

ICMA presentation on FinTech and Digitalisation

Collateral Infrastructure and Market Practices Advisory Group (CIMPA)

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1. Overview of the International Capital Market Association
2. FinTech and Digitalisation (FT&D) strategic priorities
3. FT&D governance structure
4. DLT Bonds Working Group
5. Tokenisation in bond and repo markets
6. Standards and models: Bond Data Taxonomy (BDT) and FINOS Common Domain Model (CDM)
7. AI in Capital Markets Working Group
8. Primary Market Innovation Project (PMIP)
9. FT&D events
10. FT&D education
11. FT&D resources

1. International Capital Market Association – Overview

- ❑ ICMA promotes well-functioning cross-border capital markets, which are essential to fund sustainable economic growth.
- ❑ It is a not-for-profit membership association with offices in Zurich, London, Paris, Brussels, and Hong Kong, serving around 630 members in 71 jurisdictions globally.
- ❑ Its members include private and public sector issuers, banks and securities dealers, asset and fund managers, insurance companies, law firms, capital market infrastructure providers and central banks.
- ❑ ICMA's market conventions and standards have been the pillars of the international debt market for over 50 years, performing a crucial central role in the market by providing industry-driven standards and recommendations including:
 - **ICMA's Primary Market Handbook & Legal model language** for sovereign debt instruments (including Collective Action Clauses (CACs), Climate Resilient Debt Clauses (CRDCs))
 - **ICMA's Secondary Markets Rules and Recommendations**
 - **Global Master Repurchase Agreement (GMRA) and ERCC Guide to Best Practice** in the European Repo Market
 - **Green Bond Principles (GBP), the Social Bond Principles (SBP), the Sustainability Bond Guidelines (SBG) and the Sustainability-Linked Bond Principles (SLBP).**

2. FinTech and Digitalisation – Strategic priorities

Rationale for our work:

- ❑ While the adoption level of technology varies across the industry as a whole and our many member firms and partner organisations, the emergence of transformational technology such as DLT and AI has the potential to significantly impact market practice and structure, driving the priorities that we focus on as a team.

Strategic Priorities:

- ❑ Continued focus on the below topics:

Articulating & monitoring the themes driving the automation and digitalisation of the industry:

- DLT Bonds
- Artificial Intelligence
- The intersection between Sustainable Finance and FT&D
- Primary & Secondary Market Innovation

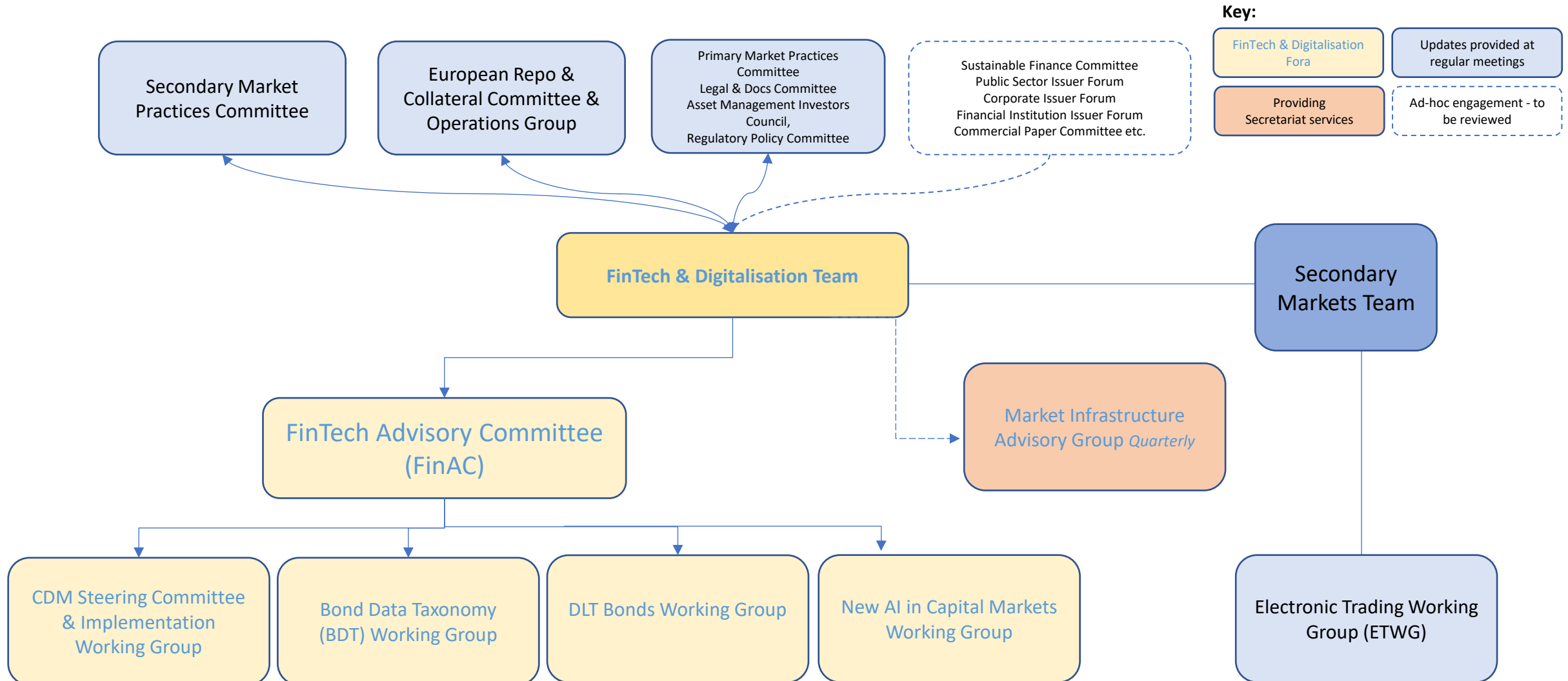
Regulatory engagement and support for consultations relating to innovation:

- *Eurosystem New Technologies for Wholesale Settlement Contact Group (NTW-CG)*
- *Chair of MAS Guardian Fixed Income workstream (GFIF)*
- *UK Industry Data Standards Committee (IDSC)*
- *Artificial Intelligence (AI) Working Group [AICM] responses consultations*

Delivery of models, standards and emerging frameworks to underpin industry wide automation and digitalisation:

- *The FINOS Common Domain Model (CDM)*
- *The Bond Data Taxonomy (BDT)*
- *Considerations for risk factors & disclosure in DLT bond documentation*
- *DLT Bonds Reference Guide*

3. ICMA FinTech & Digitalisation Structure



See further information on working groups and committees on [ICMA's website](#).

- ❑ Set up in 2019 to tap into the expertise of ICMA's broad membership and provide guidance on ICMA's work

Purpose:

- ❑ Oversee and provide guidance on ICMA's priorities and engagement relating to FinTech and Digitalisation
- ❑ Support market stability and consistency through the safe and secure adoption of innovative technologies
- ❑ Promote market efficiency on an end-to-end basis across primary, secondary, repo, and collateral markets
- ❑ Provide advice to ICMA's engagement with regulators, legislative bodies, and peer trade associations
- ❑ Promote awareness and understanding of innovative and transformative technologies, their specific potential application to capital markets (and related risk), through industry dialogue, education, and thought leadership

Emma Lovett (Co-chair)

- Executive director for the Markets DLT team at JP Morgan
- Expertise in the lifecycle and operational component of new issuances

Justin Chan (Co-Chair)

- Leads legal and regulatory strategy for Blackrock's FinTech initiatives
- This includes AI, blockchain, digital cash and trading, and data partnerships

4. DLT Bonds Working Group – Fostering the development of digital bond markets

Objectives:

- ❑ **Provide a forum for discussion on how to support liquidity in distributed ledger technology-based (DLT) bonds** (sometimes also referred to as “digital” or “tokenised” bonds), focusing on interoperability between different DLT networks as well as traditional market infrastructure, cash on ledger, legal and/or regulatory obstacles
- ❑ **Provide market guidance**
- ❑ **Demystify DLT bonds** - Publication of *FAQs on DLT and blockchain in bond markets* (September 2022), available [here](#).
- ❑ **Maintain dialogue with regulators on relevant topics and respond to consultations:**
 - Participation in Eurosystem’s New Technologies for Wholesale Settlement Contact Group ([NTW-CG](#)); MAS [Project Guardian](#) Fixed Income Framework.
 - See ICMA’s [response](#) to His Majesty’s Treasury’s (HMTs) and the UK Debt Management Office’s (DMOs) announcement regarding a Digital Gilt (April 2025)
 - See joint trade association [response](#) to BCBS consultation on disclosure of banks’ crypto-assets exposures (January 2024).

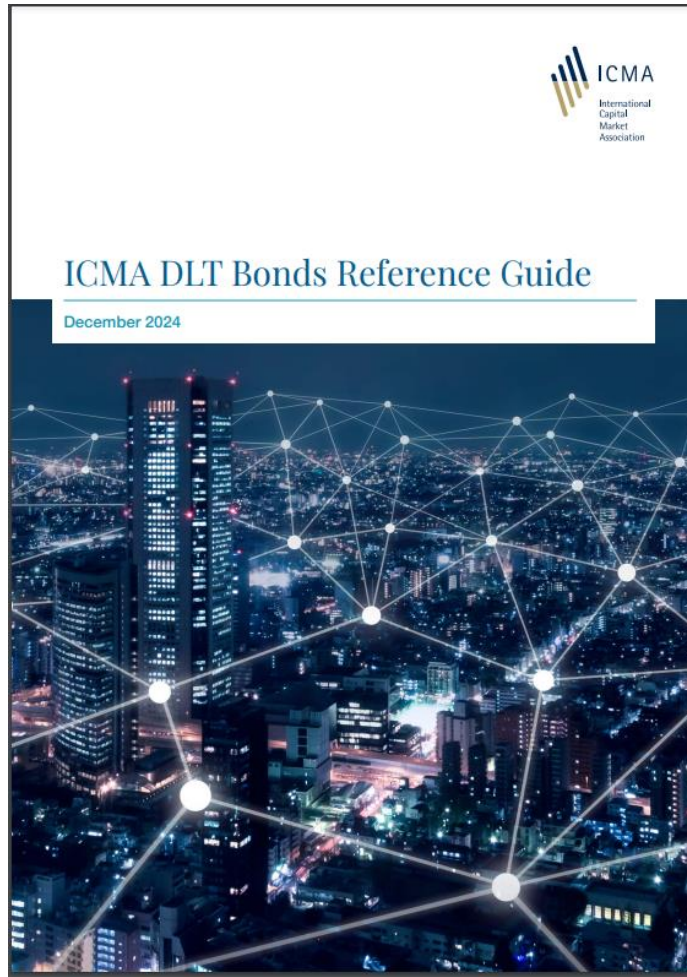
Participation:

- ❑ ICMA member firms across the value chain of international bond markets: SSA and private sector issuers, investors, banks, central banks, law firms, market infrastructure providers, rating agencies and technology providers.

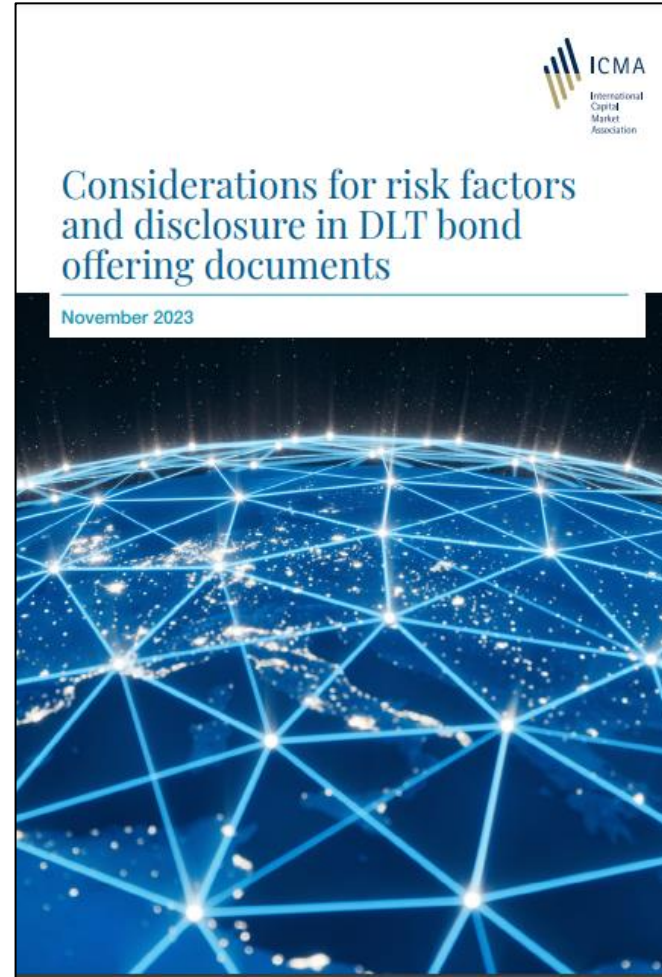
DLT Bonds Working Group Chair:

- ❑ Christoph Hock (Union Investment)

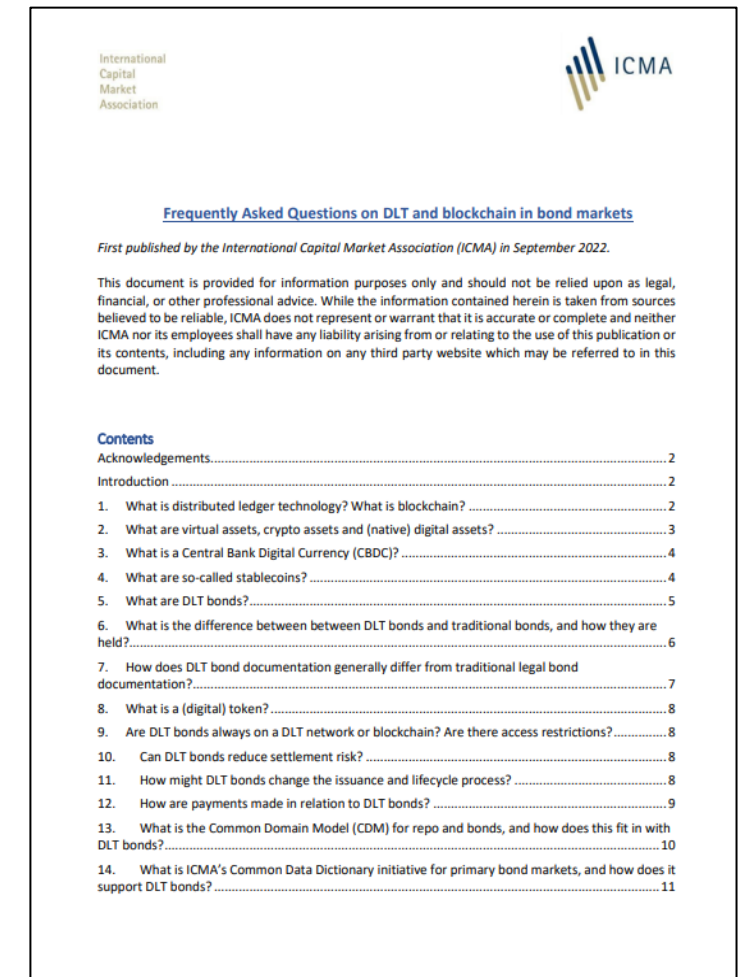
DLT Bonds Working Group – Reference materials



Published in December 2024



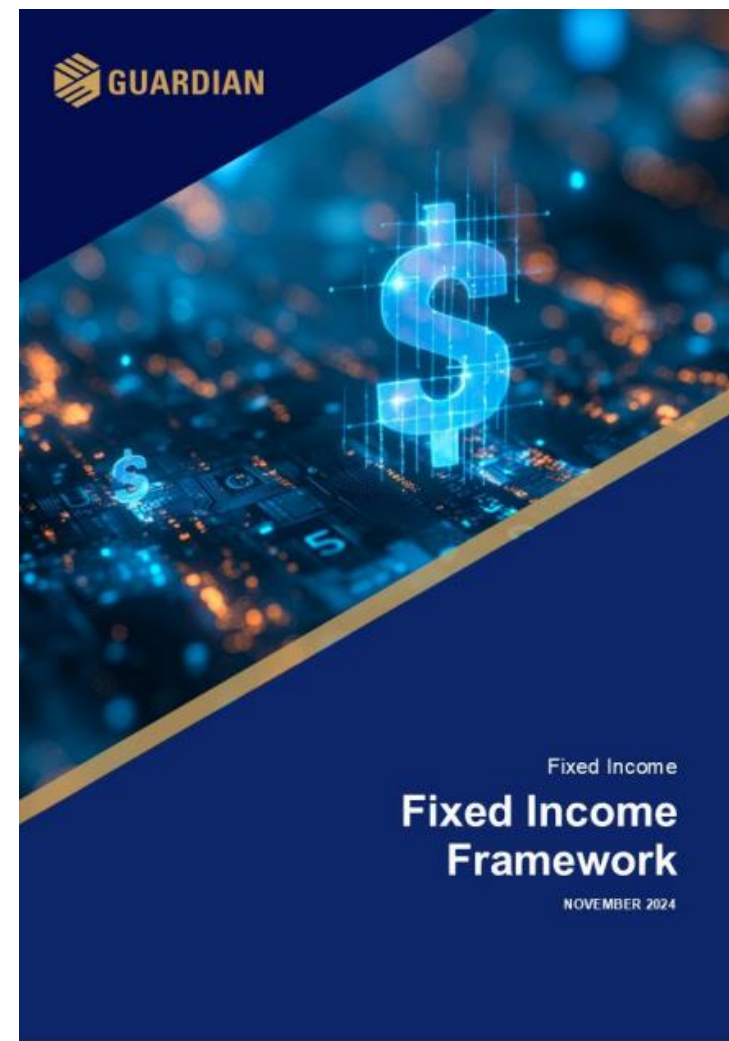
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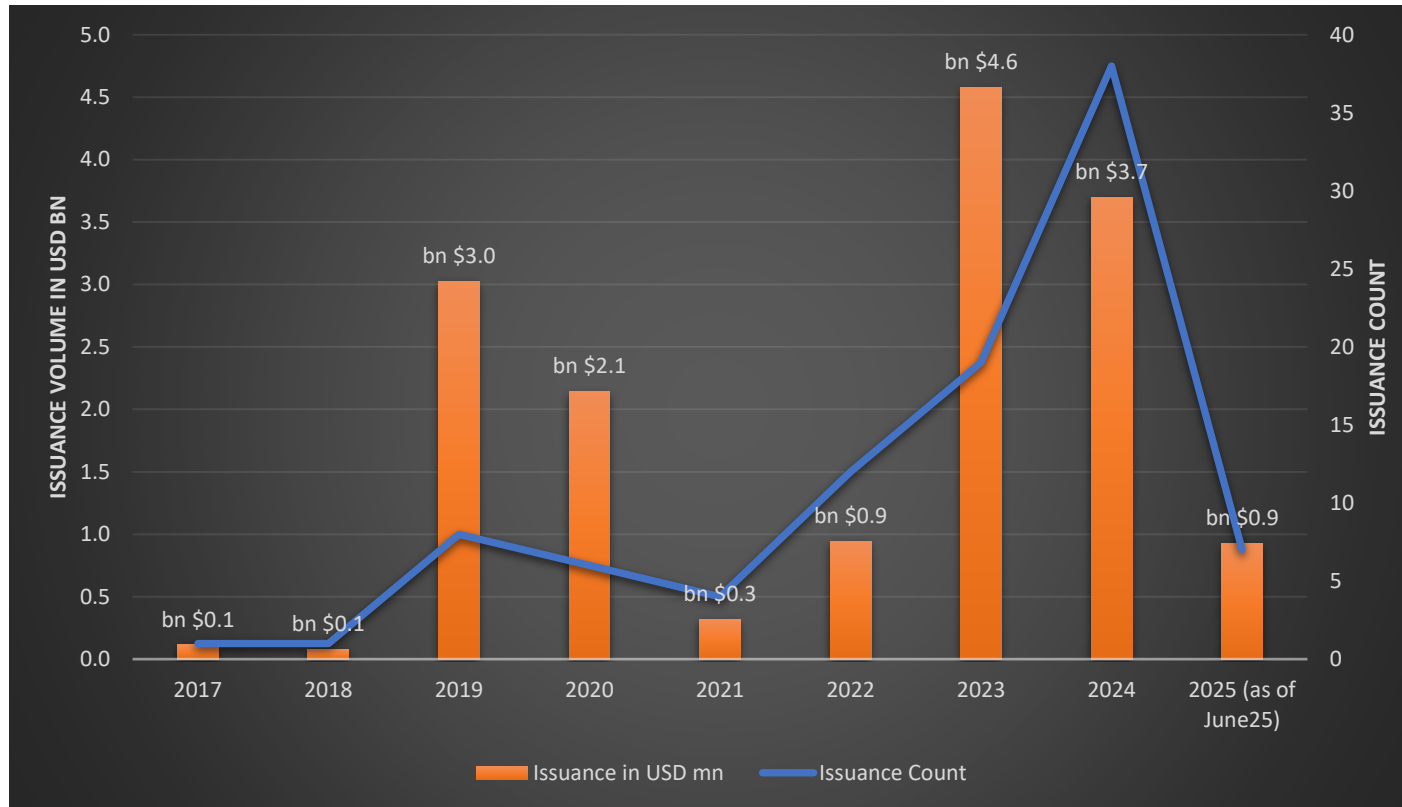
Published in September 2022

MAS Guardian Fixed Income workstream

- ❑ We [announced](#) publicly that ICMA was leading the MAS Guardian Fixed Income workstream on 2 June 2025.
- ❑ As a reminder, Project Guardian, convened by the Monetary Authority of Singapore (MAS), is a global collaboration between policymakers and key industry players to enhance liquidity and efficiency of financial markets through asset tokenisation.
- ❑ Focus area on DvP settlement for tokenised debt securities:
 - Objective: Provide guidance by mapping out current & future solutions for the payment leg in DvP settlement and assessing the suitability of different arrangements for market participants based on key considerations in [ICMA's DLT Bonds Reference Guide](#).
 - Potential deliverable: Brief “DvP settlement guide”, complementing the Guardian Fixed Income Framework (TBC).
- ❑ Focus area on custody of tokenised debt securities:
 - Objective: Share lessons learned from custody arrangements of tokenised securities: legal, regulatory and operational aspects based on [ICMA's DLT Bonds Reference Guide](#).
 - Potential deliverable: Summary of lessons learned and potential solutions / recommendations (TBC).
- ❑ Timelines: Drafts to be finalised by Q3.



5. Digital (DLT-based) bonds and intraday repos – Where are we now?



Source: Moody's Ratings, ICMA's [tracker](#)

Note: Since 2021, more than 150 DLT-based securities (including more than 30 in H1 2025) have been issued under German law, also referred to as “crypto securities”. Due to limited availability of data, not all DLT-based debt securities have been included.

- ❑ Native digital (DLT-based) debt issuance globally has increased in ‘waves’.
- ❑ In 2024, the Eurosystem [processed](#) over 200 DLT-based transactions and a total value of €1.59 billion as part of its ‘trials and experiments’.
- ❑ Investor participation is dependent on jurisdiction, governing law, DLT platforms and settlement arrangements, amongst other factors.
- ❑ DLT has been adopted at scale for intraday securities financing, facilitated by ICMA's GMRA Digital Assets Annex (August 2024).
- ❑ DLT repo platforms include [Kinexys](#) by JPMorgan, Broadridge [Distributed Ledger Repo](#) (DLR), [HQLAx](#).

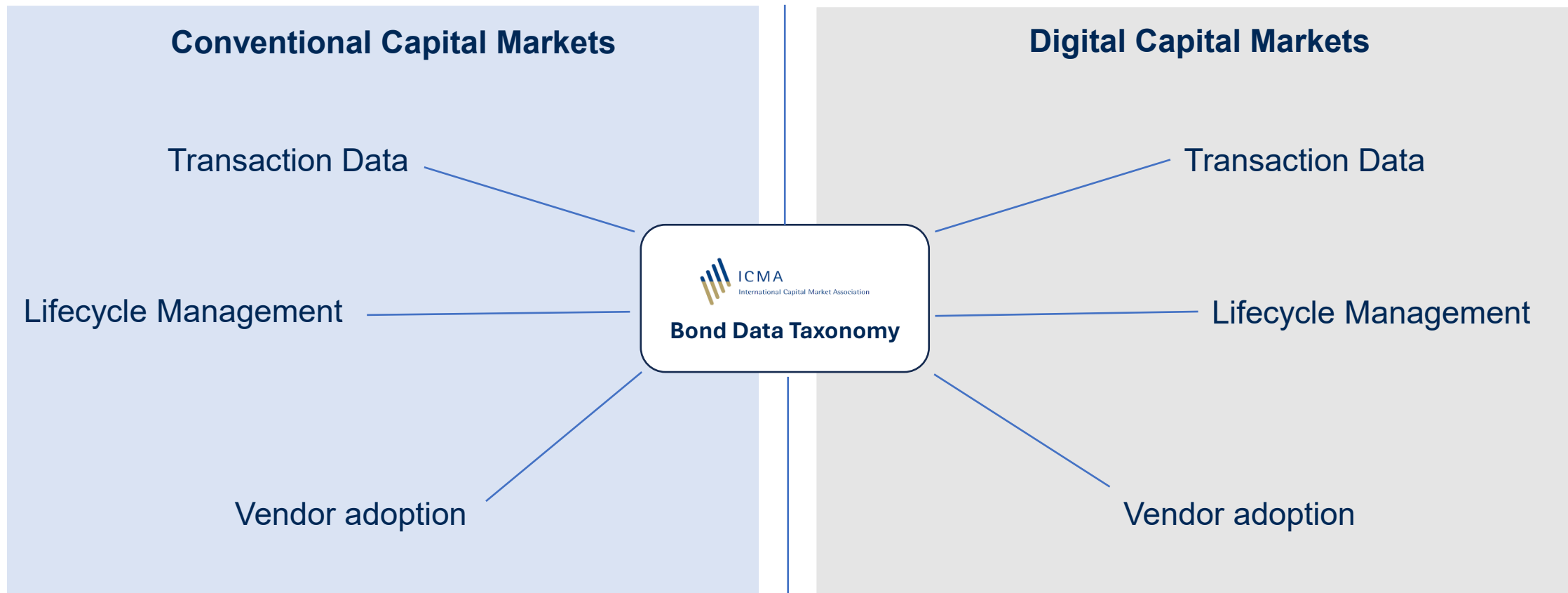
Key challenges and considerations for scaling DLT-based bond markets

- ❑ **Custody and trading** => Major challenge to wider investor participation due to legal, regulatory, and operational complexities. Focus of MAS Project Guardian Fixed Income workstream, [chaired](#) by ICMA.
- ❑ **‘Cash on chain’** => Critical to fully unlock the benefits of tokenisation, ICMA members have consistently highlighted the need for a wholesale digital Euro (wCBDC) and welcomed the ECB’s [announcement](#) on 20 February 2025.
- ❑ **Regulatory treatment:**
 - EU regulation (eg CSDR, MiFID II/R), BCBS prudential treatment (SCO60) => impacts listing, trading, portfolio management and (re)use as collateral.
 - EU DLT Pilot Regime => Flexible limits, clarity on duration and ‘exit process’ required for commercial viability.
 - Market fragmentation => Diverging national securities laws in EU member states.
- ❑ **Standardisation and interoperability** => Critical to scale DLT-based bond markets and avoid market fragmentation, ICMA’s focus being on technical standards (Bond Data Taxonomy) and legal standards (GMRA Digital Assets Annex).
- ❑ **Cost-benefit considerations** => short term vs long term; type of instruments; size; funding requirements.

Outlook

- ❑ US policy shift regarding crypto-assets is expected to have a spill-over effect to capital markets and drive growth of tokenisation in bond markets and other asset classes.
- ❑ Issuers of USD-pegged stablecoins expected to further increase US Treasury holdings and create interdependencies (see for example, Yadav, Y. and Malone, B., [Stablecoins and the US Treasury Market](#), 5 June 2025. Vanderbilt Law Research Paper).
- ❑ The ECB's [announcement](#) on 1 July 2025 to expand its initiative to settle DLT-based transactions in central bank money is expected to accelerate market activity.
- ❑ In the UK, a Digital Gilt (DIGIT) is expected to be issued through the UK's Digital Securities Sandbox following a market [consultation](#) in March 2025.
- ❑ Equivalent prudential, legal, and regulatory treatment of DLT-based bonds and traditional debt securities required.
- ❑ Ongoing international collaboration, including MAS Project Guardian, BdF/MAS Les Gardiennes, BIS Project Agora, amongst others, continues to lay incremental groundwork.
- ❑ Continued proliferation of interoperability initiatives, but diverging regional dynamics.

6. Fostering interoperability – Bond Data Taxonomy (BDT)



The Bond Data Taxonomy – Standardised and Machine-readable

Key information (eg from term sheet)

- **Security identifier**
- **Aggregate nominal amount**
- **Rate of Interest**
- **Maturity date**
- Series, Tranche Number
- Form of the Note
- Day Count Fraction
- Interest Commencement Date
- Interest Payment Dates
- ...
- **Issuer**
- **Governing Law**
- **Listing**
- Specified Denomination
- Specified Currency
- Issue Price
- Reoffer Price
- ...
- DLT platform type
- Token type
-

Machine-readable format (XML) to facilitate automation

- `<xs:element name="SecurityIdentifier" type="SecurityIdentifier", minOccurs="0" maxOccurs="unbounded"> ...<xs:element name="ISIN" type="ISINOct2015Identifier" minOccurs="0" maxOccurs="1"> </xs:element>`
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- ...
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-

E.g. Bond documentation, final terms

E.g. Securities register or databases

E.g. Economic terms (for trading & settlement)

Bond Data Taxonomy (BDT) – Status update and latest announcements

Conventional Capital Markets

- ❑ World Bank: [AI implementations](#) ASTRA and SHAstra, “developed for issuers and investors respectively, leveraging the latest technological advancements in AI” to enhance streamline operations, prevent settlement fails and enhance liquidity management, 19 August 2025.
- ❑ Euroclear & Clearstream: [Joint statement](#) announcing their intention to ‘digitise the Eurobond market’, in alignment with ICMA’s Bond Data Taxonomy (BDT), 25 September 2025.
- ❑ ECB AMI-SeCo [report](#) on Remaining barriers to integration in securities post-trade services – issues and recommendations, including a recommendation that “All relevant stakeholders (issuers, issuer agents, syndicate members, primary dealers, CSDs and custodians) in the value chain should adopt existing market standards, such as the ICMA Bond Data Taxonomy (BDT), as a common language.” (barriers 6, 34).



Digital Capital Markets

- ❑ Adoption by Hong Kong SAR in multicurrency digital green bonds issuance (HSBC Orion/CMU), February 2024
- ❑ Société Générale Forge CAST Framework (2024)
- ❑ Centrepiece of MAS Guardian Fixed Income Framework (November 2024)
- ❑ DZ Bank – Smart Bond Contract Whitepaper (May 2025)
- ❑ SWIFT Digital Asset Standards platform (PoC), announced at SIBOS 2025

Other implementations by issuers and other market stakeholders are ongoing (to be publicly announced in due course).

The Common Domain Model

- ❑ **Interoperability** - Connecting systems internally and externally based on a common language, increasing efficiency, reducing friction and risk of fragmentation.
- ❑ **Automation** - Streamlining trade processing, reducing need for manual intervention to reconcile transaction details, but also facilitating regulatory reporting.
- ❑ **Innovation** - Enabler for applications of new technologies and business models.
- ❑ **Cross-industry collaboration** across repo, securities lending, bond and derivative markets under the FINOS open-source framework.
- ❑ The CDM Implementation Working Group is designed to assist IT teams and developers in designing and implementing CDM-based applications for repo trading and post-trade.



ISDA

ISLA



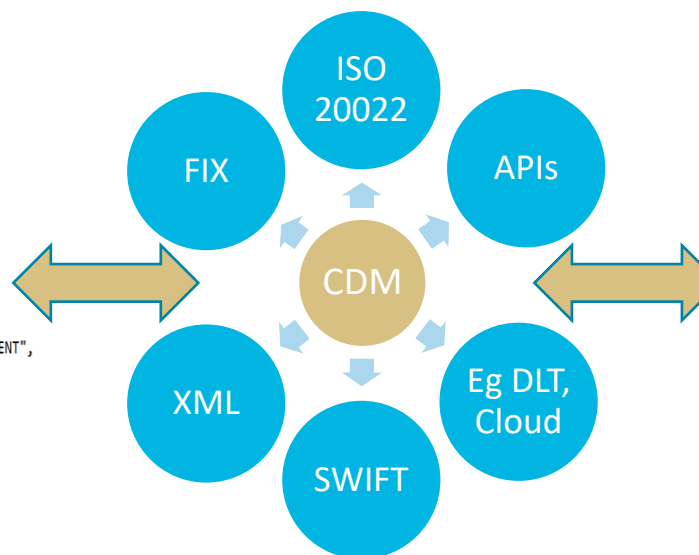
Delivering cost savings & enabling new revenue opportunities

Facilitating the implementation of industry priorities

Potential adoption pathways:

- ❑ Shortening settlement cycles & settlement efficiency more broadly
- ❑ Operationally cumbersome repo processes eg related to pair-offs and collateral management
- ❑ **Regulatory reporting:** Bilateral repos (OFR), securities lending (SEC 10c-1), SFTR Refit, EMIR Refit
- ❑ Automating issuance, hedging, trading of tokenised securities

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  }  
]
```

Each party uses the CDM as a ‘common language’ to process repo, securities lending, bond and derivative transactions. See also ICMA’s [CDM demo](#).

The CDM is publicly available and hosted by the FinTech Open Source Foundation (FINOS).

7. ICMA's AI in Capital Markets (AICM) Working Group

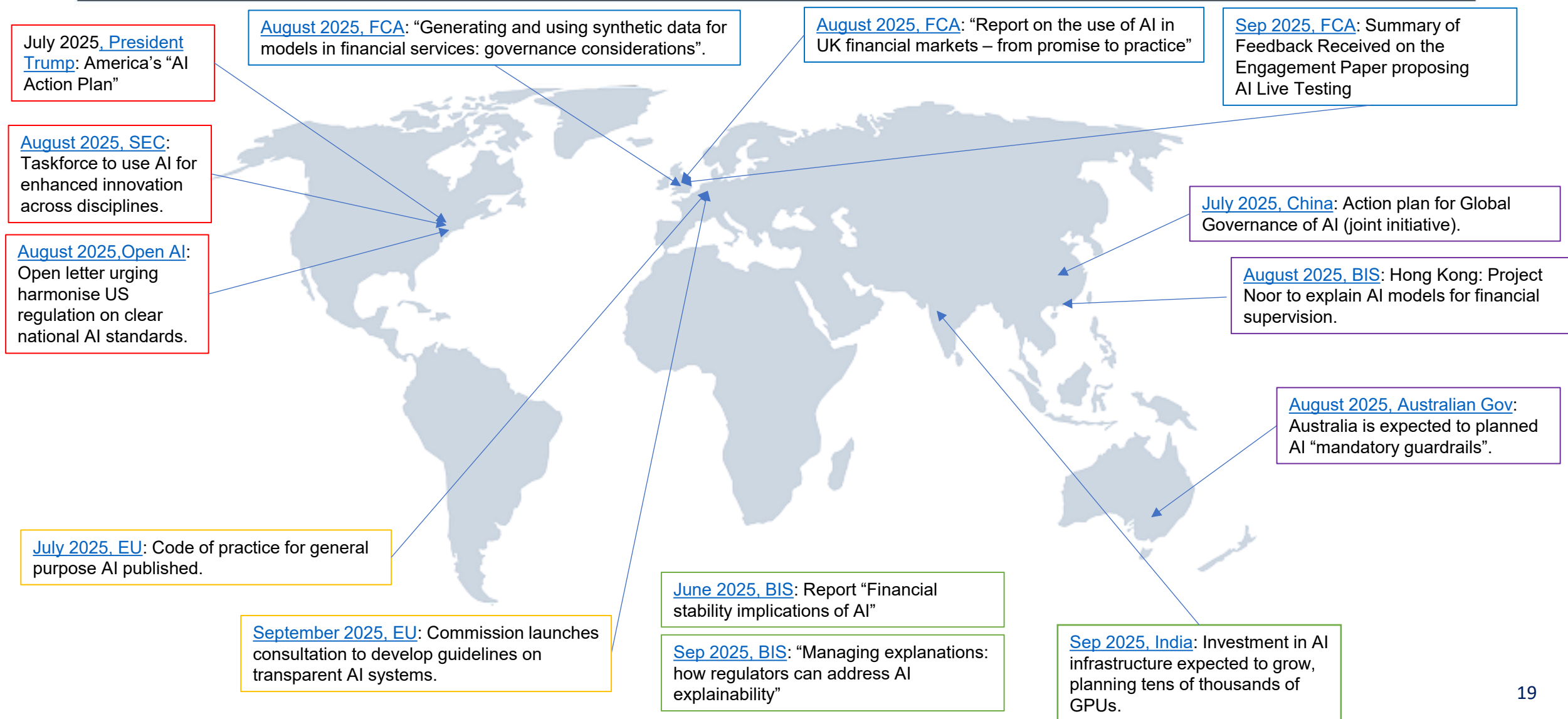
In June 2024, we launched our new AI in Capital Markets Working Group (AICM), which reflects this acceleration in global financial institutions adopting new, innovative applications of AI technology into their workflows, and increasing interest in Artificial Intelligence (AI) in the public sphere.

- ❑ The AICM now has over 164 members from over 73 firms based across six continents. Representatives from banks, issuers, investors, law firms, vendors, data providers, rating agencies and market infrastructure providers attend.
- ❑ The group contributed to the ICMA & National University of Singapore's Asian Institute of Digital Finance (NUS-AIDF) on AI in Risk Management in Capital and Securities Markets, 2024

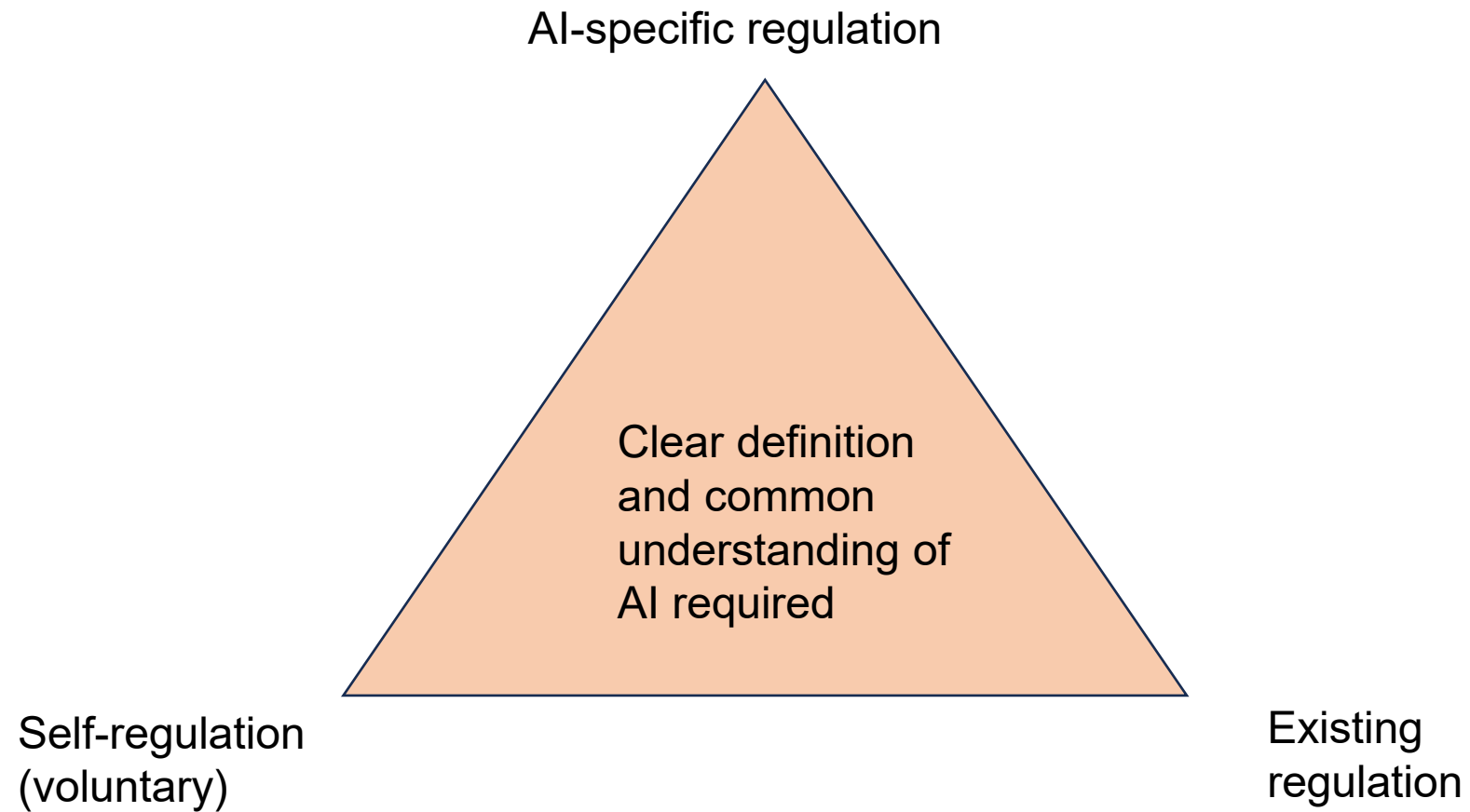
ICMA AICM Regulatory Engagement

- ❑ FCA Consultation on current and future uses of AI in UK financial services, as well as the financial services regulatory framework, January 2025
- ❑ IOSCO Consultation Report on Artificial Intelligence in Capital Markets: Use Cases, Risks, and Challenges, April 2025
- ❑ ICMA & OECD Roundtable on Scaling Up AI Adoption, July 2025

Global Artificial Intelligence Regulatory and Legislative Updates



How to regulate AI?



Pre-trade

- ❑ AOS: [Launch](#) of contract drafting tool “ContractMatrix”, created in partnership with Microsoft and Harvey (December 2023).
- ❑ IFC: [Malena](#) ‘AI analyst’ for sustainable investing (2025).
- ❑ ESG Rating agencies: Use of LLMs to generate credit risk assessments and ESG ratings.

Primary markets

- ❑ ESM: Predicting investor behaviour in European bond markets through machine learning (2019)
- ❑ Vendors: Corporate Bond Intelligence (COBI)-Pricing, predictive analytics utilising machine-learning algorithms (Overbond); Bond data extraction for termsheets and final terms using LLM AI technology (Origin Markets).
- ❑ Issuer: Data extraction from bond documentation using ICMA Bond Data Taxonomy to prevent settlement fails and enhance liquidity management (2024).

Secondary markets

- ❑ Trading venue: Use of ML algorithms for updating in real-time the composite pricing of thousands of debt instruments (2019).
- ❑ Katana Lens (defunct): Use of ML models to screen buy/sell combinations of bonds and identify trading and arbitrage opportunities. January 2022 (see details [here](#)).
- ❑ [SESAMm](#): Use of ML algorithms and natural language processing (NLP) technology for sentiment analysis for risk management and investment strategies.
- ❑ [LTX \(Broadridge\) BondGPT](#): Chat function that allows users to ask questions and identify corporate bonds on the LTX trading platform (6 June 2023).

Post-trade

- ❑ Bank in APAC: Use of ML across middle office and trade support in multiple roles, from post-trade valuation to settlement to be implemented as staff replacement (2022).
- ❑ Broadridge [OpsGPT](#) to streamline operations and reduce settlement fails (11 January 2024)

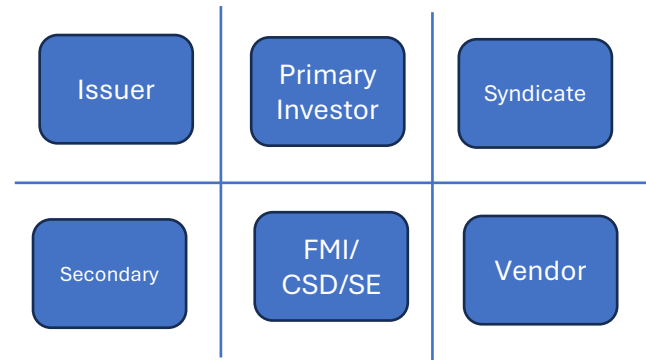
Note: See further examples and information on ICMA's New FinTech applications in bond markets [webpage](#). This overview is provided by ICMA for information purposes only. ICMA does not endorse any of those firms or solutions listed.

8. Time to engage – Primary Market Innovation

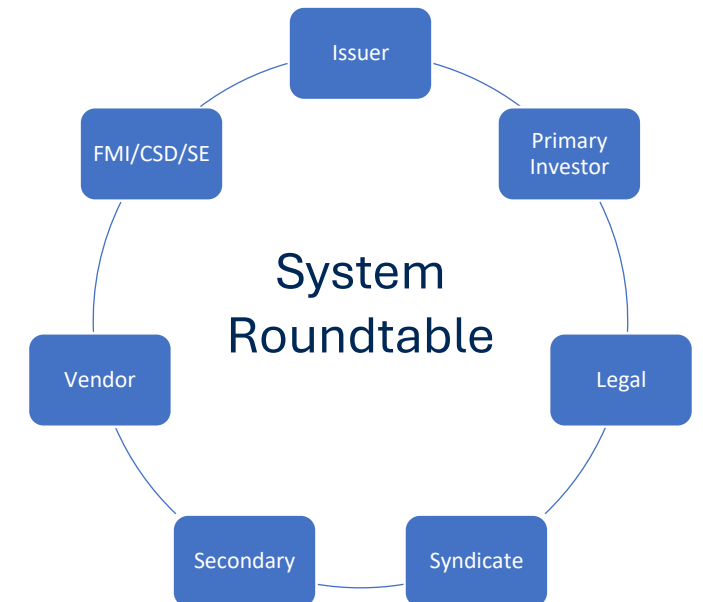
From Interviews to Roundtables - From Stakeholder to System Roundtables



Interviews



Stakeholder Roundtable



9. FT&D Events & member engagement

- ❑ We continue to attend many **external industry events** on the topic of FT&D further promoting our name, brand and work for the industry (**in red below**)
- ❑ In addition to running our **own events (in black)**, we are attending as many regional member lunches as possible this year, as guided by the membership team, and have joined member meetings on request.

Past Events – this year

- **FCA AI Spotlight** – London, 28 January
- **Banque de France T2, T1, T0: Go!** The future of financial markets and their infrastructure: What's ahead? – Paris, 28 January
- **CDM Showcase** (with ISDA and ISLA) – London, 26 February (over 300 registrations and a waiting list)
- **Changed World Order**, Dublin, 1 April (AI panel)
- **WB and IMF Spring meetings**, Washington 22-25 April
- **Point Zero Forum**, Zurich, 5 – 7 May (SF/FT&D topics)
- **ICMA's Annual General Meeting (AGM)**, Frankfurt, 4 - 6 June (3 panels on our topic plus roundtable/stand)
- **Digital Assets**, London, 17 – 18 June

Upcoming Events – rest of this year

- **Copenhagen regional event (focus on AI)** – 01 October
- **Washington DC** - Digital assets and AI advancements: Shaping global capital markets together , 16 October
- **Open Source in Finance Forum (OSFF)**, New York, 24 October (CDM promotion through FINOS)
- **Hong Kong FinTech Week, 3 - 4 November & ICMA member event** in the margins
- **ICMA SF event – Conference of the Principles**, 6 November, Tokyo – FT&D roundtable in the margins
- **Singapore FinTech Festival, 12 – 14 November & ICMA member event** in the margins
- **Italian regional event** – 13 November
- **Brussels regional event (focused on FT&D)** – 26 November
- **London FinTech & Digitalisation Forum** - ICMA Flagship Event, London, 9th Dec

10. FT&D Education & Training

- ❑ In 2025, we will offer three courses on an open registration-basis in both in-person and livestreamed formats:
 - **Technology & Innovation in Financial Markets**
 - **Introduction to Digital Assets & Securities.**
 - **AI for the Debt Capital Markets**
- ❑ In addition to our open registration courses, we have [launched](#) with the National University of Singapore's Asian Institute of Digital Finance (NUS-AIDF) an AI Governance Executive Programme in Global Capital Markets.
- ❑ See further information on [ICMA Education](#), which covers the following areas in addition to financial technology:



Financial Market
Foundations



Debt Capital Markets



Fixed Income Trading
& Strategies



Financial Markets
Operations



Repo & Collateral



Sustainable Finance



Financial Technology



Dubai Programme

11. Technology Directories & Resources

Primary markets FinTech directory (over 45 solutions)

- Compares the key features and capabilities of technology solutions available to automate all or part of the process of issuing debt securities such as roadshow logistics, legal documentation creation, or book-building.

Electronic trading FinTech directory (over 50 trading platforms, OMS/EMS)

- A consolidated mapping of electronic trading solutions for cash bonds covering trading protocols, product scope, regulatory status as well as MIC and LEI codes where relevant, amongst others.

Repo trading FinTech directory (20 solutions and platforms)

- Covers electronic trading solutions for repo and outlines solution capabilities, including eligible participants, trading methods, clearing as well as collateral management configurations.

Operations FinTech directory (over 200 solutions)

- Compares the key features and capabilities of technology solutions available for repo and cash bond operations, split into 10 categories, including collateral management, intraday liquidity monitoring and reconciliations.

Tracker of new FinTech applications in bond markets

- Compendium of over 100 live transactions, proofs of concepts or announcements involving distributed ledger technology (DLT) or artificial intelligence (AI) / machine learning (ML) in primary, secondary, repo and collateral markets.

ICMA DLT regulatory directory

- Overview of DLT regulatory guidance, legislative initiatives, as well as related strategy papers and publications in selected jurisdictions across Europe, North America, and Asia-Pacific.

ICMA CSDR regulatory directory

- Technology solutions aimed at managing the requirements under CSDR Settlement Discipline. The initial focus is on solutions for managing cash penalties.

ICMA FinTech regulatory roadmap

- Highlights key FinTech regulatory, legislative and innovation initiatives at global and national level

Contacts & Resources



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Useful links:

FinTech & Digitalisation [Overview](#)

[Tracker of new FinTech applications](#)

[Bond Data Taxonomy](#)

[DLT Bonds Working Group](#)

[ICMA CDM Demo – Automating repo transactions](#) (April 2023)

[AI in Capital Markets Working Group](#)

[FinTech newsletter](#)

[Podcasts](#)

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