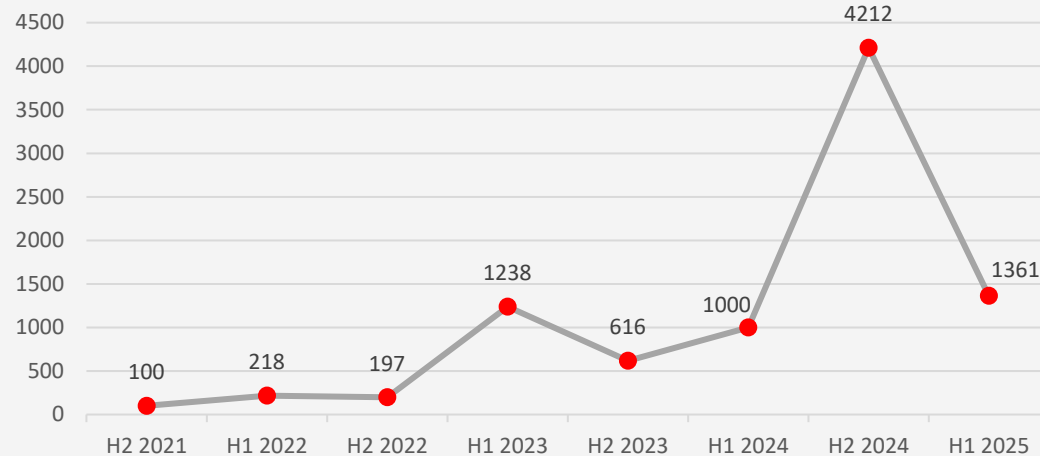


1 DIGITAL ASSET INDEX

Index for digital assets according to eWpG¹

Index values, H2 2021 = 100

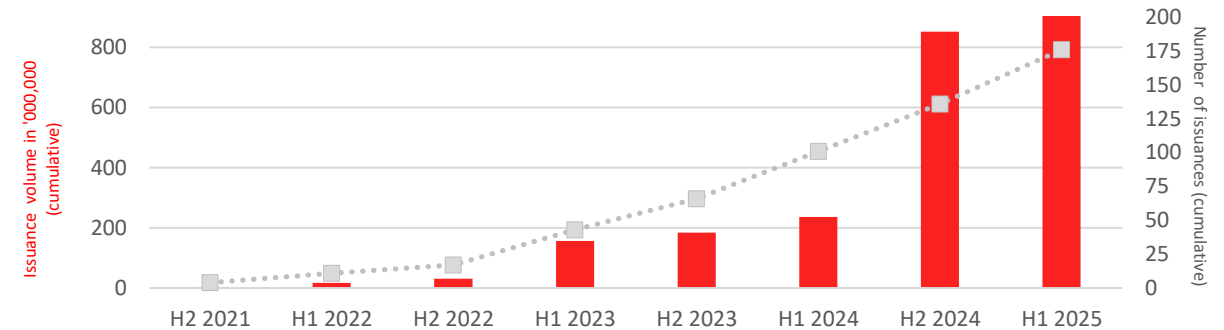


- In the first half of 2025, the digital asset market experienced a decline. However, apart from the second half of 2024, this period marks the most active phase since the introduction of the eWpG. Since the completion of the ECB trials, no significant issuances have been undertaken by established financial institutions. Current market activity is concentrated on smaller issuances by lesser-known companies.
- Following 21X AG's approval as a DLT Trading and Settlement System (DLT TSS) under the DLT Pilot Regime in Q4 2024, the go-live was successfully executed with its first primary market transaction. A further step in the market adoption of crypto securities was marked by the first secondary market transactions involving Berliner Volksbank and KfW, which acquired the mortgage-covered bond (Pfandbrief) issued by Berlin Hyp AG on the secondary market.
- From a regulatory perspective, the potentially higher capital requirements for tokenized securities compared to traditional securities, as discussed by the Basel Committee on Banking Supervision (BCBS) and the European Insurance and Occupational Pensions Authority (EIOPA), represent a key obstacle for the industry.²

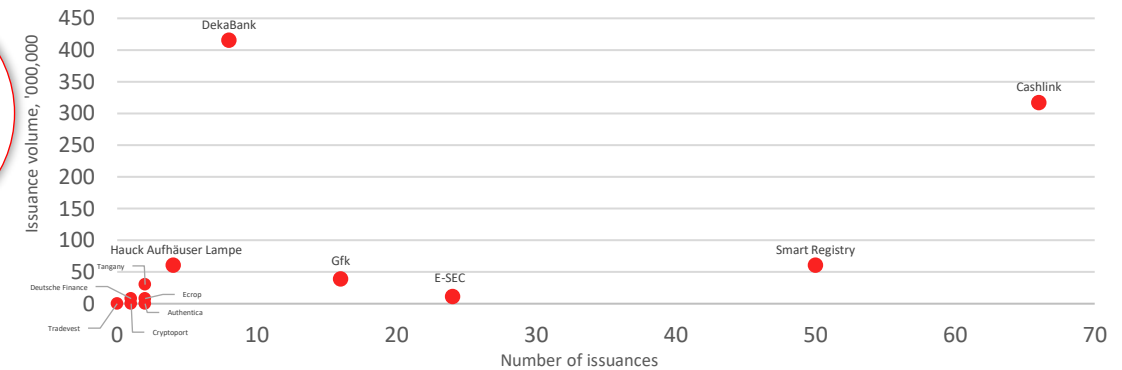
1) Detailed information on the calculation of the index is available in the methodology section.

2) Investments in tokenized securities by market participants not subject to BCBS or EIOPA regulations do not incur capital requirements.

2 ISSUANCES



3 MARKET INFRASTRUCTURE



4 CURRENT DEVELOPMENTS

Secondary Market:

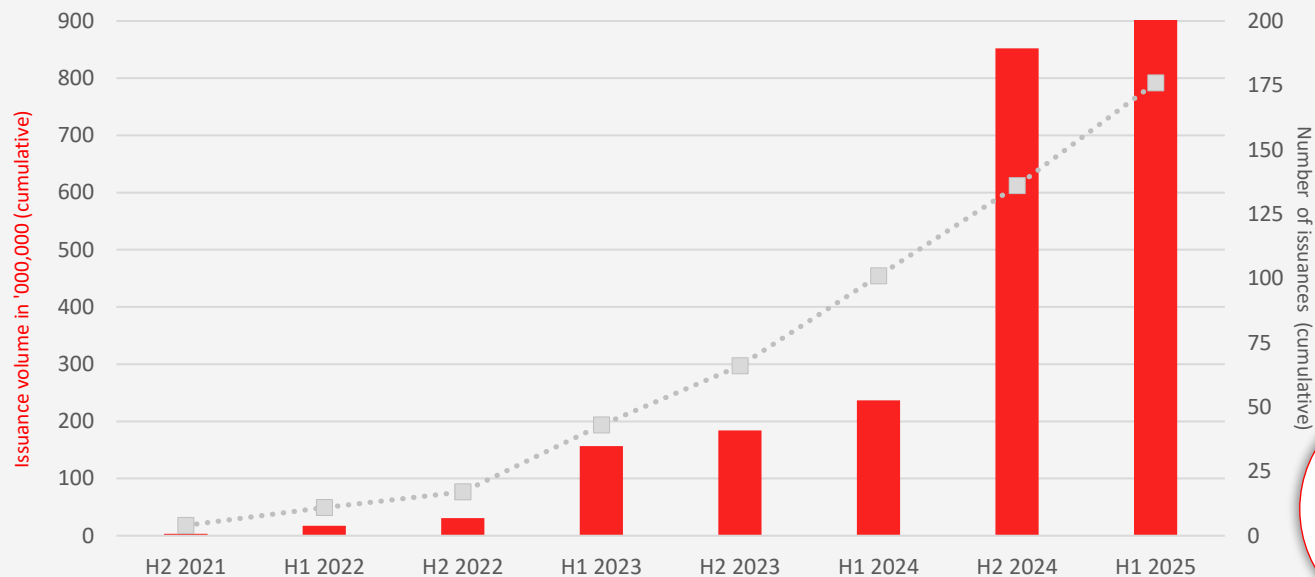
- 21X AG on its way to establishing an organized trading system for tokenized securities based on DLT
- Berliner Volksbank and KfW execute their first secondary market transaction involving a crypto security

Cash Leg:

- Market participants are demanding digital means of payment to fully leverage the benefits of DLT-based capital market transactions
- The Approval of MiCAR-compliant stablecoins is on the rise

2 ISSUANCES

Issuance volume and number of digital asset issuances (cumulative)



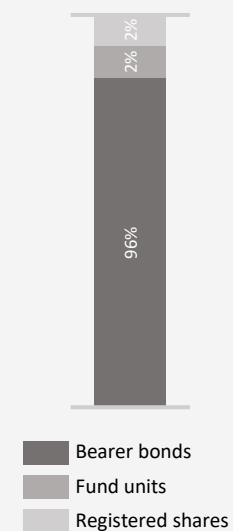
- The volume of new issuances decreased from approximately EUR 615 million in the second half of 2024 to approximately EUR 98 million in the first half of 2025. However, the number of issuances increased compared to both previous periods (H1 & H2 2024), reaching 40, a new high since the introduction of the eWpG.
- In the current market phase, it is primarily smaller companies leveraging the technology to execute issuances as quickly and cost-effectively as possible.
- After several established financial institutions actively participated in the digital asset market in the second half of 2024 as part of the ECB trials, there have been no issuances from institutional players this year. These companies successfully tested the current technical capabilities for settling the cash and security legs of tokenized securities. Going forward, these companies are awaiting further innovations and clarification of the regulatory framework to conduct additional tests or establish their own DLT-based infrastructure.

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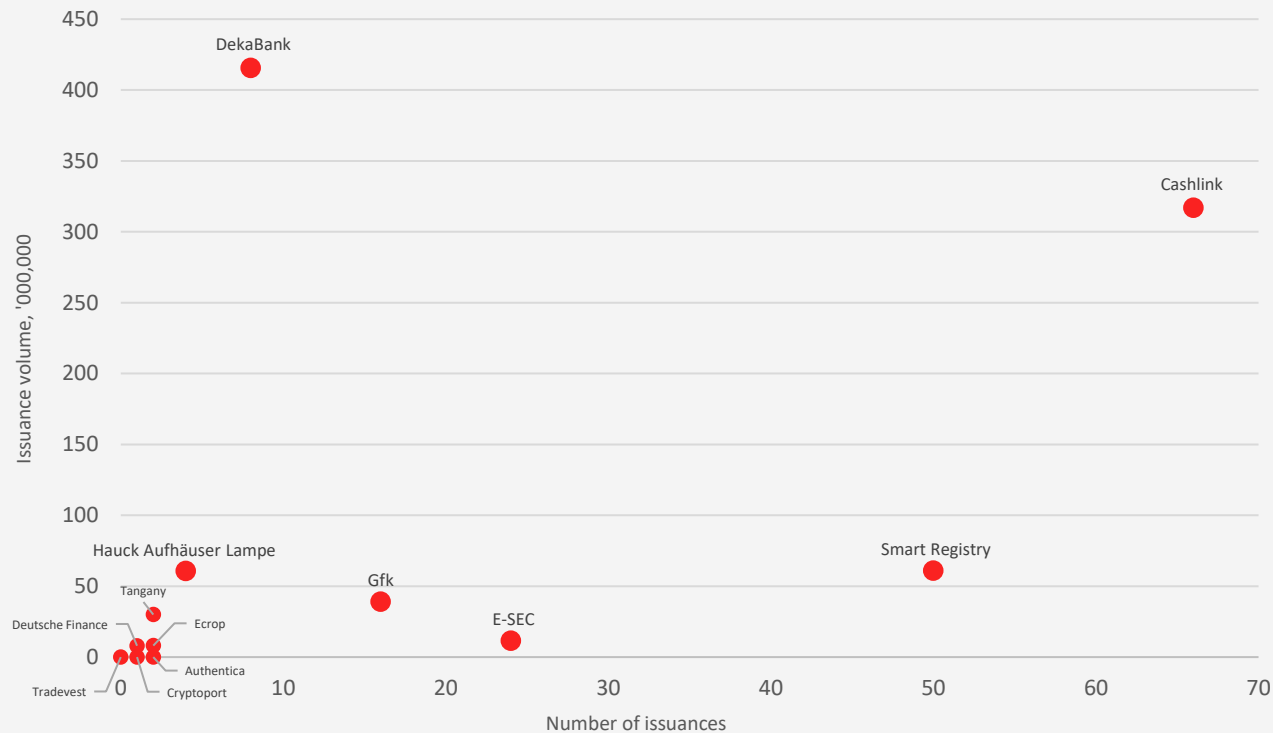
- The implementation of the Basel guidelines for digital assets, including tokenized securities, which has been postponed for banks to January 1, 2026, is drawing closer. These guidelines include significantly increased capital requirements for credit institutions holding tokenized securities on public blockchains, which reduces their attractiveness compared to private blockchains. The uncertainty among potentially affected market participants is evident, as only the issuance by Berlin Hyp AG among institutional issuers has a maturity beyond January 1, 2026 – and it uses a private blockchain.
- In its current consultation paper, EIOPA also recommends a 100% capital requirement for investments in digital assets, which would likely make investments in these asset classes highly capital-intensive and therefore unattractive for the affected companies.
- The asset class of bearer bonds continues to dominate the digital asset market. No issuances in other asset classes were recorded in the first half of 2025.

Issuances by asset class



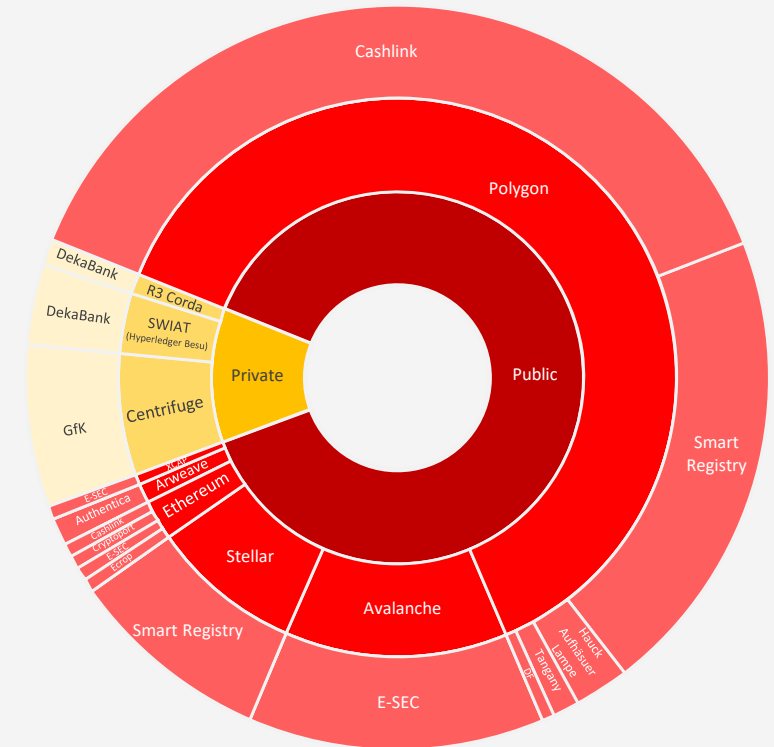
3 MARKET INFRASTRUCTURE

Crypto securities registrars by number and volume of issuances



- Of the 40 new issuances in the first half of 2025, 35 were managed by the crypto securities registrars Cashlink (15), GfK (8), and Smart Registry GmbH (12). GfK has thus doubled its total number of issuances to date.
- The digital asset market welcomes a new crypto securities registrar with Tradevest Digital Assets GmbH. Additionally, E-SEC GmbH has obtained its final BaFin license to operate a crypto securities register.
- Following its admission as a DLT TSS under the DLT Pilot Regime, 21X AG has also obtained a license for crypto securities registration as an ancillary service, enabling it to offer a comprehensive solution for the issuance, trading, and settlement of tokenized securities.

Public vs. private blockchains



- In contrast to the Basel framework, issuances in the first half of 2025 have continued to rely almost exclusively on public blockchain infrastructures. This is primarily because the current market is driven by issuances from smaller companies, which are not considered by banks, rendering potential capital requirements irrelevant in these cases.

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4 CURRENT DEVELOPMENTS

1 SECONDARY MARKET

- Regulated market trading in tokenized securities based on DLT, enabled by the DLT Pilot Regime that came into force in March 2023, is taking its first step forward: a tokenized security is now available as part of an initial primary market transaction on the 21X AG platform. Active DLT-based secondary market trading, however, has not yet commenced.
- 21X AG has already laid essential structural foundations in preparation for future market penetration, including partnerships with stablecoin issuers AllUnity, Circle, and Quantoz, as well as the crypto securities registrar Cashlink. These measures aim to strengthen the platform's operational capabilities and represent the next step toward establishing a fully functional and productive trading environment, including cash leg settlement for tokenized securities.
- An initial step toward a liquid and functioning secondary market was the transaction between KfW and DekaBank in April 2025. The subject of the transaction was the blockchain-based mortgage-covered bond (Pfandbrief) of Berlin Hyp AG, which had previously been issued pursuant to the eWpG. As part of an over-the-counter (OTC) trade, KfW acquired the crypto security directly from DekaBank. The transaction was executed using established processes and payment systems with DekaBank as the custodian bank, demonstrating that investors do not necessarily need to meet complex technical requirements.
- In June 2025, Berliner Volksbank participated in another secondary market transaction involving the crypto security issued by Berlin Hyp AG. As in the previous instance, no technical requirements needed to be met from the investor's perspective. In this case, DZ BANK AG acted as the custodian bank.

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2 CASH LEG

- A growing number of market participants — including asset managers, banks, and issuers — are calling for digital payment instruments to fully leverage the advantages of DLT-based capital market transactions. Various options with differing levels of maturity are currently under consideration: while wholesale central bank digital currency (wholesale CBDC) has been successfully tested for interbank settlement and is expected to be deployed operationally in 2026, and stablecoins in the form of e-money tokens (EMTs) under MiCAR are already in active use, the development of commercial bank money tokens remains at an early conceptual stage.
- The trials conducted by the ECB have clearly demonstrated the efficiency and security advantages of linking tokenized securities with the cash leg via wholesale CBDC. This technical and procedural integration facilitates low-risk, near real-time settlement of securities transactions on a DLT-based infrastructure.
- On July 1, 2025, the ECB announced its ongoing strategy for the settlement of DLT transactions. As part of the short-term “Pontes” initiative, a pilot solution is expected to be made available by the end of 2026 to ensure connectivity between DLT platforms and TARGET services. In the longer term, the ECB's “Appia” initiative aims to establish a more deeply integrated DLT ecosystem.
- Additionally, the first EMTs have already been approved by the competent authorities within the EU under MiCAR. EMTs are stablecoins that are pegged to a reference currency. However, stablecoins have not yet been deployed operationally for the settlement of regulated securities transactions. Their use remains largely confined to transactions within the crypto-native ecosystem. A significant barrier continues to be the elevated issuer risk of existing stablecoins.

METHODOLOGY FOR INDEX CALCULATION AND DATA COLLECTION

1 Digital Asset Index

The introduction of the Electronic Securities Act (eWpG) enables the digitalization and tokenization of traditional securities. This creates a more efficient capital market that maintains and further strengthens Germany’s competitiveness as a financial hub. The main objective of the index is to quantify the market for digital assets under the eWpG and to track its development to provide information on the maturity of this product category.

The Digital Asset Monitor focuses primarily on tokenized securities (crypto securities pursuant to the eWpG, see Figure 1), as these represent an innovative advancement enabled by blockchain technology. This innovative advancement enables significantly faster and more cost-efficient capital market transactions as well as the automation of numerous related processes.

Electronic securities that fall under the eWpG and are recorded in a central register are not included in this monitor. Here, traditional securities are merely dematerialized. The automation potential is therefore lower compared to tokenized securities.

Crypto assets such as Bitcoin or Ethereum are also excluded from the Digital Asset Monitor, as they represent a new, independent asset class of regulated financial instruments and must be strictly distinguished from tokenized securities.

The index calculation covers the period starting from the fourth quarter of 2021 and is based on two weighted main factors:

- i. Number of issuances with a weighting factor of 80 percent
- ii. Issuance volume with a weighting factor of 20 percent

The number of issuances serves as an important indicator for initiatives to gradually standardize and establish the market from a technical and business perspective, while at the same time reflecting the growing interest of different groups of market participants (e.g., issuers, custodians, crypto securities registrars). The issuance volume, on the other hand, serves as a meaningful indicator of the viability and attractiveness of this novel form of issuance.

The weighting of these two factors was determined considering the current high volatility in the digital assets market. The number of issuances has shown a steady trend to date, while the issuance volume has fluctuated considerably in the past, potentially distorting the overall picture. This weighting best reflects market maturity at the present time. However, it should be noted that adjustments to the index calculation may be considered depending on future market developments. This could include, for instance, adjusting the weightings or incorporating additional parameters. In this regard, the author of the index reserves the right to make appropriate modifications.

The data collection is based on various data sources:

- 1. Data provider WM Datenservice
- 2. Crypto securities list pursuant to Section 20 (3) eWpG; published by the Federal Financial Supervisory Authority (BaFin)
- 3. Federal Gazette (Bundesanzeiger) published by the Federal Ministry of Justice and Consumer Protection

Despite the availability of numerous data sources for issuances, it is not always guaranteed that all required data points are accessible, which may affect data completeness.

2 Issuances

In this section, the two main factors included in the index are presented cumulatively over the entire period. The digital assets analyzed include bonds, fund units and registered shares.

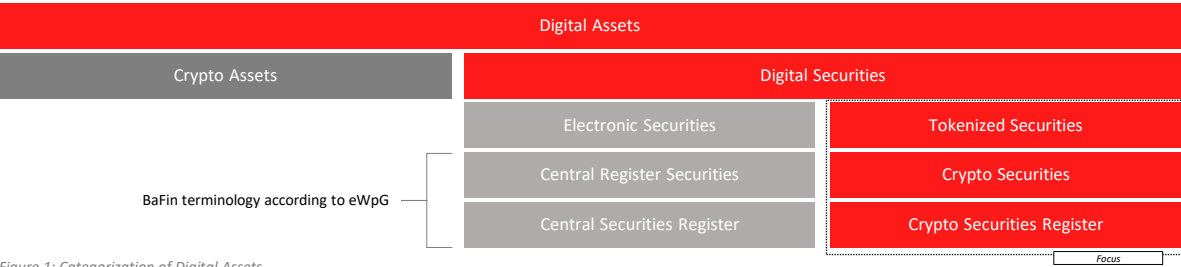


Figure 1: Categorization of Digital Assets

3 Market Infrastructure

This section serves to provide a comprehensive understanding of the maturity of the register market for tokenized securities. The blockchain-based crypto securities register serves as a backbone for the issuance and settlement of tokenized securities transactions. Only companies holding a corresponding BaFin license are permitted to operate such a register. The established presence and reliability of these companies are crucial for the development of the market. For these reasons, the following main factors are analyzed in detail:

- 1. **Technological infrastructure:** Evaluation of technological progress and technical standards by analyzing the preferred blockchain protocols, including token standards, as well as the establishment of market providers (by number and volume of issuances).
- 2. **Regulatory:** Considering the requirement for a BaFin license to operate a crypto securities register, the legal status of the providers is of significant importance (full/provisional BaFin license).

4 Current Developments

The main objective of this section is to provide a comprehensive overview of the main market activities related to digital assets in the relevant time horizon and aims to capture all significant news that has an impact on market development. These developments include, but are not limited to, the following factors:

- **Infrastructure:** Establishment of new crypto securities registrars or marketplaces and introduction of digital money for blockchain-based settlement of the cash leg of digital asset transactions
- **Product:** Relevant digital asset issuances and introduction of new product/service offerings
- **Regulatory:** Regulatory developments and requirements for market participants



Deka Group, consisting of DekaBank Deutsche Girozentrale and its subsidiaries, is the securities services provider of the German Savings Banks Finance Group (Sparkassen-Finanzgruppe). With total customer assets under management of 416 billion euros (as at 31.12.2024) and 5.7 million securities accounts, it is one of the largest securities service providers and real estate asset managers in Germany. Deka Group offers investment solutions and services for private and institutional investors and aligns its products with the requirements of its owners, the savings banks.



The Frankfurt School Blockchain Center (FSBC) is a think tank and research institute dedicated primarily to examining the impact of blockchain technology. In addition to its core research activities, the FSBC offers educational programs for students and executives and serves as a hub that brings together industry leaders, start-ups, and experts to share knowledge and best practices.



intas.tech is a consulting firm specializing in the strategic assessment of blockchain use cases, as well as the integration of digital assets into existing business models and IT infrastructures.

The unique combination of blockchain know-how and in-depth expertise in the regulatory environment enables holistic, cross-industry consulting approach.



WM Datenservice is National Numbering Agency (NNA) for DE – ISINs and one of the leading information service providers for the financial industry. In addition to a comprehensive product and service offering for tax and regulatory data for financial instruments, WM Datenservice also offers solution for issuers of digital assets, as well as the corresponding data for all market participants.