

White paper drafted under the European Markets in Crypto- Assets Regulation (EU) 2023/1114 for FFG 919BF3W7L

Preamble

00. Table of Content

Preamble	2
01. Date of notification	8
02. Statement in accordance with Article 6(3) of Regulation (EU) 2023/1114	8
03. Compliance statement in accordance with Article 6(6) of Regulation (EU) 2023/1114	8
04. Statement in accordance with Article 6(5), points (a), (b), (c), of Regulation (EU) 2023/1114	8
05. Statement in accordance with Article 6(5), point (d), of Regulation (EU) 2023/1114	8
06. Statement in accordance with Article 6(5), points (e) and (f), of Regulation (EU) 2023/1114	8
Summary	8
07. Warning in accordance with Article 6(7), second subparagraph, of Regulation (EU) 2023/1114	8
08. Characteristics of the crypto-asset	8
09. Information about the quality and quantity of goods or services to which the utility tokens give access and restrictions on the transferability	9
10. Key information about the offer to the public or admission to trading	9
Part A – Information about the offeror or the person seeking admission to trading	9
A.1 Name	9
A.2 Legal form	10
A.3 Registered address	10
A.4 Head office	10
A.5 Registration date	10
A.6 Legal entity identifier	10
A.7 Another identifier required pursuant to applicable national law	10
A.8 Contact telephone number	10
A.9 E-mail address	10
A.10 Response time (Days)	10
A.11 Parent company	10
A.12 Members of the management body	10
A.13 Business activity	10
A.14 Parent company business activity	11
A.15 Newly established	11
A.16 Financial condition for the past three years	11
A.17 Financial condition since registration	12

Part B – Information about the issuer, if different from the offeror or person seeking admission to trading	12
B.1 Issuer different from offeror or person seeking admission to trading	12
B.2 Name	12
B.3 Legal form	12
B4. Registered address	12
B.5 Head office	12
B.6 Registration date	13
B.7 Legal entity identifier	13
B.8 Another identifier required pursuant to applicable national law	13
B.9 Parent company	13
B.10 Members of the management body	13
B.11 Business activity	13
B.12 Parent company business activity	13
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	13
C.1 Name	13
C.2 Legal form	13
C.3 Registered address	13
C.4 Head office	13
C.5 Registration date	14
C.6 Legal entity identifier	14
C.7 Another identifier required pursuant to applicable national law	14
C.8 Parent company	14
C.9 Reason for crypto-Asset white paper Preparation	14
C.10 Members of the Management body	14
C.11 Operator business activity	14
C.12 Parent company business activity	14
C.13 Other persons drawing up the crypto-asset white paper according to Article 6(1), second subparagraph, of Regulation (EU) 2023/1114	14
C.14 Reason for drawing the white paper by persons referred to in Article 6(1), second subparagraph, of Regulation (EU) 2023/1114	14
Part D – Information about the crypto-asset project	14
D.1 Crypto-asset project name	14
D.2 Crypto-assets name	14
D.3 Abbreviation	14

D.4 Crypto-asset project description	15
D.5 Details of all natural or legal persons involved in the implementation of the crypto-asset project	15
D.6 Utility Token Classification	15
D.7 Key Features of Goods/Services for Utility Token Projects	15
D.8 Plans for the token	15
D.9 Resource allocation	18
D.10 Planned use of Collected funds or crypto-Assets	18
Part E – Information about the offer to the public of crypto-assets or their admission to trading	18
E.1 Public offering or admission to trading	18
E.2 Reasons for public offer or admission to trading	18
E.3 Fundraising target	18
E.4 Minimum subscription goals	18
E.5 Maximum subscription goals	19
E.6 Oversubscription acceptance	19
E.7 Oversubscription allocation	19
E.8 Issue price	19
E.9 Official currency or any other crypto-assets determining the issue price	19
E.10 Subscription fee	19
E.11 Offer price determination method	19
E.12 Total number of offered/traded crypto-assets	19
E.13 Targeted holders	19
E.14 Holder restrictions	19
E.15 Reimbursement notice	20
E.16 Refund mechanism	20
E.17 Refund timeline	20
E.18 Offer phases	20
E.19 Early purchase discount	20
E.20 Time-limited offer	20
E.21 Subscription period beginning	20
E.22 Subscription period end	20
E.23 Safeguarding arrangements for offered funds/crypto- Assets	20
E.24 Payment methods for crypto-asset purchase	20
E.25 Value transfer methods for reimbursement	20
E.26 Right of withdrawal	21
E.27 Transfer of purchased crypto-assets	21

E.28 Transfer time schedule	21
E.29 Purchaser's technical requirements	21
E.30 Crypto-asset service provider (CASP) name	21
E.31 CASP identifier	21
E.32 Placement form	21
E.33 Trading platforms name	21
E.34 Trading platforms Market identifier code (MIC)	21
E.35 Trading platforms access	21
E.36 Involved costs	21
E.37 Offer expenses	22
E.38 Conflicts of interest	22
E.39 Applicable law	22
E.40 Competent court	22
Part F – Information about the crypto-assets	22
F.1 Crypto-asset type	22
F.2 Crypto-asset functionality	23
F.3 Planned application of functionalities	23
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	24
F.4 Type of crypto-asset white paper	24
F.5 The type of submission	24
F.6 Crypto-asset characteristics	24
F.7 Commercial name or trading name	24
F.8 Website of the issuer	24
F.9 Starting date of offer to the public or admission to trading	24
F.10 Publication date	24
F.11 Any other services provided by the issuer	24
F.12 Language or languages of the crypto-asset white paper	25
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	25
F.14 Functionally fungible group digital token identifier	25
F.15 Voluntary data flag	25
F.16 Personal data flag	25
F.17 LEI eligibility	25
F.18 Home Member State	25
F.19 Host Member States	25

Part G – Information on the rights and obligations attached to the crypto-assets	25
G.1 Purchaser rights and obligations	25
G.2 Exercise of rights and obligations	26
G.3 Conditions for modifications of rights and obligations	26
G.4 Future public offers	26
G.5 Issuer retained crypto-assets	26
G.6 Utility token classification	26
G.7 Key features of goods/services of utility tokens	26
G.8 Utility tokens redemption	26
G.9 Non-trading request	26
G.10 Crypto-assets purchase or sale modalities	27
G.11 Crypto-assets transfer restrictions	27
G.12 Supply adjustment protocols	27
G.13 Supply adjustment mechanisms	27
G.14 Token value protection schemes	27
G.15 Token value protection schemes description	27
G.16 Compensation schemes	27
G.17 Compensation schemes description	27
G.18 Applicable law	27
G.19 Competent court	27
Part H – information on the underlying technology	28
H.1 Distributed ledger technology (DLT)	28
H.2 Protocols and technical standards	28
H.3 Technology used	32
H.4 Consensus mechanism	34
H.5 Incentive mechanisms and applicable fees	36
H.6 Use of distributed ledger technology	37
H.7 DLT functionality description	38
H.8 Audit	38
H.9 Audit outcome	38
Part I – Information on risks	38
I.1 Offer-related risks	38
I.2 Issuer-related risks	40
I.3 Crypto-assets-related risks	41
I.4 Project implementation-related risks	43
I.5 Technology-related risks	43

I.6 Mitigation measures	45
Part J – Information on the sustainability indicators in relation to adverse impact on the climate and other environment-related adverse impacts	46
J.1 Adverse impacts on climate and other environment-related adverse impacts	46
S.1 Name	46
S.2 Relevant legal entity identifier	46
S.3 Name of the cryptoasset	46
S.4 Consensus Mechanism	46
S.5 Incentive Mechanisms and Applicable Fees	48
S.6 Beginning of the period to which the disclosure relates	49
S.7 End of the period to which the disclosure relates	49
S.8 Energy consumption	49
S.9 Energy consumption sources and methodologies	49
S.10 Renewable energy consumption	50
S.11 Energy intensity	50
S.12 Scope 1 DLT GHG emissions – Controlled	50
S.13 Scope 2 DLT GHG emissions – Purchased	50
S.14 GHG intensity	50
S.15 Key energy sources and methodologies	50
S.16 Key GHG sources and methodologies	51

01. Date of notification

This white paper was notified at 2026-01-14.

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) 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.

04. 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.

05. Statement in accordance with Article 6(5), point (d), of Regulation (EU) 2023/1114

As defined in Article 3(9) of Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on Markets in Crypto-Assets – amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 – a utility token is “a type of crypto-asset that is only intended to provide access to a good or a service supplied by its issuer”. This crypto-asset does not qualify as a utility token, as its intended use goes beyond providing access to a good or service supplied solely by the issuer.

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 or the deposit guarantee schemes under Directive 2014/49/EU of the European Parliament and of the Council.

Summary

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 or any other offer document pursuant to Union or national law.

08. Characteristics of the crypto-asset

The Bitcoin Cash (BCH) crypto-asset this white paper refers to is a crypto-asset other than EMTs and ARTs, issued on the Bitcoin Cash and smartBCH networks as of 2026-01-12 and according to DTI FFG shown in F.14.

The crypto-asset was originally created by a pseudonymous individual or group known as ""Satoshi Nakamoto"". Its key characteristics include a fixed supply of 21.000.000 BCH, intended to make it a scarce asset, and it is used primarily as a store of value and medium of exchange. Bitcoin Cash transactions are intended to be secured through a blockchain, which should ensure they are secure, transparent, and immutable. The crypto-asset can be sent and received globally without intermediaries, making it censorship-resistant.

The tokens have no inherent rights or utility - apart from being holdable and transferable and can not be exchanged for any goods or services at the time of writing this white paper (2026-01-12). BCH was born from a hard fork of the Bitcoin blockchain on August 1, 2017.

The crypto-asset does not grant any legally enforceable or contractual rights or obligations to its holders or purchasers. Any functionalities accessible through the underlying technology are purely technical or operational in nature and do not confer rights comparable to ownership, profit participation, governance, or similar entitlements known from traditional financial instruments.

09. Information about the quality and quantity of goods or services to which the utility tokens give access and restrictions on the transferability

As defined in Article 3(9) of Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on Markets in Crypto-Assets – amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 – a utility token is "a type of crypto-asset that is only intended to provide access to a good or a service supplied by its issuer". This crypto-asset does not qualify as a utility token, as its intended use goes beyond providing access to a good or service supplied solely by the issuer.

10. Key information about the offer to the public or admission to trading

Crypto Risk Metrics GmbH is seeking admission to trading on Payward Global Solutions LTD ("Kraken") platform in the European Union in accordance with Article 5 of Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on Markets in Crypto-Assets, and amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937. The admission to trading is not accompanied by a public offer of the crypto-asset.

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

A.1 Name

Crypto Risk Metrics GmbH is the person seeking admission to trading.

A.2 Legal form

The legal form of Crypto Risk Metrics GmbH is 2HBR, which corresponds to "Gesellschaft mit beschränkter Haftung".

A.3 Registered address

The registered address of Crypto Risk Metrics GmbH is Lange Reihe 73, 20099 Hamburg, Germany, federal state Hamburg.

A.4 Head office

Crypto Risk Metrics GmbH has no head office.

A.5 Registration date

Crypto Risk Metrics GmbH was registered on 2018-12-03.

A.6 Legal entity identifier

The Legal Entity Identifier (LEI) of Crypto Risk Metrics GmbH is 39120077M9TG0O1FE242.

A.7 Another identifier required pursuant to applicable national law

The national identifier of Crypto Risk Metrics GmbH is HRB 154488.

A.8 Contact telephone number

+4915144974120

A.9 E-mail address

info@crypto-risk-metrics.com

A.10 Response time (Days)

Crypto Risk Metrics GmbH will respond to investor enquiries within 30 calendar days.

A.11 Parent company

Crypto Risk Metrics GmbH has no parent company.

A.12 Members of the management body

Identity	Function	Business Address
Tim Zöllitz	Chairman	Lange Reihe 73, 20099 Hamburg, Germany

A.13 Business activity

Crypto Risk Metrics GmbH is a technical service provider, which supports regulated entities in the fulfilment of their regulatory requirements. In this regard, Crypto Risk Metrics GmbH, among other services, acts as a data-provider for ESG data according to article 66 (5). Due to the regulations laid out in article 4 (7), 5 (4) and 66 (3) of the Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on markets in crypto-assets, and amending Regulations (EU) No

1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937, Crypto Risk Metrics GmbH aims to provide central services for crypto-asset white papers.

A.14 Parent company business activity

Crypto Risk Metrics GmbH does not have a parent company. Accordingly, no business activity of a parent company is to be reported in this section.

A.15 Newly established

Crypto Risk Metrics GmbH has been established since 2018-12-03 and is therefore not newly established (i. e. more than three years).

A.16 Financial condition for the past three years

Crypto Risk Metrics GmbH, founded in 2018 and based in Hamburg (HRB 154488), has undergone several strategic shifts in its business focus since incorporation. Due to these changes in business model and operational direction over time, the financial figures from earlier years are only comparable to a limited extent with the company's current commercial activities. The present business model – centred around regulatory technology and risk analytics in the context of the MiCAR framework – has been established progressively and can be realistically considered fully operational since approximately 2024.

The company's financial trajectory over the past three years reflects the transition from exploratory development toward market-ready product delivery. The profit and loss after tax for the last three financial years is as follows:

2024 (unaudited): negative EUR 50.891,81

2023 (unaudited): negative EUR 27.665,32

2022: EUR 104.283,00.

The profit in 2022 resulted primarily from legacy consulting activities, which were discontinued in the course of the company's repositioning.

The losses in 2023 and 2024 result from strategic investments in the development of proprietary software infrastructure, regulatory frameworks, and compliance technology for the MiCAR ecosystem. During those periods, no substantial commercial revenues were expected, as resources were directed toward preparing the platform for regulated market entry.

A fundamental repositioning of the company occurred in 2023 and especially in 2024, when the focus shifted toward providing risk management, regulatory reporting, and supervisory compliance solutions for financial institutions and crypto-asset service providers. This marked a material shift in business operations and monetisation strategy.

Based on the current business development in Q4 2025, revenues exceeding EUR 550,000 are expected for the fiscal year 2025, with an anticipated net profit of approximately EUR 100,000.

These figures are neither audited nor based on a finalized annual financial statement; they are derived from the company's current pipeline, client development, and active commercial engagements. Accordingly, they are subject to future risks and market fluctuations.

With the regulatory environment now taking shape and the platform commercially validated, it is assumed that the effects of the strategic developments will continue to materialize in 2026. The company foresees further scalability of its technology and growing market demand for regulatory compliance tools in the European crypto-asset sector.

No public subsidies or governmental grants have been received to date; all operations have been financed through shareholder contributions and internally generated resources. Crypto Risk Metrics has never accepted any payments via Tokens from projects it has worked for and – due to the internal Conflicts of Interest Policy – never will.

A.17 Financial condition since registration

Not applicable. The company has been established for more than three years and its financial condition over the past three years is provided in Part A.16 above.

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

Yes, the issuer is different from the person seeking admission to trading.

B.2 Name

The crypto-asset was originally created by a pseudonymous individual or group known as Satoshi Nakamoto, who published the Bitcoin "white paper", explaining the core of the project in 2008 and launched the network in 2009. Since then, the crypto asset has been maintained by a global network of independent participants, including miners, developers, and users, rather than a formal legal entity. Since the hard fork of the Bitcoin blockchain on August 1, 2017, Bitcoin Cash continued to be maintained through community consensus and open-source development. At the time of writing this white paper (2026-01-12), the issuer of the crypto-asset remains unknown.

B.3 Legal form

Not applicable.

B4. Registered address

Not applicable.

Not applicable.

Not applicable.

B.5 Head office

Not applicable.

Not applicable.

Not applicable.

B.6 Registration date

Not applicable.

B.7 Legal entity identifier

Not applicable.

B.8 Another identifier required pursuant to applicable national law

Not applicable.

B.9 Parent company

Not applicable.

B.10 Members of the management body

Identity	Function	Business Address
Not applicable	Not applicable	Not applicable

B.11 Business activity

Not applicable.

B.12 Parent company business activity

Not applicable.

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

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.2 Legal form

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.3 Registered address

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.4 Head office

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.5 Registration date

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.6 Legal entity identifier

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.7 Another identifier required pursuant to applicable national law

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.8 Parent company

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.9 Reason for crypto-Asset white paper Preparation

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.10 Members of the Management body

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.11 Operator business activity

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.12 Parent company business activity

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.13 Other persons drawing up the crypto-asset white paper according to Article 6(1), second subparagraph, of Regulation (EU) 2023/1114

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.14 Reason for drawing the white paper by persons referred to in Article 6(1), second subparagraph, of Regulation (EU) 2023/1114

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

Part D – Information about the crypto-asset project

D.1 Crypto-asset project name

Long Name: "Bitcoin Cash", Short Names: "BCH", "BCC", "XBC" according to the Digital Token Identifier Foundation (www.dtif.org, DTI see F.13, FFG DTI see F.14 as of 2026-01-12).

D.2 Crypto-assets name

Long Name: "Bitcoin Cash" according to the Digital Token Identifier Foundation (www.dtif.org, DTI see F.13, FFG DTI see F.14 as of 2026-01-12).

D.3 Abbreviation

Short Names: "BCH", "BCC", "XBC" according to the Digital Token Identifier Foundation (www.dtif.org, DTI see F.13, FFG DTI see F.14 as of 2026-01-12).

D.4 Crypto-asset project description

As described in the original white paper (<https://bitcoin.org/bitcoin.pdf>, accessed on 2026-01-12), Bitcoin Cash is intended to function as a decentralized, permissionless crypto-asset operating on a public, pseudonymous blockchain secured by the Proof-of-Work (PoW) consensus mechanism. Transactions are verified by miners who compete to solve cryptographic puzzles using the SHA-256 hashing algorithm, which is designed to ensure network security and immutability. The Bitcoin Cash blockchain is structured as a linked chain of blocks, each containing a Merkle tree of transactions, with each block referencing the previous block's hash to maintain integrity. The supply is intended to be hard-capped at 20,999,999.97690000 BCH and is enforced through a halving mechanism every 210,000 blocks (approximately four years), which reduces block rewards and ensures predictable issuance. Bitcoin Cash's decentralized governance relies on Cash Improvement Proposals (CHIPS) and network consensus among full nodes, which is intended to prevent unilateral changes and reinforce its censorship-resistant nature. Bitcoin Cash has increased the maximum block size significantly and currently supports blocks of up to 32 MB, compared to the original Bitcoin protocol.

D.5 Details of all natural or legal persons involved in the implementation of the crypto-asset project

Type of person	Name of person	Business address of person	Domicile of company
Other person involved in implementation	Satoshi Nakamoto	Can not be found	Can not be found

D.6 Utility Token Classification

As defined in Article 3(9) of Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on Markets in Crypto-Assets – amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 – a utility token is “a type of crypto-asset that is only intended to provide access to a good or a service supplied by its issuer”. This crypto-asset does not qualify as a utility token, as its intended use goes beyond providing access to a good or service supplied solely by the issuer.

D.7 Key Features of Goods/Services for Utility Token Projects

As defined in Article 3(9) of Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on Markets in Crypto-Assets – amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 – a utility token is “a type of crypto-asset that is only intended to provide access to a good or a service supplied by its issuer”. This crypto-asset does not qualify as a utility token, as its intended use goes beyond providing access to a good or service supplied solely by the issuer.

D.8 Plans for the token

This section provides an overview of the historical developments related to the BCH crypto-asset and a description of planned or anticipated project milestones as publicly communicated. All forward-looking elements are subject to significant uncertainty. They do not constitute commitments, assurances, or guarantees, and may be modified, delayed, or discontinued at any

time. The implementation of past milestones cannot be assumed to continue in the future, and future changes may have adverse effects for token holders.

There is no formally published multi-year roadmap for the BCH crypto-asset. Based on public information (sources: <https://bch.info/en/chips>, <https://github.com/bitcoin/bips> and <https://bitcoincash.org/>, accessed 2026-01-12), several protocol upgrades, ecosystem initiatives, and token-related developments have been communicated that affect the evolution of the Bitcoin Cash interoperability infrastructure and the role of the BCH token.

Past milestones:

- Genesis Block (03-01-2009): The first block of the Bitcoin blockchain (Block 0) was mined by the pseudonymous creator Satoshi Nakamoto, marking the launch of the original network from which Bitcoin Cash later emerged via a hard fork.
- First Bitcoin Transaction (12-01-2009): An initial peer-to-peer transaction was executed when Satoshi Nakamoto transferred 10 BTC to developer Hal Finney, demonstrating the basic transaction functionality of the system inherited by later forks.
- First Recorded Commercial Use (22-05-2010): Bitcoin was used for a real-world purchase when 10,000 BTC were exchanged for two pizzas, illustrating early economic use of the protocol's native crypto-asset.
- Bitcoin Cash Network Split (01-08-2017): Bitcoin Cash was created through a hard fork of the Bitcoin blockchain, establishing a separate network with modified consensus rules and an independent BCH crypto-asset.
- Initial Block Size Increase (2017): At the time of the split, Bitcoin Cash increased the maximum block size to 8 MB, diverging from Bitcoin's scaling approach.
- Removal of Replace-By-Fee (2017): Replace-By-Fee functionality was removed to prioritise first-seen transactions and support faster transaction acceptance in certain use cases.
- Difficulty Adjustment Mechanism Changes (2017–2020): Multiple revisions to the difficulty adjustment algorithm were implemented, including an emergency adjustment in August 2017, the CW-144 algorithm in November 2017, and the ASERT algorithm in 2020 to stabilise block intervals.
- CashAddr Address Format (2018): A new address encoding format was introduced to reduce the risk of sending BCH to incompatible Bitcoin addresses.
- Canonical Transaction Ordering (2018): A consensus change standardised transaction ordering within blocks, improving block propagation efficiency.
- Re-enabled and Extended Opcodes (2018–2019): Previously disabled scripting opcodes were reintroduced, enabling more expressive transaction scripts and contract logic.

- Schnorr Signatures Activation (2019): Schnorr signatures were enabled for single-signature and multi-signature transactions, reducing signature size and improving verification efficiency.
- Expanded OP_RETURN Capacity (2018–2021): The maximum size and flexibility of arbitrary data outputs were increased, including support for multiple OP_RETURN outputs per transaction.
- Unconfirmed Transaction Chain Limit Removal (2021): Limits on chains of unconfirmed transactions were progressively increased and subsequently removed.
- Double-Spend Proofs Introduction (2021): A mechanism was added to allow rapid propagation of evidence of double-spend attempts, supporting faster transaction risk assessment.
- Smart Contract Feature Enhancements (2022–2023): Protocol upgrades introduced native transaction introspection opcodes, 64-bit integer support, and the P2SH-32 format to expand contract functionality and security.
- CashTokens Upgrade (2023): Native support for fungible and non-fungible tokens was added directly at the protocol level.
- Adaptive Block Size Limit Algorithm (2024): An automated mechanism was introduced to adjust the block size limit based on observed network usage.

Future milestones:

- Faster Block Interval Proposals (2027 or later): Proposals under discussion consider reducing the target block interval, potentially to approximately one minute, subject to community consensus and technical evaluation.
- Transaction Version 5 (2027–2028): A proposed new transaction format aims to address transaction malleability and improve processing efficiency, with indicative timeframes extending into 2027 or 2028.
- Zero-Knowledge and Cryptographic Extensions (Year not specified): Research is ongoing into native elliptic curve arithmetic operations to support advanced cryptographic constructions, including zero-knowledge techniques.
- UTXO Fast Synchronisation (Year not specified): Development efforts are focused on enabling significantly faster node synchronisation through the use of cryptographically verifiable state commitments.
- Virtual Machine Budgeting Enhancements (Year not specified): Proposals are being discussed to allow users to allocate additional computation budget for complex scripts without proportionally increasing block size.

- Privacy-Oriented Addressing Mechanisms (Year not specified): Work is underway on reusable payment address schemes intended to improve transactional privacy while maintaining usability.
- Block Propagation Optimisation (Year not specified): Ongoing research includes alternative block transmission protocols designed to improve efficiency as block sizes increase.
- Timestamp Overflow Mitigation (Post-2027 research): Preliminary discussions are addressing the long-term timestamp wrap-around issue anticipated in the year 2106.

These functionalities remain conditional on future development, audit completion, and governance approval. No assurance is given regarding their eventual activation, scope, or long-term availability.

D.9 Resource allocation

Not applicable – no specific project-level resources beyond the issuer's general operations as described under D.4 have been identified or disclosed. This limits investors' ability to assess the funding and staffing dedicated specifically to this project.

D.10 Planned use of Collected funds or crypto-Assets

Not applicable, as this white paper serves the purpose of admission to trading and is not associated with any fundraising activity for the crypto-asset project.

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

Crypto Risk Metrics GmbH is the person seeking admission to trading.

E.2 Reasons for public offer or admission to trading

The purpose of seeking admission to trading is to enable the crypto-asset to be listed on a regulated platform in accordance with the applicable provisions of Regulation (EU) 2023/1114 and Commission Implementing Regulation (EU) 2024/2984. The white paper has been drawn up to comply with the transparency requirements applicable to trading venues.

E.3 Fundraising target

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.4 Minimum subscription goals

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.5 Maximum subscription goals

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.6 Oversubscription acceptance

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.7 Oversubscription allocation

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.8 Issue price

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.9 Official currency or any other crypto-assets determining the issue price

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.10 Subscription fee

Not applicable, as this white paper is written to support admission to trading and not for the initial offer to the public.

E.11 Offer price determination method

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.12 Total number of offered/traded crypto-assets

As of January 12, 2026, approximately 19.9 million BCH have been mined, approaching the maximum supply limit of 21.000.000 BCH. Investors should note that changes in the effective supply – including sudden increases in circulating units or unexpected burns – may affect the token's price and liquidity. The effective amount of units available on the market depends on the number of units released by the issuer or other parties at any given time, as well as potential reductions through "burning." As a result, the circulating supply may differ from the total supply.

E.13 Targeted holders

The admission of the crypto-asset to trading is open to all types of investors.

E.14 Holder restrictions

Holder restrictions are subject to the rules applicable to the crypto-asset service provider, as well as to any additional restrictions such provider may impose.

E.15 Reimbursement notice

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.16 Refund mechanism

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.17 Refund timeline

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.18 Offer phases

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.19 Early purchase discount

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.20 Time-limited offer

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.21 Subscription period beginning

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.22 Subscription period end

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.23 Safeguarding arrangements for offered funds/crypto- Assets

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.24 Payment methods for crypto-asset purchase

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.25 Value transfer methods for reimbursement

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.26 Right of withdrawal

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.27 Transfer of purchased crypto-assets

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.28 Transfer time schedule

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.29 Purchaser's technical requirements

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.30 Crypto-asset service provider (CASP) name

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.31 CASP identifier

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.32 Placement form

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.33 Trading platforms name

The admission to trading is sought on Payward Global Solutions LTD ("Kraken").

E.34 Trading platforms Market identifier code (MIC)

The Market Identifier Code (MIC) of Payward Global Solutions LTD ("Kraken") is PGSL.

E.35 Trading platforms access

The token is intended to be listed on the trading platform operated by Payward Global Solutions LTD ("Kraken"). Access to this platform depends on regional availability and user eligibility under Kraken's terms and conditions. Investors should consult Kraken's official documentation to determine whether they meet the requirements for account creation and token trading.

E.36 Involved costs

The costs involved in accessing the trading platform depend on the specific fee structure and terms of the respective crypto-asset service provider. These may include trading fees, deposit or

withdrawal charges, and network-related gas fees. Investors are advised to consult the applicable fee schedule of the chosen platform before engaging in trading activities.

E.37 Offer expenses

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.38 Conflicts of interest

MiCAR-compliant crypto-asset service providers shall have strong measures in place in order to manage conflicts of interests. Due to the broad audience this white paper is addressing, potential investors should always check the conflicts-of-interest policy of their respective counterparty.

Crypto Risk Metrics GmbH has established, implemented, and documented comprehensive internal policies and procedures for the identification, prevention, management, and documentation of conflicts of interest in accordance with applicable regulatory requirements. These internal measures are actively applied within the organisation. For the purposes of this specific assessment and the crypto-asset covered by this white paper, a token-specific review has been conducted by Crypto Risk Metrics GmbH. Based on this individual review, no conflicts of interest relevant to this crypto-asset have been identified at the time of preparation of this white paper.

E.39 Applicable law

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.40 Competent court

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

Part F – Information about the crypto-assets

F.1 Crypto-asset type

The crypto-asset described in the white paper is classified as a crypto-asset under the Markets in Crypto-Assets Regulation (MiCA) but is neither classified as an electronic money token (EMT) or an asset-referenced token (ART).

It is a digital representation of value that can be stored and transferred using distributed ledger technology (DLT) or similar technology, without embodying or conferring any rights to its holder.

The asset does not aim to maintain a stable value by referencing an official currency, a basket of assets, or any other underlying rights. Instead, its valuation is entirely market-driven, based on supply and demand dynamics, and not governed by a stabilisation mechanism. It is neither pegged to any fiat currency nor backed by any external assets, thereby clearly distinguishing it from EMTs and ARTs.

Furthermore, the crypto-asset is not categorised as a financial instrument, deposit, insurance product, pension product, or any other regulated financial product under EU law. It does not grant financial rights, voting rights, or any contractual claims to its holders, ensuring that it remains outside the scope of regulatory frameworks applicable to traditional financial instruments.

F.2 Crypto-asset functionality

Bitcoin Cash is intended to function as a decentralized, permissionless crypto-asset operating on a public, pseudonymous blockchain secured by the Proof-of-Work (PoW) consensus mechanism. The crypto-asset is primarily designed as a peer-to-peer medium

of exchange. It is used for sending and receiving value globally, with low fees and fast settlement.

The BCH token does not confer ownership, profit participation, governance rights over the issuer or any related entity, or any form of economic entitlement. All functionalities are technical in nature and relate exclusively to interactions within the Bitcoin Cash protocol environment. The actual usability of BCH depends on factors such as system stability, development progress, governance decisions, and the operational conditions of the Bitcoin Cash blockchain, which are outside the control of token holders.

F.3 Planned application of functionalities

Future milestones:

- Faster Block Interval Proposals (2027 or later): Proposals under discussion consider reducing the target block interval, potentially to approximately one minute, subject to community consensus and technical evaluation.
- Transaction Version 5 (2027–2028): A proposed new transaction format aims to address transaction malleability and improve processing efficiency, with indicative timeframes extending into 2027 or 2028.
- Zero-Knowledge and Cryptographic Extensions (Year not specified): Research is ongoing into native elliptic curve arithmetic operations to support advanced cryptographic constructions, including zero-knowledge techniques.
- UTXO Fast Synchronisation (Year not specified): Development efforts are focused on enabling significantly faster node synchronisation through the use of cryptographically verifiable state commitments.
- Virtual Machine Budgeting Enhancements (Year not specified): Proposals are being discussed to allow users to allocate additional computation budget for complex scripts without proportionally increasing block size.
- Privacy-Oriented Addressing Mechanisms (Year not specified): Work is underway on reusable payment address schemes intended to improve transactional privacy while maintaining usability.

- Block Propagation Optimisation (Year not specified): Ongoing research includes alternative block transmission protocols designed to improve efficiency as block sizes increase.
- Timestamp Overflow Mitigation (Post-2027 research): Preliminary discussions are addressing the long-term timestamp wrap-around issue anticipated in the year 2106.

These functionalities remain conditional on future development, audit completion, and governance approval. No assurance is given regarding their eventual activation, scope, or long-term availability.

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

The white paper type is "Other crypto-assets" (i. e. OTHR).

F.5 The type of submission

The type of submission is NEWT (New white paper).

F.6 Crypto-asset characteristics

The crypto-asset referred to herein is a crypto-asset other than EMTs and ARTs, and is available on the Bitcoin Cash and smartBCH network. The crypto-asset is fungible up to 8 digits after the decimal point on Bitcoin Cash and up to 18 digits after the decimal point on smartBCH. The crypto-asset constitutes a digital representation recorded on distributed-ledger technology and does not confer ownership, governance, profit participation, or any other legally enforceable rights. Any functionalities associated with the token are limited to potential technical features within the relevant platform environment. These functionalities do not represent contractual entitlements and may depend on future development decisions, technical design choices, and operational conditions. The crypto-asset does not embody intrinsic economic value; instead, its value, if any, is determined exclusively by market dynamics such as supply, demand, and liquidity in secondary markets.

F.7 Commercial name or trading name

Long Name: "Bitcoin Cash" according to the Digital Token Identifier Foundation (www.dtif.org, DTI see F.13, FFG DTI see F.14 as of 2026-01-12).

F.8 Website of the issuer

Not applicable.

F.9 Starting date of offer to the public or admission to trading

2026-02-06

F.10 Publication date

2026-01-13

F.11 Any other services provided by the issuer

No such services are currently known to be provided by the issuer. However, it cannot be excluded that additional services exist or may be offered in the future outside the scope of Regulation (EU) 2023/1114.

F.12 Language or languages of the crypto-asset white paper

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

J9K583ZGG, LXMPJ21BK

F.14 Functionally fungible group digital token identifier

919BF3W7L

F.15 Voluntary data flag

This white paper has been submitted as mandatory under Regulation (EU) 2023/1114.

F.16 Personal data flag

Yes, this white paper contains personal data as defined in Regulation (EU) 2016/679 (GDPR).

F.17 LEI eligibility

Unknown, as the issuer is pseudonymous as of now.

F.18 Home Member State

Germany

F.19 Host Member States

Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden

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

G.1 Purchaser rights and obligations

The crypto-asset does not grant any legally enforceable or contractual rights or obligations to its holders or purchasers.

Any functionalities accessible through the underlying technology are of a purely technical or operational nature and do not constitute rights comparable to ownership, profit participation, governance, or similar entitlements known from traditional financial instruments.

Accordingly, holders do not acquire any claim capable of legal enforcement against the issuer or any third party.

G.2 Exercise of rights and obligations

As the crypto-asset does not establish any legally enforceable rights or obligations, there are no applicable procedures or conditions for their exercise.

Any interaction or functionality that may be available within the technical infrastructure of the project – such as participation mechanisms or protocol-level features – serves operational purposes only and does not create or constitute evidence of any contractual or statutory entitlement.

G.3 Conditions for modifications of rights and obligations

As the crypto-asset does not confer any legally enforceable rights or obligations, there are no conditions or mechanisms under which such rights could be modified.

Adjustments to the technical protocol, smart contract logic, or related systems may occur in the ordinary course of development or maintenance.

Such changes do not alter the legal position of holders, as no contractual or regulatory rights exist. Holders should not interpret technical updates or governance-related changes as amendments to legally binding entitlements.

G.4 Future public offers

Information on the future offers to the public of crypto-assets were not available at the time of writing this white paper (2026-01-12).

G.5 Issuer retained crypto-assets

Estimates say there are 600.000 - 1.500.000 Bitcoin that are possibly owned by the individual or group by the name of Satoshi Nakamoto, who launched the network and the corresponding crypto-asset. The exact number is unclear.

G.6 Utility token classification

No – the crypto-asset project does not concern utility tokens as defined in Article 3(9) of Regulation (EU) 2023/1114.

G.7 Key features of goods/services of utility tokens

Not applicable, as the crypto-asset described herein is not a utility token.

G.8 Utility tokens redemption

Not applicable, as the crypto-asset described herein is not a utility token.

G.9 Non-trading request

The admission to trading is sought.

G.10 Crypto-assets purchase or sale modalities

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

G.11 Crypto-assets transfer restrictions

The crypto-assets themselves are not subject to any technical or contractual transfer restrictions and are generally freely transferable. However, crypto-asset service providers may impose restrictions on buyers or sellers in accordance with applicable laws, internal policies or contractual terms agreed with their clients.

G.12 Supply adjustment protocols

No – there are no fixed protocols that can increase or decrease the supply of the crypto-asset in response to changes in demand as of 2026-01-12.

However, it is possible to decrease the circulating supply by transferring crypto-assets to so-called "burn addresses". These are addresses from which the tokens are no longer intended to be transferred or accessed, effectively removing them from circulation.

G.13 Supply adjustment mechanisms

For the crypto-asset in scope, the supply is limited to 21,000,000 units according to public information (Source: <https://bitcoin.org/en/bitcoin-paper>, accessed 2026-01-12). Investors should note that changes in the supply of the crypto-asset can have a negative impact.

G.14 Token value protection schemes

No – the crypto-asset does not have any mechanisms or schemes in place that aim to stabilise or protect its market value. Its value is determined solely by market supply and demand, and may be subject to significant volatility.

G.15 Token value protection schemes description

Not applicable, as the crypto-asset in scope does not have any value protection scheme in place.

G.16 Compensation schemes

No – the crypto-asset does not have any compensation scheme.

G.17 Compensation schemes description

Not applicable, as the crypto-asset in scope does not have any compensation scheme in place.

G.18 Applicable law

This white paper is submitted in the context of an application for admission to trading on a trading platform established in the European Union. Accordingly, this white paper shall be governed by the laws of the Federal Republic of Germany.

G.19 Competent court

Any disputes arising in relation to this white paper or the admission to trading may fall under the jurisdiction of the competent courts in Hamburg, Germany.

Part H – information on the underlying technology

H.1 Distributed ledger technology (DTL)

The crypto-asset in scope is implemented on the Bitcoin Cash and smartBCH networks following the standards described below.

H.2 Protocols and technical standards

The crypto-asset in scope is implemented on the Bitcoin Cash and smartBCH networks following the standards described below:

The following applies to Bitcoin Cash:

The Bitcoin Cash (BCH) network operates as a Proof-of-Work (PoW) peer-to-peer electronic cash system designed to support low-fee, high-throughput transactions with reliable confirmations. Its technical architecture and governance model follow the Bitcoin design lineage, while introducing protocol upgrades focused on scalability, transaction efficiency, and miner-validated consensus.

Key consensus parameters include:

- Difficulty Adjustment Algorithm (DAA):

BCH uses ASERT (Absolutely Scheduled Exponentially Rising Targets), which continuously adjusts mining difficulty so that block production remains close to the target schedule regardless of hash-rate volatility.

- Block capacity:

The protocol supports blocks of up to 32 MB, enabling significantly higher transaction throughput than legacy Bitcoin and supporting use as a high-volume payments network.

2. Canonical protocol definition

Bitcoin Cash does not rely on a single continuously updated canonical specification. Instead, it is governed by:

- The original Satoshi Nakamoto whitepaper ("Bitcoin: A Peer-to-Peer Electronic Cash System") as its conceptual and technical foundation; and

- A shared legacy protocol, maintained through coordinated consensus upgrades across multiple independent node implementations.

3. Upgrade and improvement standards

Protocol evolution is coordinated through Cash Improvement Proposals (CHIPs):

- Proposal venue:

CHIPs are discussed, drafted, and peer-reviewed primarily on bitcoincashresearch.org.

- Upgrade cadence:

The network historically upgraded twice per year but now follows a convention of annual consensus upgrades every May 15.

- Hard-fork model:

Unlike Bitcoin (BTC), Bitcoin Cash uses planned hard forks as its standard upgrade mechanism, allowing deliberate and transparent changes to consensus rules.

Cryptographic primitives

4. Cryptographic primitives

Bitcoin Cash uses a set of well-established cryptographic standards derived from Bitcoin, with several enhancements:

Hashing:

- SHA-256 is used for Proof-of-Work, block hashing, and transaction identification.

Digital signatures:

- ECDSA remains supported for transaction signing.

- Schnorr signatures, activated in 2019, provide improved efficiency, privacy, and aggregation capabilities.

Merkle trees:

- Transactions within a block are committed via Merkle roots, allowing efficient verification of transaction inclusion.

P2SH-32:

- A 32-byte Pay-to-Script-Hash format was introduced in 2023 to reduce collision risks and strengthen script security.

5. Networking and data-propagation standards

Bitcoin Cash places strong emphasis on fast and reliable block and transaction propagation:

- Canonical Transaction Ordering (CTOR):

Transactions inside a block are sorted deterministically, enabling faster block reconstruction by peers.

6. Addressing and transaction standards

Address format:

- Bitcoin Cash uses CashAddr, a Bech32-derived encoding with a human-readable prefix and strong error detection, reducing the risk of sending funds to the wrong network.

Script and transaction model:

- BCH retains Bitcoin's UTXO-based transaction model and stack-based scripting system, extended through protocol upgrades such as Schnorr signatures and P2SH-32.

The following applies to smartBCH:

The SmartBCH network operates as a high-throughput, Ethereum-compatible sidechain of Bitcoin Cash (BCH). Its design combines Bitcoin Cash-anchored validator selection with a modern Byzantine-fault-tolerant consensus engine and a hardware-optimized execution layer, with the objective of supporting high-performance smart-contract execution while remaining interoperable with the Ethereum tooling ecosystem.

1. Network protocol and consensus layer

SmartBCH is built on top of the Tendermint Byzantine Fault Tolerant (BFT) consensus engine, which provides peer-to-peer networking, block propagation, validator communication, and deterministic block finality.

The consensus model is hybrid, combining elements of Bitcoin Cash mining and stake-based participation:

- Proof of hash power: BCH mining pools participate in validator selection through special coinbase transactions on the BCH mainnet.
- Proof of stake: BCH holders may participate by proving ownership of time-locked UTXOs, which grants voting power in validator selection.
- Validator rotation: Validator duties are assigned in epochs of 2,016 blocks (approximately two weeks), aligning governance cycles with BCH's block cadence.

This design links SmartBCH security and governance to the Bitcoin Cash economic base, while using Tendermint to provide fast block finality and resistance to chain reorganizations.

2. Execution environment and smart-contract standards

SmartBCH is designed to be Ethereum-compatible at the application layer:

- Execution engine: Smart contracts are executed by MoeingEVM, a parallelized implementation of the Ethereum Virtual Machine designed to exploit multi-core CPUs.
- EVM compatibility: Solidity bytecode, Ethereum tooling, and standard Web3 libraries can be used without modification.
- Web3 API: SmartBCH exposes Ethereum-style JSON-RPC endpoints, enabling wallets, explorers, and dApps to interact with the chain in the same way as on Ethereum.

3. Token and contract standards

SmartBCH adopts Ethereum-style token interfaces through its own SmartBCH Evolution Proposals (SEPs):

- SEP-20 defines the standard interface for fungible tokens, functionally equivalent to ERC-20.
- SEP-206 extends this model to allow the native BCH-denominated asset on SmartBCH to be treated as a SEP-20 token for compatibility with DeFi protocols.
- SEP-101 introduces support for arbitrary-length values in contract storage, implemented natively in the client.

4. Blockchain data model and cryptographic primitives

SmartBCH departs from Ethereum's internal architecture in order to enable parallel execution:

- Authenticated state: Instead of Ethereum's Merkle-Patricia Trees, SmartBCH uses MoeingADS, a single-layer authenticated data structure that provides cryptographic proofs of existence and non-existence for state entries.
- State commitment: The Merkle root of the world state is calculated after transactions are saved but before execution, allowing the execution engine to run transactions in parallel while preserving deterministic state commitments.
- Hash functions:
 - SHA-256 is used in native storage-agent functions and key hashing.
 - Keccak-256 is used for Solidity-compatible storage slots and Ethereum compatibility.

5. Networking and interoperability standards

- Peer-to-peer networking and block propagation follow the Tendermint protocol.
- External access is provided through Ethereum-compatible JSON-RPC interfaces.
- Cross-chain interoperability is defined through the Sha-Gate specification, which governs the bridge between the BCH mainnet and the SmartBCH sidechain.

6. Upgrade and governance standards

SmartBCH uses a formal improvement process called SmartBCH Evolution Proposals (SEPs), similar in spirit to Ethereum's EIP process:

- SEPs specify protocol changes, token standards, and low-level system upgrades.
- Examples include:
 - SEP-20 (token standard),
 - SEP-101 (arbitrary-length storage),
 - SEP-206 (native token integration).

H.3 Technology used

The crypto-asset in scope is implemented on the Bitcoin Cash and smartBCH networks following the standards described below:

The following applies to Bitcoin Cash:

1. Decentralized Ledger: The Bitcoin blockchain acts as a decentralized ledger for all token transactions, with the intention to preserving an unalterable record of token transfers and ownership to ensure both transparency and security.
2. Private Key Management: To safeguard their token holdings, users must securely store their wallet's private keys and recovery phrases.
3. Cryptographic Integrity: Bitcoin employs elliptic curve cryptography to validate and execute transactions securely, intended to ensure the integrity of all transfers. The SHA-256 Hashing Algorithm is used for mining and generating the crypto-assets addresses via public-key cryptography. The crypto-asset uses ECDSA with secp256k1 curve for key generation and digital signatures. Next to that, Schnorr Signatures were introduced in BIP340, enabling batch verification, smaller transactions, and improved privacy.

The following applies to smartBCH:

SmartBCH operates as an EVM-compatible, account-based blockchain anchored to Bitcoin Cash. It is designed to behave like a high-speed financial database rather than a slow UTXO ledger, enabling parallel execution and low-cost smart-contract activity.

1. Distributed ledger and data model

Account-based ledger:

- SmartBCH uses 20-byte Ethereum-style accounts instead of BCH's UTXOs. Balances and smart-contract state are stored directly in accounts, allowing fast updates and composable DeFi logic.

2. Transaction creation and execution

Wallet compatibility:

- Transactions are created and signed using standard EVM wallets (e.g., MetaMask) via Ethereum-compatible Web3 JSON-RPC interfaces.

Consensus and validation:

- Transactions are finalized by Tendermint BFT under a hybrid PoW + PoS validator set, elected every 2,016 blocks using BCH miners and time-locked BCH holders.

Parallel execution:

- Transactions are reordered pseudorandomly and executed using MoeingEVM with enforced-bundle parallelism, allowing multiple CPU cores to process different transactions at the same time.

3. Smart-contract and token environment

Virtual machine:

- Smart contracts run on MoeingEVM, with MoeingAOT compiling frequently used contracts into native code for higher performance.

Programming languages:

- Any language that compiles to EVM bytecode (e.g., Solidity, Vyper) is supported.

Token standard:

- Tokens follow the SEP-20 standard (Ethereum-equivalent to ERC-20), and the native BCH-backed asset can be exposed as a SEP-20 token via SEP-206.

5. Bridging, layer-2, and custody

Two-way BCH peg:

- BCH is bridged into SmartBCH through a federated gateway, with plans for a future non-custodial covenant-based bridge on the BCH mainnet.

H.4 Consensus mechanism

The crypto-asset in scope is implemented on the Bitcoin Cash and smartBCH networks following the standards described below:

The following applies to Bitcoin Cash:

The Bitcoin Cash blockchain network uses a consensus mechanism called Proof of Work (PoW) to achieve distributed consensus among its nodes. It originated from the Bitcoin blockchain, hence has the same consensus mechanisms but with a larger block size, which makes it more centralized.

Core Concepts:

1. Nodes and Miners:

- Nodes: Nodes are computers running the Bitcoin Cash software that participate in the network by validating transactions and blocks.

- Miners: Special nodes, called miners, perform the work of creating new blocks by solving complex cryptographic puzzles.

2. Blockchain: The blockchain is a public ledger that records all Bitcoin Cash transactions in a series of blocks. Each block contains a list of transactions, a reference to the previous block (hash), a timestamp, and a nonce (a random number used once).

3. Hash Functions: Bitcoin Cash uses the SHA-256 cryptographic hash function to secure the data in blocks. A hash function takes input data and produces a fixed-size string of characters, which appears random.

Consensus Process:

1. Transaction Validation: Transactions are broadcast to the network and collected by miners into a block. Each transaction must be validated by nodes to ensure it follows the network's rules, such as correct signatures and sufficient funds.

2. Mining and Block Creation:

-Nonce and Hash Puzzle: Miners compete to find a nonce that, when combined with the block's data and passed through the SHA-256 hash function, produces a hash that is less than a target value. This target value is adjusted periodically to ensure that blocks are mined approximately every 10 minutes.

-Proof of Work: The process of finding this nonce is computationally intensive and requires significant energy and resources. Once a miner finds a valid nonce, they broadcast the newly mined block to the network.

3. Block Validation and Addition:

-Other nodes in the network verify the new block to ensure the hash is correct and that all transactions within the block are valid.

-If the block is valid, nodes add it to their copy of the blockchain and the process starts again with the next block.

4. Chain Consensus:

-The longest chain (the chain with the most accumulated proof of work) is considered the valid chain by the network. Nodes always work to extend the longest valid chain.

- In the case of multiple valid chains (forks), the network will eventually resolve the fork by continuing to mine and extending one chain until it becomes longer.

The following applies to smartBCH:

Smart Bitcoin Cash (SmartBCH) operates as a sidechain to Bitcoin Cash (BCH), leveraging a hybrid consensus mechanism combining Proof of Work (PoW) compatibility and validator-based validation.

Core Components:

- Proof of Work Compatibility: SmartBCH relies on Bitcoin Cash's PoW for settlement and security, ensuring robust integration with BCH's main chain. SHA-256 Algorithm: Uses the same SHA-256 hashing algorithm as Bitcoin Cash, allowing compatibility with existing mining hardware and infrastructure.
- Consensus via Validators: Transactions within SmartBCH are validated by a set of validators chosen based on staking and operational efficiency. This hybrid approach combines the hash power of PoW with a validator-based model to enhance scalability and flexibility.

H.5 Incentive mechanisms and applicable fees

The crypto-asset in scope is implemented on the Bitcoin Cash and smartBCH networks following the standards described below:

The following applies to Bitcoin Cash:

The Bitcoin Cash blockchain operates on a Proof-of-Work (PoW) consensus mechanism, with incentives and fee structures designed to support miners and the overall network's sustainability:

Incentive Mechanism:

1. Block Rewards:

- Newly Minted Bitcoins: Miners receive a block reward, which consists of newly created bitcoins for successfully mining a new block. Initially, the reward was 50 BCH, but it halves approximately every four years in an event known as the "halving."
- Halving and Scarcity: The halving ensures that the total supply of Bitcoin Cash is capped at 21 million BCH, creating scarcity that could drive up value over time.

2. Transaction Fees:

- User Fees: Each transaction includes a fee, paid by users, that incentivizes miners to include the transaction in a new block. This fee market becomes increasingly important as block rewards decrease over time due to the halving events.

- Fee Market: Transaction fees are market-driven, with users competing to get their transactions included quickly. Higher fees lead to faster transaction processing, especially during periods of high network congestion.

Applicable Fees:

1. Transaction Fees:

Bitcoin Cash transactions require a small fee, paid in BCH, which is determined by the transaction's size and the network demand at the time. These fees are crucial for the continued operation of the network, particularly as block rewards decrease over time due to halvings.

2. Fee Structure During High Demand:

In times of high congestion, users may choose to increase their transaction fees to prioritize their transactions for faster processing. The fee structure ensures that miners are incentivized to prioritize higher-fee transactions.

The following applies to smartBCH:

SmartBCH's incentive model encourages validators and network participants to secure the sidechain and process transactions efficiently.

Incentive Mechanisms:

- Validator Rewards: Validators are rewarded with a share of transaction fees for their role in validating transactions and maintaining the network.

- Economic Alignment: The system incentivizes validators to act in the network's best interest, ensuring stability and fostering adoption through economic alignment.

Applicable Fees:

Transaction Fees: Fees for transactions on SmartBCH are paid in BCH, ensuring seamless integration with the Bitcoin Cash ecosystem.

H.6 Use of distributed ledger technology

No – DLT is not operated by the issuer, the offeror, the person seeking admission to trading, or any third-party acting on their behalf.

H.7 DLT functionality description

Not applicable, as the DLT is not operated by the issuer, the offeror, the person seeking admission to trading, or any third-party acting on their behalf.

H.8 Audit

As the term "technology" encompasses a broad range of components, it cannot be confirmed that all elements or aspects of the technology employed have undergone a comprehensive and systematic technical examination. Accordingly, the answer to whether an audit of the technology used has been conducted must be no. This white paper focuses primarily on risk-related aspects and therefore does not imply, nor should it be interpreted as implying, that a full assessment or audit of all technological elements has been conducted.

H.9 Audit outcome

Not applicable, as no comprehensive audit of the technology used has been conducted or can be confirmed.

Part I – Information on risks

I.1 Offer-related risks

1. Regulatory and Compliance

Regulatory frameworks applicable to crypto-asset services in the European Union and in third countries are evolving. Supervisory authorities may introduce, interpret, or enforce rules that affect (i) the eligibility of this crypto-asset for admission to trading, (ii) the conditions under which a crypto-asset service provider may offer trading, custody, or transfer services for it, or (iii) the persons or jurisdictions to which such services may be provided. As a result, the crypto-asset service provider admitting this crypto-asset to trading may be required to suspend, restrict, or terminate trading or withdrawals for regulatory reasons, even if the crypto-asset itself continues to function on its underlying network.

2. Trading venue and connection risk

Trading in the crypto-asset depends on the uninterrupted operation of the trading platform admitting it and, where applicable, on its technical connections to external liquidity sources or venues. Interruptions such as system downtime, maintenance, faulty integrations, API changes, or failures at an external venue can temporarily prevent order placement, execution, deposits, or withdrawals, even when the underlying blockchain is functioning. In addition, trading platforms in emerging markets may operate under differing governance, compliance, and oversight standards, which can increase the risk of operational failures or disorderly market conditions.

3. Market formation and liquidity conditions

The price and tradability of the crypto-asset depend on actual trading activity on the venues to which the service provider is connected, whether centralized exchanges (CEXs) or decentralized

exchanges (DEXs). Trading volumes may at times be low, order books thin, or liquidity concentrated on a single venue. In such conditions, buy or sell orders may not be executed in full or may be executed only at a less favorable price, resulting in slippage.

Volatility: The market price of the crypto-asset may fluctuate significantly over short periods, including for reasons that are not linked to changes in the underlying project or protocol. Periods of limited liquidity, shifts in overall market sentiment, or trading on only a small number of CEXs or DEXs can amplify these movements and lead to higher slippage when orders are executed. As a result, investors may be unable to sell the crypto-asset at or close to a previously observed price, even though no negative project-specific event has occurred.

4. Counterparty and service-provider dependence

The admission of the crypto-asset to trading may rely on several external parties, such as connected centralized or decentralized trading venues, liquidity providers, brokers, custodians, or technical integrators. If any of these counterparties fail to perform, suspend their services, or apply internal restrictions, the trading, deposit, or withdrawal of the crypto-asset on the admitting service provider can be interrupted or halted.

Quality of counterparties: Trading venues and service providers in certain jurisdictions may operate under regulatory or supervisory standards that are lower or differently enforced than those applicable in the European Union. In such environments, deficiencies in governance, risk management, or compliance may remain undetected, which increases the probability of abrupt service interruptions, investigations, or forced wind-downs.

Delisting and service suspension: The crypto-asset's availability may depend on the internal listing decisions of these counterparties. A delisting or suspension on a key connected venue can materially reduce liquidity or make trading temporarily impossible on the admitting service provider, even if the underlying crypto-asset continues to function.

Insolvency of counterparties: If a counterparty involved in holding, routing, or settling the crypto-asset becomes insolvent, enters restructuring, or is otherwise subject to resolution-type measures, assets held or processed by that counterparty may be frozen, become temporarily unavailable, or be recoverable only in part or not at all, which can result in losses for clients whose positions were maintained through that counterparty. This risk applies in particular where client assets are held on an omnibus basis or where segregation is not fully recognized in the counterparty's jurisdiction.

5. Operational and information risks

Due to the irrevocability of blockchain transactions, incorrect approvals or the use of wrong networks or addresses will typically make the transferred funds irrecoverable. Because trading may also rely on technical connections to other venues or service providers, downtime or faulty code in these connections can temporarily block trading, deposits, or withdrawals even when the underlying blockchain is functioning. In addition, different groups of market participants may have unequal access to technical, governance, or project-related information, which can lead to information asymmetry and place less informed investors at a disadvantage when making trading decisions.

6. Market access and liquidity concentration risk

If the crypto-asset is only available on a limited number of trading platforms or through a single market-making entity, this may result in reduced liquidity, greater price volatility, or periods of inaccessibility for retail holders.

I.2 Issuer-related risks

1. Insolvency of the issuer

As with any commercial entity, the issuer may face insolvency risks. These may result from insufficient funding, low market interest, mismanagement, or external shocks (e.g. pandemics, wars). In such a case, ongoing development, support, and governance of the project may cease, potentially affecting the viability and tradability of the crypto-asset.

2. Legal and regulatory risks

The issuer operates in a dynamic and evolving regulatory environment. Failure to comply with applicable laws or regulations in relevant jurisdictions may result in enforcement actions, penalties, or restrictions on the project's operations. These may negatively impact the crypto-asset's availability, market acceptance, or legal status.

3. Operational risks

The issuer may fail to implement adequate internal controls, risk management, or governance processes. This can result in operational disruptions, financial losses, delays in updating the white paper, or reputational damage.

4. Governance and decision-making

The issuer's management body is responsible for key strategic, operational, and disclosure decisions. Ineffective governance, delays in decision-making, or lack of resources may compromise the stability of the project and its compliance with MiCA requirements. High concentration of decision-making authority or changes in ownership/control can amplify these risks.

5. Reputational risks

The issuer's reputation may be harmed by internal failures, external accusations, or association with illicit activity. Negative publicity can reduce trust in the issuer and impact the perceived legitimacy or value of the crypto-asset.

6. Counterparty dependence

The issuer may depend on third-party providers for certain core functions, such as technology development, marketing, legal advice, or infrastructure. If these partners discontinue their services,

change ownership, or underperform, the issuer's ability to operate the project or maintain investor communication may be impaired. This could disrupt project continuity or undermine market confidence, ultimately affecting the crypto-asset's value.

I.3 Crypto-assets-related risks

1. Valuation risk

The crypto-asset does not represent a claim, nor is it backed by physical assets or legal entitlements. Its market value is driven solely by supply and demand dynamics and may fluctuate significantly. In the absence of fundamental value anchors, such assets can lose their entire market value within a very short time. Historical market behaviour has shown that some types of crypto-assets – such as meme coins or purely speculative tokens – have become worthless. Investors should be aware that this crypto-asset may lose all of its value.

2. Market volatility risk

Crypto-asset prices can fluctuate sharply due to changes in market sentiment, macroeconomic conditions, regulatory developments, or technology trends. Such volatility may result in rapid and significant losses. Holders should be prepared for the possibility of losing the full amount invested.

3. Liquidity and price-determination risk

Low trading volumes, fragmented trading across venues, or the absence of active market makers can restrict the ability to buy or sell the crypto-asset. In such situations, it is not guaranteed that an observable market price will exist at all times. Spreads may widen materially, and orders may only be executable under unfavourable conditions, which can make liquidation costly or temporarily impossible.

4. Asset security risk

Loss or theft of private keys, unauthorised access to wallets, or failures of custodial or exchange service providers can result in the irreversible loss of assets. Because blockchain transactions are final, recovery of funds after a compromise is generally impossible.

5. Fraud and scam risk

The pseudonymous and irreversible nature of blockchain transactions can attract fraudulent schemes. Typical forms include fake or unauthorised crypto-assets imitating established ones, phishing attempts, deceptive airdrops, or social-engineering attacks. Investors should exercise caution and verify the authenticity of counterparties and information sources.

6. Legal and regulatory reclassification risk

Legislative or regulatory changes in the European Union or in the Member State where the crypto-asset is admitted to trading may alter its legal classification, permitted uses, or tradability. In third countries, the crypto-asset may be treated as a financial instrument or security, which can restrict its offering, trading, or custody.

7. Absence of investor protection

The crypto-asset is not covered by investor-compensation or deposit-guarantee schemes. In the event of loss, fraud, or insolvency of a service provider, holders may have no access to recourse mechanisms typically available in regulated financial markets.

8. Counterparty risk

Reliance on third-party exchanges, custodians, or intermediaries exposes holders to operational failures, insolvency, or fraud of these parties. Investors should conduct due diligence on service providers, as their failure may lead to the partial or total loss of held assets.

9. Reputational risk

Negative publicity related to security incidents, misuse of blockchain technology, or associations with illicit activity can damage public confidence and reduce the crypto-asset's market value.

10. Community and sentiment risk

Because the crypto-asset's perceived relevance and expected future use depend largely on community engagement and the prevailing sentiment, a loss of public interest, negative coverage or reduced activity of key contributors can materially reduce market demand.

11. Macroeconomic and interest-rate risk

Fluctuations in interest rates, exchange rates, general market conditions, or overall market volatility can influence investor sentiment towards digital assets and affect the crypto-asset's market value.

12. Taxation risk

Tax treatment varies across jurisdictions. Holders are individually responsible for complying with all applicable tax laws, including the reporting and payment of taxes arising from the acquisition, holding, or disposal of the crypto-asset.

13. Anti-money-laundering and counter-terrorist-financing risk

Wallet addresses or transactions connected to the crypto-asset may be linked to sanctioned or illicit activity. Regulatory responses to such findings may include transfer restrictions, report obligations, or the freezing of assets on certain venues.

14. Market-abuse risk

Due to limited oversight and transparency, crypto-assets may be vulnerable to market-abuse practices such as spoofing, pump-and-dump schemes, or insider trading. Such activities can distort prices and expose holders to sudden losses.

15. Legal ownership and jurisdictional risk

Depending on the applicable law, holders of the crypto-asset may not have enforceable ownership rights or effective legal remedies in cases of disputes, fraud, or service failure. In certain jurisdictions, access to exchanges or interfaces may be restricted by regulatory measures, even if on-chain transfer remains technically possible.

16. Concentration risk

A large proportion of the total supply may be held by a small number of holders. This can enable market manipulation, governance dominance, or sudden large-scale liquidations that adversely affect market stability, price levels, and investor confidence.

I.4 Project implementation-related risks

As this white paper relates to the admission to trading of the crypto-asset, the following risk description reflects general implementation risks on the crypto-asset service provider's side typically associated with crypto-asset projects. The party admitting the asset to trading is not involved in the project's implementation and does not assume responsibility for its governance, funding, or execution.

Delays, failures, or changes in the implementation of the project as outlined in its public roadmap or technical documentation may negatively impact the perceived credibility or usability of the crypto-asset. This includes risks related to project governance, resource allocation, technical delivery, and team continuity.

Key-person risk: The project may rely on a limited number of individuals for development, maintenance, or strategic direction. The departure, incapacity, or misalignment of these individuals may delay or derail the implementation.

Timeline and milestone risk: Project milestones may not be met as announced. Delays in feature releases, protocol upgrades, or external integrations can undermine market confidence and affect the adoption, use, or value of the crypto-asset.

Delivery risk: Even if implemented on time, certain functionalities or integrations may not perform as intended or may be scaled back during execution, limiting the token's practical utility.

I.5 Technology-related risks

As this white paper relates to the admission to trading of the crypto-asset, the following risks concern the underlying distributed ledger technology (DLT), its supporting infrastructure, and related technical dependencies. Failures or vulnerabilities in these systems may affect the availability, integrity, or transferability of the crypto-asset.

1. Blockchain dependency risk

The functionality of the crypto-asset depends on the continuous and stable operation of the blockchain(s) on which it is issued. Network congestion, outages, or protocol errors may temporarily or permanently disrupt on-chain transactions. Extended downtime or degradation in network performance can affect trading, settlement, or usability of the crypto-asset.

2. Smart contract vulnerability risk

The smart contract that defines the crypto-asset's parameters or governs its transfers may contain coding errors or security vulnerabilities. Exploitation of such weaknesses can result in unintended token minting, permanent loss of funds, or disruption of token functionality. Even after external audits, undetected vulnerabilities may persist due to the immutable nature of deployed code.

3. Wallet and key-management risk

The custody of crypto-assets relies on secure private key management. Loss, theft, or compromise of private keys results in irreversible loss of access. Custodians, trading venues, or wallet providers may be targeted by cyberattacks. Compatibility issues between wallet software and changes to the blockchain protocol (e.g. network upgrades) can further limit user access or the ability to transfer the crypto-asset.

Outdated or vulnerable wallet software:

Users relying on outdated, unaudited, or unsupported wallet software may face compatibility issues, security vulnerabilities, or failures when interacting with the blockchain. Failure to update wallet software in line with protocol developments can result in transaction errors, loss of access, or exposure to known exploits.

4. Network security risks

Attack Risks: Blockchains may be subject to denial-of-service (DoS) attacks, 51% attacks, or other exploits targeting the consensus mechanism. These can delay transactions, compromise finality, or disrupt the accurate recording of transfers.

Centralization Concerns: Despite claims of decentralisation, a relatively small number of validators or a high concentration of stake may increase the risk of collusion, censorship, or coordinated network downtime, which can affect the resilience and operational reliability of the crypto-asset.

5. Bridge and interoperability risk

Where tokens can be bridged or wrapped across multiple blockchains, vulnerabilities in bridge protocols, validator sets, or locking mechanisms may result in loss, duplication, or misrepresentation of assets. Exploits or technical failures in these systems can instantly impact circulating supply, ownership claims, or token fungibility across chains.

6. Forking and protocol-upgrade risk

Network upgrades or disagreements among node operators or validators can result in blockchain "forks", where the blockchain splits into two or more incompatible versions that continue separately from a shared past. This may lead to duplicate token representations or incompatibilities between exchanges and wallets. Until consensus stabilises, trading or transfers may be disrupted or misaligned. Such situations may be difficult for retail holders to navigate, particularly when trading platforms or wallets display inconsistent token information.

7. Economic-layer and abstraction risk

Mechanisms such as gas relayers, wrapped tokens, or synthetic representations may alter the transaction economics of the underlying token. Changes in transaction costs, token demand, or utility may reduce its usage and weaken both its economic function and perceived value within its ecosystem.

8. Spam and network-efficiency risk

High volumes of low-value ("dust") or automated transactions may congest the network, slow validation times, inflate ledger size, and raise transaction costs. This can impair performance, reduce throughput, and expose address patterns to analysis, thereby reducing network efficiency and privacy.

9. Front-end and access-interface risk

If users rely on centralised web interfaces or hosted wallets to interact with the blockchain, service outages, malicious compromises, or domain expiries affecting these interfaces may block access to the crypto-asset, even while the blockchain itself remains fully functional. Dependence on single web portals introduces a critical point of failure outside the DLT layer.

10. Decentralisation claim risk

While the technical infrastructure may appear distributed, the actual governance or economic control of the project may lie with a small set of actors. This disconnect between marketing claims and structural reality can lead to regulatory scrutiny, reputational damage, or legal uncertainty – especially if the project is presented as 'community-governed' without substantiation.

I.6 Mitigation measures

None.

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

S.1 Name

Crypto Risk Metrics GmbH

S.2 Relevant legal entity identifier

39120077M9TG0O1FE242

S.3 Name of the cryptoasset

Bitcoin Cash

S.4 Consensus Mechanism

The crypto-asset in scope is implemented on the Bitcoin Cash and smartBCH networks following the standards described below:

The following applies to Bitcoin Cash:

The Bitcoin Cash blockchain network uses a consensus mechanism called Proof of Work (PoW) to achieve distributed consensus among its nodes. It originated from the Bitcoin blockchain, hence has the same consensus mechanisms but with a larger block size, which makes it more centralized.

Core Concepts:

1. Nodes and Miners:

- Nodes: Nodes are computers running the Bitcoin Cash software that participate in the network by validating transactions and blocks.

- Miners: Special nodes, called miners, perform the work of creating new blocks by solving complex cryptographic puzzles.

2. Blockchain: The blockchain is a public ledger that records all Bitcoin Cash transactions in a series of blocks. Each block contains a list of transactions, a reference to the previous block (hash), a timestamp, and a nonce (a random number used once).

3. Hash Functions: Bitcoin Cash uses the SHA-256 cryptographic hash function to secure the data in blocks. A hash function takes input data and produces a fixed-size string of characters, which appears random.

Consensus Process:

1. Transaction Validation: Transactions are broadcast to the network and collected by miners into a block. Each transaction must be validated by nodes to ensure it follows the network's rules, such as correct signatures and sufficient funds.

2. Mining and Block Creation:

- Nonce and Hash Puzzle: Miners compete to find a nonce that, when combined with the block's data and passed through the SHA-256 hash function, produces a hash that is less than a target value. This target value is adjusted periodically to ensure that blocks are mined approximately every 10 minutes.

- Proof of Work: The process of finding this nonce is computationally intensive and requires significant energy and resources. Once a miner finds a valid nonce, they broadcast the newly mined block to the network.

3. Block Validation and Addition:

- Other nodes in the network verify the new block to ensure the hash is correct and that all transactions within the block are valid.

- If the block is valid, nodes add it to their copy of the blockchain and the process starts again with the next block.

4. Chain Consensus:

- The longest chain (the chain with the most accumulated proof of work) is considered the valid chain by the network. Nodes always work to extend the longest valid chain.

- In the case of multiple valid chains (forks), the network will eventually resolve the fork by continuing to mine and extending one chain until it becomes longer.

The following applies to smartBCH:

Smart Bitcoin Cash (SmartBCH) operates as a sidechain to Bitcoin Cash (BCH), leveraging a hybrid consensus mechanism combining Proof of Work (PoW) compatibility and validator-based validation.

Core Components:

- Proof of Work Compatibility: SmartBCH relies on Bitcoin Cash's PoW for settlement and security, ensuring robust integration with BCH's main chain. SHA-256 Algorithm: Uses the same SHA-256 hashing algorithm as Bitcoin Cash, allowing compatibility with existing mining hardware and infrastructure.

- Consensus via Validators: Transactions within SmartBCH are validated by a set of validators chosen based on staking and operational efficiency. This hybrid approach combines the hash power of PoW with a validator-based model to enhance scalability and flexibility.

S.5 Incentive Mechanisms and Applicable Fees

The crypto-asset in scope is implemented on the Bitcoin Cash and smartBCH networks following the standards described below:

The following applies to Bitcoin Cash:

The Bitcoin Cash blockchain operates on a Proof-of-Work (PoW) consensus mechanism, with incentives and fee structures designed to support miners and the overall network's sustainability:

Incentive Mechanism:

1. Block Rewards:

- Newly Minted Bitcoins: Miners receive a block reward, which consists of newly created bitcoins for successfully mining a new block. Initially, the reward was 50 BCH, but it halves approximately every four years in an event known as the "halving."
- Halving and Scarcity: The halving ensures that the total supply of Bitcoin Cash is capped at 21 million BCH, creating scarcity that could drive up value over time.

2. Transaction Fees:

- User Fees: Each transaction includes a fee, paid by users, that incentivizes miners to include the transaction in a new block. This fee market becomes increasingly important as block rewards decrease over time due to the halving events.

- Fee Market: Transaction fees are market-driven, with users competing to get their transactions included quickly. Higher fees lead to faster transaction processing, especially during periods of high network congestion.

Applicable Fees:

1. Transaction Fees:

Bitcoin Cash transactions require a small fee, paid in BCH, which is determined by the transaction's size and the network demand at the time. These fees are crucial for the continued operation of the network, particularly as block rewards decrease over time due to halvings.

2. Fee Structure During High Demand:

In times of high congestion, users may choose to increase their transaction fees to prioritize their transactions for faster processing. The fee structure ensures that miners are incentivized to prioritize higher-fee transactions.

The following applies to smartBCH:

SmartBCH's incentive model encourages validators and network participants to secure the sidechain and process transactions efficiently.

Incentive Mechanisms:

- Validator Rewards: Validators are rewarded with a share of transaction fees for their role in validating transactions and maintaining the network.
- Economic Alignment: The system incentivizes validators to act in the network's best interest, ensuring stability and fostering adoption through economic alignment.

Applicable Fees:

Transaction Fees: Fees for transactions on SmartBCH are paid in BCH, ensuring seamless integration with the Bitcoin Cash ecosystem.

S.6 Beginning of the period to which the disclosure relates

2025-01-12

S.7 End of the period to which the disclosure relates

2026-01-12

S.8 Energy consumption

1379799804.54163 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 'top-down' approach is being used, within which an economic calculation of the miners is assumed. Miners are persons or devices that actively participate in the proof-of-work consensus mechanism. The miners are considered to be the central factor for the energy consumption of the network. Hardware is pre-selected based on the consensus mechanism's hash algorithm: SHA-256. A current profitability threshold is determined on the basis of the revenue and cost structure for mining operations. Only Hardware above the profitability threshold is considered for the network. The energy consumption of the network can be determined by taking into account the distribution for the hardware, the efficiency levels for operating the hardware and on-chain information regarding the miners' revenue opportunities. If significant use of merge mining is known, this is taken into account. 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.

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.

S.10 Renewable energy consumption

34.4781471084 %

S.11 Energy intensity

0.16919 kWh

S.12 Scope 1 DLT GHG emissions – Controlled

0.00000 tCO2e/a

S.13 Scope 2 DLT GHG emissions – Purchased

568472.08490 tCO2e/a

S.14 GHG intensity

0.06971 kgCO2e

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.

