

CAPCO

NAVIGATING THE EU DLT PILOT REGIME AND ITS ALTERNATIVES

SELECTING REGULATORY SANDBOXES FOR DLT-BASED FINANCIAL SERVICES INNOVATIONS

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ABSTRACT

In this report we examine the EU DLT Pilot Regime and its challenges. We analyze why the EU DLT Pilot Regime shows a lack of adoption and provide a comparison with other regulatory sandboxes in the EU and globally. This offers guidance for financial institutions deciding between different regulatory frameworks for innovative projects in the DLT space.

Relevant decision criteria include target financial instruments, volumes and market size as well as project participants, project duration and project maturity level. There is no one-size-fits-all sandbox, as each offers advantages and disadvantages. Choosing the best suited regulatory regime for a planned project can contribute significantly to its success.

1. USING REGULATORY SANDBOXES TO DRIVE INNOVATION

Discussions about the general benefits of **distributed ledger technology (DLT)** in the financial sector are a thing of the past. The current consensus is that DLT is expected to serve as a central building block of the future financial system (BIS, 2024). By leveraging DLT, financial institutions can optimize processes such as transaction settlements and data management, leading to operational efficiencies, reduced counterparty risks and potentially lower transaction costs. The characteristics of DLT, such as unified ledgers, immutability, and real-time data access, also provide market participants with improved visibility into transactions and asset ownership, thereby introducing new levels of transparency. In addition, DLT facilitates innovative business models such as decentralized finance applications which could reshape traditional financial services. Overall, through the implementation of unified ledgers, there is a clear opportunity to modernize financial ecosystems and improve transaction efficiency via digital, interconnected financial systems (BIS, 2024).

On the way to this predicted future, **regulatory sandboxes** play a vital role in testing and prototyping DLT-based solutions, concepts and business ideas, and in achieving regulatory clarity for new ventures. Companies can use sandboxes to familiarize themselves with the supervisory system and improve their understanding of how financial regulations apply to their new business models (ESA, 2023). In these controlled settings, financial institutions also avoid stringent compliance requirements, thereby encouraging innovation leading to a faster time-to-market. For regulators, sandboxes provide a controlled environment to gather insights into the technology's capabilities, risks, and potential benefits. This knowledge can guide the development of regulatory frameworks, fostering safe innovation from within the financial system.

In this context, the **EU DLT Pilot Regime** was proposed to fuel innovation in the use of DLT in financial services. The Regime

entered into force on March 23, 2023 in the European Union. Its focus lies in facilitating the development and testing of DLT-based solutions in financial markets, particularly for trading, issuance, and settlement of financial instruments. The DLT Pilot Regime applies to digital financial instruments, such as shares, bonds and fund units that are issued, recorded, transferred, and stored using DLT. The main aim is to overcome limitations and gaps in existing regulations, such as the Central Securities Depositories Regulation (CSDR) or the Markets in Financial Instruments Regulation (MiFIR).

By establishing a regulatory framework for trading and settlement of tokenized financial instruments, the DLT Pilot Regime enables financial institutions to set up new infrastructures and allows them to experiment with these DLT-based solutions in a protected environment. This opportunity for controlled experiments also fosters the **communication and exchange** between the private sector and public institutions, which is a requirement for developing innovative solutions for a future financial system (BIS, 2024).

Although the DLT Pilot Regime is a crucial step in terms of a comprehensive regulatory framework, the financial services industry has not shown the anticipated level of interest. At the time of writing there are **no participants** within the initiative and only a small number of applications are currently under review. Market feedback so far points to a number of reasons for this lack of interest (Ross/ESMA, 2024).

This report examines the EU DLT Pilot Regime and analyzes the reasons behind the lackluster adoption. Furthermore, it analyzes and provides an overview of alternative regulatory sandbox options available for the development of DLT solutions. Overall, the report aims at supporting financial institutions in making informed decisions about which sandbox is most suitable for a given project.

2. OVERVIEW OF THE EU DLT PILOT REGIME

2.1 A Comprehensive Framework – Objectives and Scope

The **objectives** of the DLT Pilot Regime are the development of DLT market infrastructures for crypto assets while ensuring investor protection, market integrity, financial stability, and avoiding regulatory arbitrage and loopholes (ESMA, 2024). It aims to advance tokenized financial instruments by promoting DLT adoption in trading and post-trading. For these goals, the DLT Pilot Regime includes regulatory reliefs for specific financial instruments as well as DLT market infrastructures.

Financial instruments under the DLT Pilot Regime are defined as financial instruments according to MIFID II. These include:

- *Transferable securities* (e.g. securities, money-market instruments such as treasury bills, certificates of deposit and commercial paper)
- *Units in collective investments* (e.g. funds or trusts)
- *Derivatives* (e.g. options, futures, swaps, other derivatives)

These assets encompass both cash-settled and physically settled financial instruments.

From an infrastructure perspective, the DLT Pilot Regime includes assets traded on regulated markets, MTFs as well as OTFs (EU, 2014a). More specifically, the regulation refers to three **market infrastructures**:

- 1. DLT Multilateral Trading Facilities (DLT MTFs):** This type of infrastructure is operated by investment firms or market operators under MiFID II and MiFIR and enables the trading of financial securities among various market participants on a blockchain platform. DLT MTFs are multilateral trading facilities that exclusively admit DLT-based financial instruments for trading. Although there are existing trading platforms for crypto assets that operate on a multilateral basis such as Kraken or Binance, they typically focus on cryptocurrencies and do not trade digital assets qualifying as DLT financial instruments.
- 2. DLT Settlement Systems (DLT SS):** This type of infrastructure is operated by central securities depositories under CSDR. DLT SS handle the settlement of transactions in DLT-based financial instruments. They carry out the final transfer of the financial instrument on the underlying blockchain and handle the money transaction following the finalization (EC, 2020). They also facilitate the initial recording of DLT financial instruments during the issuance process and provide safekeeping services for these instruments.
- 3. DLT Trading and Settlement Systems (DLT TSS):** This type of infrastructure is operated by one of the entities mentioned above. Representing a novel concept, DLT TSS combine the functionalities of DLT MTFs and DLT SS, thereby uniting the trading venue and the settlement system in a single platform. In a DLT TSS financial instruments are traded and simultaneously settled on the blockchain (ESMA, 2022). This integration of trading and post-trading activities within a single entity is an innovation not covered by traditional regulations.

DLT Pilot Regime	DLT MTF	DLT SS	DLT TSS
Operator	Market operator, investment firm	CSD	Market operator, investment firm, CSD
Definition	A trading venue that operates a multilateral system to bring together buying and selling interests in financial instruments using DLT; aims to enhance efficiency in trading	A system facilitating the settlement of securities transactions using DLT; aims to enhance efficiency in settlement and custody activities	An integrated system that combines both trading and settlement processes on a distributed ledger platform; aims to efficiently integrate trading, settlement and custody services
Trading	Primary focus	Services do not cover trading	Combines trading and settlement
Settlement	May require external settlement	Direct settlement on DLT platform	Trading and direct settlement on DLT platform
Relevant regulatory framework	DLT Pilot Regime, MiCAR ¹ , MiFIR, MiFID II	DLT Pilot Regime, MiCAR, CSDR	DLT Pilot Regime, MiCAR, MiFIR, MiFID II, CSDR
Licenses required according to regulatory framework	License according to MiFID II to operate an MTF; License from BaFin or as of 2025 MiCAR to operate CAS (crypto asset services) ¹	License according to CSDR to operate an SS; License from BaFin or as of 2025 MiCAR to operate CAS (crypto asset services)	Licenses according to either MiFID II or CSDR; License from BaFin or as of 2025 MiCAR to operate CAS (crypto asset services)
DLT used for	Market trading, order matching, liquidity provision, trade transparency	Secure asset transfer, digital ledger, settlement finality, reconciliation	Trade execution, automated settlement, real-time transparency, integrated trading and settlement

Table 1. Different types of infrastructures under the DLT Pilot Regime

The DLT Pilot Regime allows interested financial institutions to apply for specific **permissions to operate** a DLT MTF, SS or TSS. The application must include a business plan, details about the DLT technology, and measures for investor protection and security. This application must be reviewed by the competent authority for completeness within 30 working days (for DLT MTFs) and 90 working days (for DLT SS and DLT TSS) of receiving the application, respectively. If any information is missing from the application, a new deadline will be set. Once the application is complete the competent authority will issue the final decision on the application within 90 working days.

Granted permissions are valid for six years and may be revoked if investor protection or market integrity is at risk.

Depending on the operator and the nature of the operations, various **regulatory exemptions** may apply. For example, the competent authority may exempt operators and participants of a DLT MTF or TSS from their obligations to report transactions according to MiFIR (EU, 2014b). CSDs operating a DLT SS or TSS may be exempted from measures to prevent and address settlement fails according to the Central Securities Depositories Regulation (CSDR) (EU, 2014c).

1. In the context of the market infrastructures under the DLT Pilot Regime, MiCAR can be the relevant regulatory framework to cover the cash-leg of trades.

Meanwhile CSDs may also request exemptions from the full capital buffer requirements typically imposed under Capital Requirements Regulation (CRR), as DLT infrastructures reduce certain risks associated with traditional settlement processes. This allows CSDs to operate with lower capital reserves. Additionally, investment firms and operators of a DLT TSS may also qualify for exemptions applicable to CSDs under the DLT Pilot Regime. These simplifications decrease the regulatory burden for operators to set up and operate their DLT-systems. Smaller potential providers, in particular, do not initially need to meet the significant hurdles of applying for a MiCAR license as long as they fall under the DLT Pilot Regime. Overall, the DLT Pilot Regime offers more flexible regulatory conditions tailored specifically to the development and testing of DLT-based solutions and involves less stringent capital requirements.

2.2 Room for Improvement – Current Challenges and Hurdles to Adoption

Although the DLT Pilot Regime offers several simplifications and regulatory reliefs, the financial services industry has not shown the anticipated level of interest in it. A recent analysis by ESMA's Chair for the EU Commissioner for Financial Services, Financial Stability, and CMU (Ross, 2024) noted that, at the time of writing, only four official applications had been submitted, with approximately eight more expected throughout the year. ESMA also urged the EU Commission to provide clarification on specific aspects of the Regime. Challenges that may hinder a wider adoption include various aspects of the DLT Pilot Regime.

First, a significant limitation affecting its attractiveness for participation is **volume limitations for permitted instruments** (Ross 2024). For shares, issuers must have a market capitalization of less than EUR 500 million. For bonds, the issue size must be less than EUR 1 billion, except for corporate bonds issued by companies with an initial market capitalization less than EUR 200 million. For investment funds, the market value of assets under management must be less than EUR 500 million. While these limits allow for small scale experiments, large financial institutions generally consider them as too low for developing major infrastructures. Volume limitations are therefore often cited as a major hurdle for participation (ESMA, 2024).

Second, the EU's DLT Pilot Regime allows participants to **settle transactions with digital money**, the issuance of which is currently restricted to credit institutions (Ross, 2024). This makes it necessary for participants in the EU DLT Pilot Regime to find partners that are able to handle the (digitalized) cash side of a trade involving tokenized assets. An alternative solution would be to relax the regulation and allow e-money institutions without a banking license to participate. Adding to this complexity of integrating the cash side of trades, there is a timing discrepancy between the launch of the DLT Pilot Regime and MiCAR, as MiCAR only came into force by July 1, 2024.

The third reason that potentially deters interested parties from participating in the DLT Pilot Regime is the risk that the initiative would **end after three years** (Ross 2024). By March 24, 2026, ESMA is required to submit a report to the EU Commission, on the basis of which the EU Commission will submit its own report to the EU Parliament and the European Council within three months, in which an extension of the DLT Pilot Regime for a further period of up to three years could be proposed.

As this short timeframe has been criticized, the European Commission has clarified in May 2024 that the EU DLT Pilot Regime has no expiration date (McGuinness, 2024).

“
Allow me to make it clear that there is no expiration date for the EU DLT Pilot Regime.”

Mairead McGuinness,
Commissioner for Financial Services, Financial Stability
and Capital Markets Union, European Commission

However, this is not always clearly communicated. For example, the landing page of the initiative (ESMA, 2024) still states “The DLT Pilot is set to run for a period of at least three years, with the possibility to be extended by the European Commission”. This perceived uncertainty about the timeframe of the initiative may deter potential participants, as involvement is costly and may not be worthwhile due to the short timeframe.

Fourth, the DLT Pilot Regime is technology-agnostic. This means that it enables the use of different DLT-based systems, which can lead to **interoperability issues** between these new DLT-based systems (Ross, 2024) as well as between the new DLT-based systems and legacy systems. As this challenge is becoming more apparent, several financial market participants in collaboration with leading technology providers, are actively developing interoperability platforms to counter the risk of fragmentation. Notable examples include the Regulated Liability Network² by Citi, Swift and SETL, and the blockchain-based clearing and settlement network³ offered by Partior, JPM, DBS and Standard Chartered.

Fifth, clarifications on various specific aspects are needed. For example, there exists some uncertainty with regards to **custody through self-hosted wallets** (Ross, 2024). In particular, the potential regulatory overlap with MiCAR or MiFID II needs to be

clarified. Additional clarifications regarding **investor protection (including the scope of DLT financial instruments) are also needed** (Ross, 2024). With regards to direct retail investor access to DLT market infrastructure, there is an overlap between the MiFID II and the DLT Pilot Regime, which needs to be clarified.

In addition to the results of the recent analysis by ESMA's Chair, another reason for the low acceptance of the EU-DLT Pilot Regime may lie in the **strict conditions for participation**, which may not be in line with the purpose of the initiative. It can be difficult to foster innovation in a sandbox if the participating DLT market infrastructure operators must comply with MiFID II and other financial regulations in advance. These regulations are complex and may prevent small innovative startups and fintech companies from participating in the EU DLT Pilot Regime despite their potentially high DLT expertise.

3. COMPARING ALTERNATIVES TO THE EU DLT PILOT REGIME

From a regulator's perspective, the hurdles for adoption described above raise concerns about the DLT Pilot Regime's "**competitiveness vis-à-vis third-country regime**" (Ross, 2024). However, from the perspective of a financial institution planning to experiment with DLT-based financial solutions, this has to be seen as a decision problem. From this perspective, this chapter aims to provide initial approaches for comparing sandboxes at the international level. The focus is on sandboxes that, like the DLT Pilot Regime, provide a regulatory framework for an environment to test the trading and settlement of digital financial instruments.

In general, sandboxes for financial services are usually difficult to compare due to a **lack of empirical data**. This can lead to a situation where potential users simply assume that sandboxes have similar characteristics and impact (McCarthy 2023). Only sufficient comparability between different international sandboxes will lead to their increased adoption (McCarthy, 2023). The aim of this report is to support financial institutions in assessing the suitability of different sandboxes for a particular project.

2. <https://regulatedliabilitynetwork.org/>

3. <https://www.partior.com/>

3.1 The European Blockchain Sandbox – An within the EU

The European Blockchain Sandbox (EBSI) is an alternative European initiative aimed at promoting innovation by facilitating blockchain and DLT (EC, 2023). Both EBSI and EU DLT Pilot Regime pursue comparable goals, operate within the European regulatory landscape, and aim to promote innovation within the EU by facilitating testing of blockchain and DLT-based solutions as well as fostering the collaboration with regulators. However, as can be seen from the table below, they differ in important dimensions such as their target groups and focus areas, among others. Overall, the initiatives are complementary rather than

competing. Where the DLT Pilot Regime focuses on financial markets, EBSI has a broader scope (EC, 2023).

“
The DLT Pilot Regime and the European Blockchain Sandbox are rather complementary than competing.
 ”

Alexander Neulinger,
 Researcher, ABC Research

	DLT Pilot Regime	European Blockchain Sandbox (EBSI)
Focus	DLT for issuance, trading, and settlement of tokenized financial instruments	Broader exploration of blockchain across various industries
Target participants	Authorized financial institutions (MTF-operators, CSDs, etc.)	Start-ups, established businesses, research institutions, public authorities, etc.
Benefits	Temporary regulatory relief, streamlined testing environment and regulatory dialogue	Supportive environment for testing and potential funding opportunities
Adoption	Launched in 2023; as of spring 2024 no successful application, yet	Launched 2023; maximum number of participants was reached in recent cohorts

Table 2. Comparison of EU's DLT Pilot Regime and the European Blockchain Sandbox (EBSI)

In addition to this general comparison, the DLT Pilot Regime and the European Blockchain Sandbox (EBSI) can be analyzed along several dimensions in order to evaluate their suitability for specific projects. In general, financial institutions should carefully

consider the below factors in conjunction with their project objectives and resource constraints when deciding on which sandbox to use.

Selected Comparison Factor	DLT Pilot Regime	European Blockchain Sandbox (EBSI)
Current project stage	Advanced projects with a clear focus	Projects in exploration stage considering different DLT options
Regulatory requirements	Strict regulatory requirements with temporary exemptions available; high regulatory clarity needed with regards to projects	Fewer regulatory requirements; initially, minimal regulatory clarity needed with regards to projects
Project partners/consortia	Suitable for collaborations among financial institutions only	Suitable for collaborations with non-financial institutions
Timeframe	Initiative initially designed for short-term; individual projects can exist for up to six years within the initiative	Initiative initially designed for long term; however, individual projects can exist for only one year

Table 3. Overview of selection criteria for EBSI versus DLT Pilot Regime

Regarding the **current project stage**, for projects in a more advanced phase, with a clear focus on a specific tokenized financial instrument and a chosen DLT solution, the DLT Pilot Regime is a better fit. Furthermore, the targeted focus of the DLT Pilot Regime and related regulatory reliefs can accelerate testing and provide valuable regulatory insights. In contrast, EBSI is suitable for projects in early phases, as its broader scope and less stringent regulatory requirements allow for greater flexibility. EBSI also allows experimentation on any blockchain infrastructure.

From the **regulatory requirements** perspective, applicants of the EU DLT Pilot Regime must meet strict regulatory requirements in advance. For example, they must be licensed financial institutions and comply with risk management measures. In exchange the sandbox not only allows for temporary exemptions, for example in relation to settlement finality, reporting requirements and recordkeeping of tokenized securities, but also fosters dialogue with regulators. This early involvement of regulators can contribute to achieving greater regulatory clarity for project developers. In contrast, EBSI is suitable for projects that initially focus on technical feasibility or proof-of-concept for tokenization, where compliance rules are less strict and regulatory clarity initially plays a subordinate role. During the project, its participants receive legal advice and build legal clarity and compliance with regulations.

Regarding the targeted **project partners/consortia**, the DLT Pilot Regime is specifically designed for authorized financial institutions, while EBSI is also suitable for collaborations with non-financial institutions.⁴

Regarding the **desired project timeframe**, the EU DLT Pilot Regime was originally intended to exist for only three years, while EBSI was designed as a sandbox with a longer lifespan. From a project perspective, the EU DLT Pilot Regime facilitates

a test environment in which certain regulations are temporarily suspended. This design aims to provide for a faster approval process for DLT-based financial instruments. Approved projects can last up to six years within the duration of the overall regime. In contrast, each year, projects from different applicants are included in EBSI as a cohort. The cohort and thus the project duration already end after one year.⁵ Within this time period EBSI allows for flexible project exploration of the respective use case.

While the EBSI sandbox is not specifically targeted at financial services, it has been successfully used to develop use cases in this sector. For example, Brickken PFP, S.L. is providing a comprehensive platform for digital assets that facilitate the tokenization of real-world assets, encompassing financial instruments such as debt, equity shares, and revenue streams. Another interesting use case is NYALA Digital Asset AG, which is issuing tokenized financial instruments on a digital asset platform.⁶

3.2 The UK Digital Securities Sandbox – A New Competitor

With the UK as the second largest European economic zone, and London as an internationally important financial center, the UK Digital Securities Sandbox (DSS) offers a potential alternative to EU-based DLT Pilot Regime for European financial institutions. The EU DLT Pilot Regime and UK's DSS have a similar scope and can be seen as competing initiatives.

The EU DLT Pilot Regime and the UK DSS also have a similar focus on digital financial instruments and similar requirements for applicants. The comparative dimensions and the characteristics of the two initiatives are summarized in the table on the next page.

4. Companies (including start-ups and scale-ups), non-profit organizations and public bodies with a validated proof of concept, see EC (2023).

5. <https://ec.europa.eu/digital-building-blocks/sites/display/EBSISANDCOLLAB/Frequently+Asked+Questions>

6. <https://ec.europa.eu/digital-building-blocks/sites/display/EBSISANDCOLLAB/European+Blockchain+Sandbox+announces+the+selected+projects+for+the+second+cohort>

Selected Comparison Factor	EU DLT Pilot Regime (ESMA, 2024)	Digital Securities Sandbox (DSS) (Bank of England, 2024)
Use case focus	Focus on trading and settlement of digital financial instruments	Focus on digital securities (shares and bonds), financial markets
Limitation in permitted instruments	Limitations of permitted financial instruments; ⁷ shares < EUR 500 million market cap of issuer; bonds < EUR 1 billion of value; ⁸ investment funds < EUR 500 million market value	Specific aggregated limitations throughout the DSS; activities of single digital security providers also limited but not (yet) specified; use case dependent limitations as required
Eligible applicants	Participants must adhere to strict financial regulations before applying; currently no active participants, four official and eight potential applicants (Ross, 2024)	UK established entities, intending to undertake trading and/or notary, settlement and maintenance activities; currently no active participants and 19 expressions of interest ⁹
Technology	Technology-neutral, as long as requirements for security, transparency, investor protection, etc. are met	Technology-neutral, as long as existing operational resilience requirements are met (same risk, same regulatory outcome)
Duration	Launched in 2023; sandbox duration - initially three years and later - "no expiration date"; individual project duration - up to six years within the duration of the regime ¹⁰	Launched in 2024; sandbox duration - five years; individual project duration - not specified (yet)

Table 4. Comparison of EU DLT Pilot Regime and UK DSS

In terms of the **use case focus and instruments permitted** for the sandboxes, the EU DLT Pilot Regime and the UK DSS share multiple similarities. Both initiatives aim to provide a regulatory framework for tokenized securities. Both are intended to enable the issuance, trading and settlement of digital instruments such as tokenized shares or bonds. However, the EU DLT Pilot Regime appears to have already defined the permitted instruments more precisely, while the UK DSS has not done so to the same extent, which could result in a higher flexibility regarding the permission of different instruments.

Limitations in permitted instruments are typically intended to reduce financial stability risks. In this regard, the EU and the UK follow different approaches, but are in different stages of regulatory specification. On the one hand, the EU's DLT Pilot Regime specified the restrictions for financial instruments issued on a single DLT infrastructure. For example, shares offered on a single infrastructure cannot exceed a market cap limit of EUR 500 million per issuer, bond issues are allowed for up to EUR 1 billion of nominal value and UCITS investment funds can be issued for up to EUR 500 million market value. On the other hand, the UK's DSS only specified an aggregated limit for all instruments throughout the whole sandbox. In addition, it is planned to have limitations for single digital security provider. However, these limitations are not specified yet.

7. <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX%3A32022R0858#d1e966-1-1>

8. "corporate bonds from issuers whose market capitalization did not exceed EUR 200 million at the time of their issuance are not subject to this threshold", see <https://www.esma.europa.eu/esmas-activities/digital-finance-and-innovation/dlt-pilot-regime>

9. https://assets.publishing.service.gov.uk/media/655c893ed03a8d001207fda1/M8298_Draft_response_to_DSS_consultation_final.pdf

10. <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX%3A32022R0858#d1e672-1-1>

Furthermore, the UK's DSS may limit the volumes of permitted tokenized financial instruments depending on the respective use case. Hence, the EU specifies individual infrastructure and instrument limitations, but is more flexible with the overall volume of permitted instruments within the sandbox. In contrast, the UK specifies the overall volume of permitted instruments within the DSS and is more flexible regarding individual instrument limitations. However, in the UK DSS uncertainties exist with regards to the potential use-case dependent limitation of individual instruments and the yet unspecified restrictions for individual infrastructures.

The EU DLT Pilot Regime and the UK DSS also have similarities in terms of **eligible applicants**. Both initiatives require an application and have stringent application requirements. The EU DLT Pilot Regime only admits financial institutions that meet strict financial requirements before the application. Applicants for the UK DSS must also meet various requirements for the multi-stage selection process, although these appear to be somewhat less stringent than those of the EU DLT Pilot Regime, as it refers to "investment firms" rather than financial institutions. In addition, it should be noted that the UK DSS restricts participants to "UK-based entities", which - although the financial sector in the UK is undoubtedly significant and large - limits the pool of potential participants and business partners and makes it more difficult to test cross-border use cases.

In contrast to the conditions of participation, both initiatives are open regarding the **technology** that may be used in the sandbox, as long as these technologies fulfill certain conditions and requirements. For example, the EU DLT Pilot Regime requires a minimum level of security features, transparency and investor protection. For the UK DSS, the resilience of the solution plays an important role.

Finally, there are slight differences with regards to the duration of the programs as well as projects within the program. The EU DLT Pilot Regime was launched in March 2023, while the UK DSS was only introduced in May 2024. From this start date, the UK DSS has a **program duration** of five years, and the EU DLT Pilot Regime was only supposed to run for three years with a possible extension. As this short timeframe has been criticized, the European Commission has subsequently clarified in May 2024 that the EU DLT Pilot Regime had no expiration date. In terms of **project duration**, under the EU DLT Pilot Regime,

projects can be approved for 12 months to six years and end at the latest when the overall initiative expires. The project duration for approved use cases under the UK DSS has not been determined at the time of writing.

3.3 Global Perspectives – Other International Blockchain Initiatives

For internationally operating financial institutions other jurisdictions offer additional regulatory frameworks for the testing of DLT-based financial solutions. In this section, we summarize efforts concerning DLT-based financial instruments in Abu Dhabi, Liechtenstein, Singapore, Switzerland and the USA.

Comparing the EU DLT Pilot Regime with selected countries, Singapore stands out with a broad sandbox that has already produced a flagship project on digital securities. Abu Dhabi also offers a broad sandbox and has comparatively flexible conditions for participation in order to promote projects at an early stage. Within Europe, Liechtenstein and Switzerland, as smaller markets, offer the most advanced regulatory frameworks, while larger European markets are still in the early stages of deploying their regulatory sandboxes. In our comparison, the US is the least advanced in terms of DLT-based financial instruments and related regulatory sandboxes and frameworks.

Abu Dhabi, UAE

The Financial Services Regulatory Authority (FSRA) provides the Abu Dhabi Global Market (ADGM) Regulatory Laboratory (RegLab) which focuses on Fintech innovations, potentially involving DLT in financial markets. A distinctive feature of the ADGM RegLab is that it is more open in terms of application requirements. It allows the participation of Fintech providers which are either having untested products or which are currently conducting research and development (R&D). In addition, applicants do not necessarily have to be based in the UAE. While the the scope of ADGM RegLab is broader than the EU's DLT Pilot Regime, it does not provide such a comprehensive framework with an explicit focus on DLT-based securities. The focus lies more on the testing of early-stage use cases involving digital financial instruments.

Liechtenstein

Although not offering a sandbox in the traditional sense, Liechtenstein should be considered for DLT-based solutions. While sandboxes such as the EU DLT Pilot Regime enable temporary exemptions, Liechtenstein offers a well-established regulatory framework with a permanent character. Tokenized assets are regulated under Tokens and TT Service Providers Law (TVTG) regulatory framework, which facilitates the use of DLT for securities issuance, trading and settlement. Generally, financial regulations are technology neutral and, hence, also apply for tokenized financial instruments in addition to TVTG.¹¹ Furthermore, Liechtenstein's regulatory framework applies to a broad range of tokenized assets and services.

Singapore

The Monetary Authority of Singapore (MAS) offers a sandbox program which is comparable to the EU DLT Pilot Regime and the UK DSS. Like the two European initiatives, Singapore's regulatory sandbox also establishes a controlled environment for testing DLT-based use cases in the securities markets. However, the scope of this sandbox is broader, facilitating a wider range of financial market use cases and the application requirements appear to be less strict.¹² The status of Singapore's sandbox is more advanced and already has flagship projects on digital securities and financial markets. An example of a company that offers DLT-based financial services and which has emerged from the Singapore sandbox is ADDX, formerly iSTOX.¹³ Through its investment platform, ADDX offers services for digital securities using blockchain-based financial transactions. The company emerged from the regulatory sandbox in Singapore in 2020 and closed a Series A financing round totaling USD 50 million in 2021. In the first two years after graduating from the sandbox, the transaction volume reached USD 150 million.¹⁴

Another lighthouse example that has emerged from Singapore's regulatory sandbox is BondbloX, which offers a fractionalized bond exchange using blockchain technology. It offers investors access to 10,000 corporate bonds and allows investments in fractional bonds with a minimum amount of \$1,000.¹⁵

Switzerland

Similar to Liechtenstein, Switzerland offers a permanent regulatory framework for use cases involving tokenized financial instruments. This framework takes the form of guidance documents issued by the Swiss Financial Market Supervisory Authority (FINMA), describing the requirements for DLT-based use cases. In this way, Switzerland pursues a pragmatic approach in which each DLT-based project is analyzed to determine whether it complies with existing regulations, such as the Guidance on Anti-Money Laundering (AML) and Counter-Terrorism Financing (CTF) for crypto assets. Additionally, the Swiss DLT Act introduced in 2021 provides a more concrete regulatory framework for tokenized assets. For example, the DLT Act more explicitly distinguishes between different types of tokenized assets, such as tokenized shares or bonds, and describes the requirements with which their issuers must comply.

USA

Currently, regulatory frameworks on tokenized securities are still under development in the US. The responsible authority is the Securities Exchange Commission (SEC). To issue tokenized securities, existing securities laws apply, and potential issuers must go through lengthy review procedures. Furthermore, there is no comparable sandbox providing temporary exemptions for use cases involving tokenized securities as in the EU. Nevertheless, developments in the US should be closely monitored due to the size and global importance of the market.

11. <https://bua.regierung.li/BuA/pdfshow.aspx?nr=54&year=2019>

12. <https://www.mas.gov.sg/development/fintech/regulatory-sandbox>

13. <https://addx.co/en/how-addx-works/index.html>

14. <https://www.straitstimes.com/business/banking/singapore-trading-platform-addx-expects-big-surge-in-transactions>

15. <https://bondblox.com/all-featured-articles/what-is-bondblox-how-it-works>

4. CHOOSING BETWEEN ALTERNATIVES

The EU DLT Pilot Regime provides a regulatory sandbox to test and facilitate the use of DLT-based financial instruments. Although benefits such as the testing of new technical infrastructures and market growth through innovative solutions are expected, the EU DLT Pilot Regime currently has no active participants. As outlined in this report, there are several reasons that can make participation unattractive for financial institutions. However, established financial institutions as well as fintech startups have several alternatives that can be used to test or implement DLT-based use cases.

Depending on the willingness and ability to engage with non-EU regulatory frameworks, different options are available. Within the EU, EBSI may offer an alternative to the DLT Pilot Regime. For financial institutions with a more global footprint, the UK DSS or Liechtenstein, Switzerland and Abu Dhabi sandboxes might offer interesting solutions.

There is no one-size-fits-all sandbox. Therefore, when choosing a sandbox, institutions must carefully weigh the use case, financial instruments involved and other criteria outlined in this report.

For example, the use case and its scope, the project status, and the project participants involved, are important dimensions to consider before choosing a sandbox. If the use case is general, the project status is early or the project partners are startups, EBSI may be a good choice. If the use case involves trading, issuance and settlement of financial instruments between established financial market participants, the EU DLT Pilot Regime or the UK DSS can be a better choice.

Those looking for an established sandbox with lighthouse projects should consider the sandbox available in Singapore. In terms of regulatory maturity, Liechtenstein and Switzerland are the most advanced, as they not only enable the testing but also the application of blockchain-based use cases in the financial sector. When it comes to participation requirements, Abu Dhabi's RegLab is favorable for fintech startups. In addition, this sandbox is also suitable for projects that are in the very early stages of development.

Regulatory sandboxes such as the EU DLT Pilot Regime allow for simplification of new and existing financial infrastructure operators in experimenting with and testing of DLT for financial instruments. Capco and ABC can support financial institutions with conceptualization, sandbox selection and implementation of the prioritized use cases.

REFERENCES

1. Bank of England (2024). Digital Securities Sandbox joint Bank of England and FCA consultation paper.
<https://www.bankofengland.co.uk/paper/2024/cp/digital-securities-sandbox-joint-bank-of-england-and-fca-consultation-paper>
2. <https://www.bis.org/bcbs/publ/d575.pdf>
3. BIS (2024). Finternet: the financial system for the future.
<https://www.bis.org/publ/work1178.htm>
4. EC (2020). Proposal for a regulation of the European Parliament and of the Council on a pilot regime for market infrastructures based on distributed ledger technology.
https://finance.ec.europa.eu/system/files/2020-10/200924-presentation-proposal-market-infrastructures-pilot-regime_en.pdf
5. EC (2023). European Blockchain Sandbox - Best practices report. 1st Cohort, Part A.
<https://ec.europa.eu/digital-building-blocks/sites/download/attachments/634979024/European%20Blockchain%20Sandbox%20-%20Best%20practices%20report%20-%20Part%20A%20-%20dec.%202023.pdf?version=2&modificationDate=1707389806964&api=v2>
6. ESA (2023). Update on the functioning of innovation facilitators – innovation hubs and regulatory sandboxes.
https://www.esma.europa.eu/sites/default/files/2023-12/ESA_2023_27_Joint_ESAs_Report_on_Innovation_Facilitators_2023.pdf
7. ESMA (2022). Report on the DLT Pilot Regime.
https://www.esma.europa.eu/sites/default/files/library/esma70-460-111_report_on_the_dlt_pilot_regime.pdf
8. ESMA (2024). DLT Pilot Regime. Website. Retrieved on July 9 2024.
<https://www.esma.europa.eu/esmas-activities/digital-finance-and-innovation/dlt-pilot-regime>
9. EU (2014a). DIRECTIVE 2014/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (recast) (Text with EEA relevance).
<https://eur-lex.europa.eu/eli/dir/2014/65/2023-03-23>
10. EU (2014b). REGULATION (EU) No 600/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 May 2014 on markets in financial instruments and amending Regulation (EU) No 648/2012 (Text with EEA relevance).
<https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32014R0600#d1e2631-84-1>
11. EU (2014c). REGULATION (EU) No 909/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 July 2014 on improving securities settlement in the European Union and on central securities depositories and amending Directives 98/26/EC and 2014/65/EU and Regulation (EU) No 236/2012
12. Financial Centre of Abu Dhabi (2024).
<https://www.adgm.com/setting-up/fintech/overview>
13. McCarthy, J. (2023). From childish things: the evolving sandbox approach in the EU's regulation of financial technology. *Law, Innovation and Technology*, 15(1), 1-24.
14. McGuinness (2024). Answer letter from Mairead McGuinness to Verena Ross.
https://www.esma.europa.eu/sites/default/files/2024-05/3056562_030524_Reply_Verena_Ross_on_DLT_Pilot_Regime_Implementation.pdf
15. Ross (2024). Letter of Verena Ross, ESMA's Chair, to Mairead McGuinness, the EU Commissioner for Financial Services, Financial Stability and CMU (DG-FISMA).
https://www.esma.europa.eu/sites/default/files/2024-04/ESMA75-117376770-460_DLT_Pilot_Regime_-_Letter_to_EU_Institutions.pdf

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ABOUT CAPCO

Capco, a Wipro company, is a global management and technology consultancy specializing in driving transformation in the energy and financial services industry. Our professionals combine innovative thinking with unrivalled industry knowledge to offer our clients consulting expertise, complex technology and package integration, transformation delivery, and managed services, to move their organizations forward. Through our collaborative and efficient approach, we help our clients successfully innovate, increase revenue, manage risk and regulatory change, reduce costs, and enhance controls. We specialize primarily in banking, capital markets, wealth and investment management, finance, risk & compliance, and insurance. We also have an energy consulting practice in the US. We serve our clients from offices in leading financial centers across the Americas, Europe, and Asia Pacific.

ABOUT ABC RESEARCH

The Austrian Blockchain Center (ABC), located in Vienna, is a COMET competence center with the mission to be Austria's first scientific contact point for blockchain and related technologies. Blockchain is a technology for secure cooperation between different participants with a wide range of use cases, not only as a digital currency, but also in industry, finance, energy, logistics, and public administration. ABC is an interdisciplinary and application-oriented research institution dedicated to all aspects of blockchain research. Technological, economic, and legal topics are the focus. Projects with a high practical relevance, which directly lead to innovations in the economy, are made possible by the experts of the ABC and its scientific partners - Austrian and international universities, universities of applied sciences and research institutions.



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