staking: Validators are required to stake a substantial amount of BNB, which acts as collateral to ensure their honest behavior. This staked amount can be slashed if validators act maliciously. Staking incentivizes validators to act in the network's best interest to avoid losing their staked BNB. 8. Delegation and Rewards: Delegators earn rewards proportional to their stake in validators. This incentivizes them to choose reliable validators and participate in the network's security. Validators and delegators share transaction fees as rewards, which provides continuous economic incentives to maintain network security and performance. 9. Transaction Fees: BSC employs low transaction fees, paid in BNB, making it cost-effective for users. These fees are collected by validators as part of their rewards, further incentivizing them to validate transactions accurately and efficiently. The crypto-asset's Proof-of-Stake (PoS) consensus mechanism, introduced with The Merge in 2022, replaces mining with validator staking. Validators must stake at least 32 ETH every block a validator is randomly chosen to propose the next block. Once proposed the other validators verify the block's integrity. The network operates on a slot and epoch system, where a new block is proposed every 12 seconds, and finalization occurs after two epochs (~12.8 minutes) using Casper-FFG. The Beacon Chain coordinates validators, while the fork-choice rule (LMD-GHOST) ensures the chain follows the heaviest accumulated validator votes. Validators earn rewards for proposing and verifying blocks, but face slashing for malicious behavior or inactivity. PoS aims to improve energy efficiency, security, and scalability, with future upgrades like Proto-Danksharding enhancing transaction efficiency. MANTRA Chain is a Layer 1 blockchain built using the Cosmos SDK and employs the Tendermint Byzantine Fault Tolerant (BFT) consensus mechanism. It operates under a Proof-of-Stake (PoS) model, where validators are selected based on the amount of OM tokens they stake. Osmosis operates on a Proof of Stake (PoS) consensus mechanism, leveraging the Cosmos SDK and Tendermint Core to provide secure, decentralized, and scalable transaction processing. Core Components:

- Proof of Stake (PoS): Validators are chosen based on the amount of OSMO tokens they stake or are delegated by other token holders. Validators are responsible for validating transactions, producing blocks, and maintaining network security.
- Cosmos SDK and Tendermint Core: Osmosis uses Tendermint Core for Byzantine Fault Tolerant (BFT) consensus, ensuring fast finality and resistance to attacks as long as less than one-third of validators are malicious.
- Decentralized Governance: OSMO token holders can participate in governance by voting on protocol upgrades and network parameters, fostering a community-driven approach to network development.

Polygon, formerly known as Matic Network, is a Layer 2 scaling solution for Ethereum that employs a hybrid consensus mechanism. Here's a detailed explanation of how Polygon achieves consensus:

Core Concepts:

1. Proof of Stake (PoS):
    - Validator Selection: Validators on the Polygon network are selected based on the number of MATIC tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
    - Delegation: Token holders who do not wish to run a validator node can delegate their MATIC tokens to validators. Delegators share in the rewards earned by validators.
2. Plasma Chains:
    - Off-Chain Scaling: Plasma is a framework for creating child chains that operate alongside the main Ethereum chain. These child chains can process transactions off-chain and submit only the final state to the Ethereum main chain, significantly increasing throughput and reducing congestion.
    - Fraud Proofs: Plasma uses a fraud-proof mechanism to ensure the security of off-chain transactions. If a fraudulent transaction is detected, it can be challenged and reverted.

Consensus Process:

1. Transaction Validation:
    Transactions are first validated by validators who have staked MATIC tokens. These validators confirm the validity of transactions and include them in blocks.
2. Block Production:
    - Proposing and Voting: Validators propose new blocks based on their staked tokens and participate in a voting process to reach

		consensus on the next block. The block with the majority of votes is added to the blockchain. - Checkpointing: Polygon uses periodic checkpointing, where snapshots of the Polygon sidechain are submitted to the Ethereum main chain. This process ensures the security and finality of transactions on the Polygon network. 3. Plasma Framework: - Child Chains: Transactions can be processed on child chains created using the Plasma framework. These transactions are validated off-chain and only the final state is submitted to the Ethereum main chain. - Fraud Proofs: If a fraudulent transaction occurs, it can be challenged within a certain period using fraud proofs. This mechanism ensures the integrity of off-chain transactions. Security and Economic Incentives: 1. Incentives for Validators: - Staking Rewards: Validators earn rewards for staking MATIC tokens and participating in the consensus process. These rewards are distributed in MATIC tokens and are proportional to the amount staked and the performance of the validator. - Transaction Fees: Validators also earn a portion of the transaction fees paid by users. This provides an additional financial incentive to maintain the network's integrity and efficiency. 2. Delegation: Shared Rewards: Delegators earn a share of the rewards earned by the validators they delegate to. This encourages more token holders to participate in securing the network by choosing reliable validators. 3. Economic Security: Slashing: Validators can be penalized for malicious behavior or failure to perform their duties. This penalty, known as slashing, involves the loss of a portion of their staked tokens, ensuring that validators act in the best interest of the network.
S.5	Incentive Mechanisms and Applicable Fees	MANTRA is present on the following networks: Base, Binance Smart Chain, Ethereum, Mantra Oma, Osmosis, Polygon. Base is a Layer-2 (L2) solution on Ethereum that uses optimistic rollups provided by the OP Stack on which it was developed. Transactions on base are bundled by a, so called, sequencer and the result is regularly submitted as a Layer-1 (L1) transaction. This way many L2 transactions get combined into a single L1 transaction. This lowers the average transaction cost per transaction, because many L2 transactions together fund the transaction cost

		for the single L1 transaction. This creates incentives to use base rather than the L1, i.e. Ethereum, itself. To get crypto-assets in and out of base, a special smart contract on Ethereum is used. Since there is no consensus mechanism on L2 an additional mechanism ensures that only existing funds can be withdrawn from L2. When a user wants to withdraw funds, that user needs to submit a withdrawal request on L1. If this request remains unchallenged for a period of time the funds can be withdrawn. During this time period any other user can submit a fault proof, which will start a dispute resolution process. This process is designed with economic incentives for correct behaviour. Binance Smart Chain (BSC) uses the Proof of Staked Authority (PoSA) consensus mechanism to ensure network security and incentivize participation from validators and delegators. Incentive Mechanisms 1. Validators: - Staking Rewards: Validators must stake a significant amount of BNB to participate in the consensus process. They earn rewards in the form of transaction fees and block rewards. - Selection Process: Validators are selected based on the amount of BNB staked and the votes received from delegators. The more BNB staked and votes received, the higher the chances of being selected to validate transactions and produce new blocks. 2. Delegators: - Delegated Staking: Token holders can delegate their BNB to validators. This delegation increases the validator's total stake and improves their chances of being selected to produce blocks. - Shared Rewards: Delegators earn a portion of the rewards that validators receive. This incentivizes token holders to participate in the network's security and decentralization by choosing reliable validators. 3. Candidates: Pool of Potential Validators: Candidates are nodes that have staked the required amount of BNB and are waiting to become active validators. They ensure that there is always a sufficient pool of nodes ready to take on validation tasks, maintaining network resilience. 4. Economic Security: - Slashing: Validators can be penalized for malicious behavior or failure to perform their duties. Penalties include slashing a portion of their staked tokens, ensuring that validators act in the best interest of the network.

- Opportunity Cost: Staking requires validators and delegators to lock up their BNB tokens, providing an economic incentive to act honestly to avoid losing their staked assets.

Fees on the Binance Smart Chain

1. Transaction Fees:
   - Low Fees: BSC is known for its low transaction fees compared to other blockchain networks. These fees are paid in BNB and are essential for maintaining network operations and compensating validators.
   - Dynamic Fee Structure: Transaction fees can vary based on network congestion and the complexity of the transactions. However, BSC ensures that fees remain significantly lower than those on the Ethereum mainnet.
2. Block Rewards:
   Incentivizing Validators: Validators earn block rewards in addition to transaction fees. These rewards are distributed to validators for their role in maintaining the network and processing transactions.
3. Cross-Chain Fees:
   Interoperability Costs: BSC supports cross-chain compatibility, allowing assets to be transferred between Binance Chain and Binance Smart Chain. These cross-chain operations incur minimal fees, facilitating seamless asset transfers and improving user experience.
4. Smart Contract Fees:
   Deploying and interacting with smart contracts on BSC involves paying fees based on the computational resources required. These fees are also paid in BNB and are designed to be cost-effective, encouraging developers to build on the BSC platform.

The crypto-asset's PoS system secures transactions through validator incentives and economic penalties. Validators stake at least 32 ETH and earn rewards for proposing blocks, attesting to valid ones, and participating in sync committees. Rewards are paid in newly issued ETH and transaction fees.

Under EIP-1559, transaction fees consist of a base fee, which is burned to reduce supply, and an optional priority fee (tip) paid to validators. Validators face slashing if they act maliciously and incur penalties for inactivity.

This system aims to increase security by aligning incentives while making the crypto-asset's fee structure more predictable and deflationary during high network activity.

		Osmosis incentivizes validators, delegators, and liquidity providers through a combination of staking rewards, transaction fees, and liquidity incentives. Incentive Mechanisms: - Validator Rewards: Validators earn rewards from transaction fees and block rewards, distributed in OSMO tokens, for their role in securing the network and processing transactions. Delegators who stake their OSMO tokens with validators receive a share of these rewards. - Liquidity Provider Rewards: Users providing liquidity to Osmosis pools earn swap fees and may receive additional incentives in the form of OSMO tokens to encourage liquidity provision. - Superfluid Staking: Liquidity providers can participate in superfluid staking, staking a portion of their OSMO tokens within liquidity pools. This mechanism allows users to earn staking rewards while maintaining liquidity in the pools - Applicable Fees: Transaction Fees: Users pay transaction fees in OSMO tokens for network activities, including swaps, staking, and governance participation. These fees are distributed to validators and delegators, incentivizing their continued participation and support for network security. Polygon uses a combination of Proof of Stake (PoS) and the Plasma framework to ensure network security, incentivize participation, and maintain transaction integrity. Incentive Mechanisms: 1. Validators: - Staking Rewards: Validators on Polygon secure the network by staking MATIC tokens. They are selected to validate transactions and produce new blocks based on the number of tokens they have staked. Validators earn rewards in the form of newly minted MATIC tokens and transaction fees for their services. - Block Production: Validators are responsible for proposing and voting on new blocks. The selected validator proposes a block, and other validators verify and validate it. Validators are incentivized to act honestly and efficiently to earn rewards and avoid penalties. - Checkpointing: Validators periodically submit checkpoints to the Ethereum main chain, ensuring the security and finality of transactions processed on Polygon. This provides an additional layer of security by leveraging Ethereum's robustness. 2. Delegators:

		- Delegation: Token holders who do not wish to run a validator node can delegate their MATIC tokens to trusted validators. Delegators earn a portion of the rewards earned by the validators, incentivizing them to choose reliable and performant validators. - Shared Rewards: Rewards earned by validators are shared with delegators, based on the proportion of tokens delegated. This system encourages widespread participation and enhances the network's decentralization. 3. Economic Security: - Slashing: Validators can be penalized through a process called slashing if they engage in malicious behavior or fail to perform their duties correctly. This includes double-signing or going offline for extended periods. Slashing results in the loss of a portion of the staked tokens, acting as a strong deterrent against dishonest actions. - Bond Requirements: Validators are required to bond a significant amount of MATIC tokens to participate in the consensus process, ensuring they have a vested interest in maintaining network security and integrity. Fees on the Polygon Blockchain 4. Transaction Fees: - Low Fees: One of Polygon's main advantages is its low transaction fees compared to the Ethereum main chain. The fees are paid in MATIC tokens and are designed to be affordable to encourage high transaction throughput and user adoption. - Dynamic Fees: Fees on Polygon can vary depending on network congestion and transaction complexity. However, they remain significantly lower than those on Ethereum, making Polygon an attractive option for users and developers. 5. Smart Contract Fees: Deployment and Execution Costs: Deploying and interacting with smart contracts on Polygon incurs fees based on the computational resources required. These fees are also paid in MATIC tokens and are much lower than on Ethereum, making it cost-effective for developers to build and maintain decentralized applications (dApps) on Polygon. 6. Plasma Framework: State Transfers and Withdrawals: The Plasma framework allows for off-chain processing of transactions, which are periodically batched and committed to the Ethereum main chain. Fees associated with these processes are also paid in MATIC tokens, and they help reduce the overall cost of using the network.

S.6	Beginning of the period to which the disclosure relates	2024-05-28
S.7	End of the period to which the disclosure relates	2025-05-28
S.8	Energy consumption	37669.94685 kWh/a
S.9	Energy consumption sources and methodologies	The energy consumption of this asset is aggregated across multiple components: For the calculation of energy consumptions, the so-called "bottom-up" approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts. To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain, ethereum, osmosis, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side

		when in doubt, i.e. making higher estimates for the adverse impacts.