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# Secondary Markets for Security Tokens

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Anyone interested in creating markets for security tokens

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# 1 Introduction

Making illiquid assets tradeable is one of the great promises of having financial or non-financial assets represented by digital tokens issued on the blockchain (“security tokens” or “asset tokens” or “digital assets”). However, the restrictions imposed by current regulations make it difficult to create trading venues for security tokens. The lack of liquid secondary markets is among the most relevant factors why the growth and development of ecosystems for security token fell short of expectations so far.

An amendment to the Financial Market Infrastructure Act (FMIA), which is part of bill 19.074 to adjust Swiss law to the possibilities of distributed ledger technology (DLT)<sup>1</sup> and that has been adopted by the parliament on September 25, 2020 and is set to come into effect in the coming year, intends to introduce the DLT Trading System as a new license category for the trading of security tokens. While this step will indeed remove regulatory obstacles which have so far prevented establishing effective secondary markets for security tokens, it cannot be ignored that the requirements for operating a DLT Trading System will be similar to those of traditional exchanges. Soon it should become clear if and when a DLT Trading System will be open for business. Nevertheless, it is crucial to understand all alternatives available for enabling the trading of security tokens.

The purpose of this Circular is to provide an overview of regulated and unregulated schemes for enabling the open trading of security tokens under current and anticipated regulations in Switzerland. It is organized as follows: section 2 summarizes the Swiss regulatory framework for security exchanges before and after the currently pending changes. Section 3 describes less formal and decentralized setups that fall outside the scope of the aforementioned regulation. Section 4 provides a comment on the governance of securities markets, followed by an outlook in section 5. Finally, some examples for various types of exchanges are provided in an appendix.

Note that this Circular does not address the regulation of primary market offerings (e.g. the issuance and initial placement of new securities) which has been the subject matter of Circular 2019/01.<sup>2</sup> It is assumed that the respective requirements are complied with by the offerors in the secondary market. Also, issues in relation to trading systems licensed under foreign law, or operating from outside of Switzerland, and offering services to clients in Switzerland are outside of the scope of this Circular. A further interesting topic that we neglect for now is the question of which exchange and trading related activities are subject to anti-money laundering regulation and which are not. The latter might be added in a future revision of this circular.

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<sup>1</sup> <https://www.parlament.ch/de/ratsbetrieb/suche-curia-vista/geschaeft?AffairId=20190074>

<sup>2</sup> Circular 2019/01 Tokenized Equity, Swiss Blockchain Federation, <http://blockchainfederation.ch/wp-content/uploads/2019/12/SBF-Circular-2019-01-Tokenized-Equity-4.pdf>

## 2 Regulatory Framework (FMIA)

### 2.1 Regulatory Framework of 2016

Exchanges and other trading venues as well as the financial market infrastructure used for the clearing and settlement of transactions in transferable securities are regulated by the Financial Markets Infrastructure Act (FMIA) of 2016. In addition to the traditional “Exchange” (“Börse”), the FMIA, following the EU Markets in Financial Instruments Directive (MiFID II), introduced the Multilateral Trading Facility (“MTF”) as a new license category. Exchanges and MTF are jointly referred to by the FMIA as “Trading Venues” (“Handelsplatz”). With the exception of the process for admitting securities (only Exchanges have a formal listing process), the regulatory requirements for Exchanges and MTF are virtually identical. Both Exchanges and MTF are offering services for multilateral trading in transferable securities (“Effekten”). Their functionalities include the exchange of offers and the conclusion of contracts among participants based on non-discretionary rules. Non-discretionary rules means that all offers are matched exclusively in accordance with the MTF’s pre-defined rules.

FMIA also established a regulatory framework for alternative trading facilities, called Organized Trading Facility (“OTF”), following the MiFID terminology. OTF are permitted to offer services falling outside the scope of Exchanges and MTF. OTF are permitted to offer the trading of financial instruments which are not transferable securities and the trading of securities as long as it is done bilaterally or according to discretionary rules, similar to the Systematic Internalizer under MiFID II. Discretionary rules means that the operator of the OTF may exercise discretion on certain aspects, e.g. so-called “best execution”. Bilateral means that all users trade with the OTF as counterparty and not with each other. This is sometimes also referred to as a “dealer’s market”. OTFs do not qualify as Trading Venues under FMIA, but only banks, securities dealers, or operators of Trading Venues are permitted to operate an OTF. Also, it is currently not possible to apply for a securities dealer license with the sole purpose of running an OTF, but this restriction is about to fall with the upcoming legal adjustments.

FMIA also mandates a strict split between the different entities involved in securities trading, requiring separate licenses for Central Counterparties (“CCP”), Central Securities Depositories (“CSD”) and Securities Settlement Systems (“SSS”). Besides requiring a license from FINMA, the operation of each of these infrastructures is subject to additional oversight by Swiss National Bank if it qualifies as a systemically relevant infrastructure.

The following chart provides an overview of the current license categories and the functionalities they can offer:



	Name		Definition	Function	Examples
Pre-Trading and Trading	Trading Venue	Exchange (FMIA 26)	Multilateral trading in securities with listing	Exchange of offers + conclusion of contract according to non-discretionary rules	SWX Swiss Exchange  BX Swiss AG, SDX Trading AG (licence application submitted, but not yet granted)  (+ numerous foreign, stock exchanges recognised under FMIA 41)
		MHS/MTF (FMIA 26)	Multilateral trading in securities without listing		SIX Repo AG (+ numerous foreign MTFs recognised under FMIA 41)
	OTF (FMIA 42(a))		Multilateral trading in securities and financial instruments	Exchange of offers + conclusion of contract according to discretionary rules	OTX-X (BEKB), ZKB eKMU-X, Lienhardt & Partner
	OTF (FMIA 42(b))		Multilateral trading in financial instruments other than securities	Exchange of offers + conclusion of contract according to non-discretionary rules	
	OTF (Systematic Internalizer) (FMIA 42(c))		Bilateral trading in securities and financial instruments	Exchange of offers	
Post-trading	Central Counterparty (CCP, FMIA 48)		An entity which, based on common rules and procedures, acts between counterparties to a securities transaction or other contract for financial instruments, thus acting as buyer for each seller and as seller for each buyer.		SIX x.clear AG (+ 14 recognised foreign CCR, including LCH, LME, ICE and Eurex)

	Central Securities Depository (CSD, FMIA 61 II)		Centralised safekeeping of securities and other financial instruments based on common rules and procedures	SIX SIS AG  SIX Digital Exchange AG (license application submitted, but not yet granted)
	Securities Settlement System (SSS, FMIA 61 III)		Settlement and clearing of transactions in securities and other FIs based on common rules and procedures	(SECOM)  SIX Digital Exchange AG, (Licence application submitted; licence not yet granted)
	Payment System	Facilities which clear and settle payment obligations.		

There are several reasons why this regulatory framework has so far prevented the establishment of trading venues or systems where security tokens could be listed. First, the multilateral trading in transferable securities in accordance with non-discretionary rules is reserved to Exchanges and MTFs, and the regulatory requirements for these license categories are extremely high. More importantly, this framework is not always suitable for the DLT context. For example, the current regulatory framework for Trading Venues does not allow to admit non-financial institutions as trading members nor is it possible to offer trading and post-trading services on one single platform. The current regulatory framework therefore effectively prevents us from fully realizing the benefits and opportunities offered by DLT.

Markets for security tokens can also be organized as an OTF, but it would have to be structured as a bilateral dealer's market or the orders matched according to discretionary rules. Also, so far, it was not possible to apply for a securities dealer license with the sole purpose of running an OTF, a practice that is about to be corrected together with the other upcoming legal adjustments. In contrast, running an exchange for crypto currencies (which do not qualify as securities) has much lighter licensing requirements.

## 2.2 The new DLT Trading System

### Overview

The 2016 FMIA is designed to regulate large, established exchanges. It does not allow the creation of an integrated exchange. Also, it does not allow natural persons to directly trade on the exchange. Instead, it requires them to do so via a bank or a securities dealer. It also requires the exchange to be split up into several separate legal entities with the separate roles outlined in section 2.1, each of which requires its own license, capital and internal regulatory bodies. This makes it prohibitively costly for new market entrants to create a securities market from scratch.

To alleviate this problem, the FMIA is getting amended with a new license category “DLT Trading System” (see article 73a seq. FMIA). The DLT Trading System is an institution for the multilateral trading in DLT Securities. DLT securities are essentially security tokens, with their definition explicitly referencing the newly introduced “registered uncertificated securities” in accordance with article 973d seq. Code of Obligations (CO), but not being restricted to them. Like MTFs, DLT Trading Systems will be permitted to offer the multilateral trading of DLT securities (exchange of offers and conclusion of contracts) without formally listing them. Moreover, and unlike traditional Trading Venues, they can also offer one or more of the following: (i) admit non-financial institutions as participants, (ii) central custody services, or (iii) clearing and settlement transactions with DLT securities. The introduction of this new license category permits new market entrants to offer all services required for trading at once, without having to split them across several legal entities. Also, there are a number of regulatory alleviations for “small DLT trading systems”. The main characteristics of this new license category can be summarized as follows:

Name	Function	Definition
DLT Trading Systems (FMIA 73a)	<p>Institution for multilateral trade of DLT securities.</p> <p>DLT securities = Registered uncertified securities (CO 973d) or similar instruments (essentially security tokens).</p>	<p>Exchange of offers AND conclusion of contracts according to non-discretionary rules and at least one of the following:</p> <ul style="list-style-type: none"> <li>a Admission of NFI participants</li> <li>b Central depository of DLT securities</li> <li>c clearing and settlement of transactions with DLT securities</li> </ul>

## Requirements for a DLT Trading System

The regulatory requirements a DLT Trading System needs to fulfill are quite high and are modelled after those for Trading Venues. Specifically, a DLT Trading System has to comply with the same requirements as an Exchange or an MTF for organizing an orderly trading and in order to ensure transparency and to prevent market abuse. Like any Trading Venue it has to set up an independent body for supervising trading activities as well as an appeals body. Its main advantage in comparison to traditional Trading Venues is that it can offer all services required to conclude a trade at once, and therefore is more flexible in making use of new technologies and business models.

While there are very good reasons to require DLT Trading Systems to take the necessary steps to ensure fair and transparent trading practices and prevent market abuse, the resulting regulatory framework is quite burdensome. In order to lower market entry barriers, the act provides certain exemptions for “Small DLT Trading Systems” (Article 73f FMIA). Small DLT Trading Systems are systems with limited risks for market participants and the functionality and stability of financial markets, in particular because the trading, custody or settlement volume is limited. Exemptions are possible in relation to organizational requirements DLT Trading Systems have to comply with. Furthermore, there is an exemption for non-commercial DLT Trading Systems, which do not require a license at all.



The details for the regulatory requirements DLT Trading Systems have to observe as well as the thresholds for Small DLT Trading Systems will be regulated in the Financial Market Infrastructure Ordinance (FMIO). The Ordinance will be adopted by the Federal Council. A draft of the Ordinance is currently being prepared by the Federal Finance Ministry, and will be submitted to a consultation process in October 2020, providing us with an opportunity to update this circular.

## Central Depository and Settlement Services

The amendment to the FMIA provided by the DLT Act is relatively short and leaves a number of crucial questions open, including what qualifies a central depository or clearing and settlement service in the context of a DLT trading platform.

A Central Securities Depository (CSD) is normally understood to be an entity which holds transferable securities and other financial instruments in central custody based on uniform rules and procedures (see article 61(1) FMIA). The concept of central custody is quite incompatible with the basic structure of a DLT system where digital assets are issued and held on a decentralized system. According to the prevailing understanding, the term “central depository” refers to the storage of securities as a service for other exchanges or financial intermediaries. The central register is usually the one on which the securities have been issued. If the DLT Trading System operates such a central register (maybe using a proprietary blockchain), this register is a central securities depository. However, the storage of client assets alone does not make a trading system a “central depository” as long as the clients are free to withdraw their assets again from the exchange.

While trading refers to the agreement of two parties to purchase or sell securities, clearing and settlement are the steps of reconciling open balances, delivering the promised securities and making the according (net) payments “post trading”. Traditionally, trading and post-trading are provided by distinct systems operated by distinct legal entities. Also, there often is normally also a delay between trading and settlement, typically is two business days. This delay poses certain risks, which the regulation for clearing and settlement systems is trying to mitigate. An open question in this context is whether the instant execution of the trade in an atomic transaction still constitutes settlement in accordance with FMIA. In such a case, there is no open legal obligation between buyer and seller at any point in time. Consequently, there is no settlement risk and no point in applying the regulation designed to mitigate the settlement risk. Therefore, it is argued herein that an exchange with instant execution does not fall under the scope of FMIA article 73a para. 1 lit. c.<sup>3</sup>

## 3 Alternative Trading Systems

The following paragraphs discuss trading facilities which do not meet the definition of a marketplace or an OTF under FMIA (even after the amendments) and therefore do not require a license.

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<sup>3</sup> A computer scientist would probably refer to this type of instant execution as “atomic”. In an atomic transaction, the contractual agreement, the delivery of the traded security, and the payment are all made in a single, indivisible transaction such that it can be guaranteed that either all these three steps happen or none at all.



## 3.1 Decentralized Trading Systems

In the DLT Report 2018, the Federal Council made a distinction between decentralized and distributed (peer-to-peer) trading platforms.<sup>4</sup> While decentralized trading platforms may be subject to authorization as a trading venue or OTF, distributed trading platforms are not subject to authorization under Swiss regulations. However, the distinction between decentralized and distributed platforms is not explained further in the report, nor is it clarified by other legal sources. Herein, we assume that the defining characteristic is the degree of control the operator has over the traded assets.

Herein, we distinguish “distributed” and “decentralized” as follows: in distributed or peer-to-peer trading systems, transactions are performed directly between peers after they have found each other with the help of the system. This makes them similar to the bulletin board described in the subsequent section. The bulletin board also leaves the execution of the trade to the users and focuses on bringing buyers and sellers together. In contrast, a decentralized trading system might take possession of the traded assets or take other measures to ensure that the traders are committed to their offers. Thereby, the decentralized system goes beyond the mere informational matching between two peers, it assists and ensures the proper execution of a trade according to a set of rules. This set of rules is typically enforced by a smart contract. Unlike in peer-to-peer systems, decentralized trading systems typically do not allow users to choose who they trade against. Instead, they are automatically matched with the “best” trade.

From a legal perspective, the interesting question is: how much control does an organization need to have over a decentralized exchange to legally be considered “operating it” and therefore be subject to licensing requirements? Simply owning and maintaining the intellectual property (source code, trademark) is certainly not enough. Relevant criteria are probably the question of whether the alleged operator has discretion over deciding who can access the exchange, over which tokens can be traded, and over which orders are matched with each other. In any case, the operators should not have access to the traded funds, which is also the defining criterion with regards to money-laundering regulation. As long as none of these criteria are met, “operating” such an exchange is unlikely to fall into the scope of the FMIA.

## 3.2 Bulletin Board

FINMA has clarified in Circular 2018/1 "Organized Trading Facilities" that so-called bulletin boards do not qualify as an OTF (FINMA Circular 2018/1 N 9). Their operation is therefore not reserved to banks and securities houses. It has now also confirmed this legal interpretation in a number of no-action letters for security tokens. Bulletin boards allow buyers and sellers to advertise offers without matching any orders. The matching of the orders is left to the users who have to interact with each other directly in order to come to an agreement about a trade and execute it. (FINMA Circular 2018/1 N 9).

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<sup>4</sup> Federal Council, Legal basis for distributed ledger technology and blockchain in Switzerland: An interpretative regulation focusing on the financial sector, December 2018, p 106, <https://www.news.admin.ch/news/message/attachments/55150.pdf>

According to the Circular, the delimitation to the authorization requirement results from the following criteria which are constitutive for the OTF:

- the trading takes place in accordance with a set of rules which are uniform and binding for users,
- the contract is concluded within the scope of the regulations, and
- the initiative to trade comes or may come from the users.

Systems within which no contract is concluded are therefore not considered to be an OTF. In addition to the bulletin board, these include other facilities that merely bundle potential buying and selling interests and pass them on to the execution venue through the system (e.g. so-called order routing systems; electronic post-trade confirmation services; systems for portfolio compression and systems for indicative price indication). If an offer is made and the contract can be concluded by accepting the offer within the rules and regulations, a trading system exists. A request-for-quotas system is also considered to be an exchange of offers within the meaning of Art. 42 FMIA. Such a system can therefore qualify as a trading system (FINMA-Circ. 2018/1 N 9 f.).

### 3.3 Issuer Operated Market

While the issuance and repurchase of securities by the issuer are considered primary market activities and fall outside the scope of the FMIA, the regular trading with these securities constitutes a secondary market activity and organizing a market for such trading could require a license under FMIA. As it would be disproportionate to subject such issuer-operated markets to the licensing requirements of the DLT trading system, the latest version of the FMIA contains a provision to exempt DLT trading systems that are not commercially operated. What “non-commercial” means will more closely be defined in the Financial Market Infrastructure Ordinance, which was not published yet at the time of writing. Nonetheless, it is already possible to operate a small-scale secondary market today under certain circumstances.

### 3.4 Governance in Alternative Trading Systems

When operating alternative trading systems, it is crucially important in SBF’s view that the respective market participants take adequate steps to ensure market transparency and integrity and to avoid any kind of market abuse. This is true whether or not an alternative trading system is subject to regulation. Markets for crypto assets have long been plagued by opaqueness and various kinds of abuses. In order to avoid intrusive regulations, market participants are well advised to take adequate steps to ensure transparency and to prevent abuses.

Ensuring transparency first requires to provide explicit guidance to market participants and the public at large about a system’s facilities and functionalities. It also requires publishing on a regular basis the relevant information about trading volumes and prices. While Swiss insider trading laws are only applicable to securities traded on licensed exchanges, we nonetheless recommend to take measures to guard against the exploitation of insider information.

Any operator or sponsor wishing to set up an alternative trading system is called to carefully analyse the potential for abuse and take adequate steps to prevent those. FINMA’s Circular 2013/9 on Market Conduct rules provides a good starting point for this analysis, including a good overview

of possible abusive practices. Steps to prevent abusive practices include clear rules prohibitions of such practices and effective remedies including “naming and shaming” of offenders.

## 4 Market Making

Setting up an exchange does not automatically create a liquid secondary market. A market is considered liquid if spreads are narrow (i.e. the difference between the highest bid and the lowest ask price is small) and if it is possible to execute reasonably large orders with limited slippage (i.e. large trades should not move prices too much). A market naturally becomes liquid if at all times, there are large numbers of traders that want to buy and sell the traded security. However, for smaller securities, this is rarely the case. Here, the issuer often pays a professional market maker to make the market liquid. The market maker continuously posts and adjusts offers on both sides at a contractually agreed maximum spread, such that a potential trader always finds a counterparty he can sell to or buy from. For OTFs, the market maker and the operator of the exchange are often the same, typically a bank.

Legally, a market maker is a professional who trades in securities for his own account on a short-term basis and quotes prices for individual securities publicly, either continuously or on request (Art. 41 lit. c FinIA). Professional activity as a market maker in relation to financial instruments which qualify as transferable securities (“Effekten”) requires a licence as an investment firm (Art. 41 FinIA) or a bank (see article 6 para. 1 FinIA). No license is required for trading financial instruments that are not securities (e.g. payment tokens).

According to Art. 65 para. 6 Ordinance to FinIA, prices are quoted publicly if they are part of an offer directed to the public (Art. 3 lit. g and h FinSA). A public offer is made to the public if it is addressed to an “unlimited number of persons” (Art. 3 para. 7 Ordinance to FinSA). If the group of persons is limited, there is no public offering from the outset; the public offering of digital assets that qualify as securities is therefore not subject to approval. The quotation of prices that is exclusively directed at a limited circle of existing holders of a specific digital asset is not public. Offers made to financial institutions (banks, securities firms and other state-supervised institutions), shareholders with a qualified interest or persons with economic or family ties to them, as well as institutional investors with professional treasury operations, are also not considered public from the outset (Art. 65 para. 6 sentence 2 FINIV).

Licensing requirements under article 41 FinIA only apply if the market making activity is undertaken in a professional capacity (“gewerbsmässig”) and on a short-term basis (“kurzfristig”). Acting in a professional capacity requires an independent economic activity pursued on a permanent, for-profit basis (article 3 FinIA). This criterion is not met, and hence no licensing requirement applies, if market making is undertaken merely in an ancillary, supportive capacity and does not constitute an independent business line aimed at generating income on a regular basis. Market making is undertaken on a short-term basis if the market makers pursue an active management strategy in order to realize a profit from short-term variations in prices or interests. Lacking an active management of the position, providing liquidity to a uniswap-style liquidity pool therefore should not qualify as market making. However, professional traders still need a license if their trading volume with securities exceeds 5 billion Swiss Francs per year, regardless of whether they engage in market making or not.

Professional market makers must - by the nature of their business - have an inventory of all traded securities, requiring capital and exposing them to an inventory risk. Being a security house or a bank, the market makers also must adhere to the according capital requirements, making the market making activity costly.

An alternative approach is to let the issuer do the market making for its own securities. From an accounting perspective, this has the advantage that the inventory risk can disappear as capital gains and losses from trading own shares do not affect profits according to international accounting standards. However, in order to avoid conflicts of interest (e.g. managers selling their own shares at a high price back to the company), we strongly recommend to make all market making activities by the issuer fully transparent and to ideally let the market making be governed by an automated smart contract such that it is not prone to inside manipulation. When the market making is not aimed at generating an income, such a setup does not satisfy the “commercial basis”. Furthermore, uniswap-style liquidity provision cannot be considered “active management” in the traditional sense and therefore should not satisfy the “short-term” requirements of FinIA. Therefore, such informal market making should not require a license as a securities house or a bank.

However it should be noted that when the issuer buys back its own shares or other equity instruments, certain limits under corporate law apply. According to article 659 seq. CO, a company may acquire its own shares only if freely disposable capital is available. The holding must be supported by a corresponding reserve position (article 659a CO). The quota of shares which may be acquired is limited to 10% of the share capital; it is 20% if the acquisition is made as a result of transfer restrictions.

## 5 Conclusion

This circular reflects the state of the law and discussions as per September 2020. SBF expects that the changes to the legal framework will trigger a lot of developments. SBF will regularly update this Circular in order to keep track and hereby invites all readers to submit comments or information they deem useful.

# Appendix 1: Examples

The appendix provides a list of examples and their qualifications at time of writing.

## SIX Digital Exchange (Traditional License)

### Introduction

SDX is a wholly owned subsidiary of SIX group, and as such will be embedded in the regulated Swiss financial market and accessible through its members only – banks and securities firms supervised by FINMA. Issuers and investors can access the market through the SDX members. The network is permissioned, meaning that the participants' circle is closed and SDX controls who is allowed to enter it and what transactions can be executed.

### Integrated Digital Exchange

SDX is split into two legal entities, SIX Digital Exchange AG and SDX Trading AG, which are in the process of obtaining licenses from FINMA to operate a central securities depository and a stock exchange, respectively, within the meaning of the Swiss Financial Market Infrastructure Act (FinMIA). Both entities together intend to offer an integrated digital exchange solution for issuance, listing, trading, settlement, custody, and asset lifecycle management for tokenized securities.

### SDX Central Securities Depository

SDX CSD solution is based on Corda R3 with SDX running the main register for all digital assets issued on the network. Each member of the CSD network will be operating individual nodes within the network with the capacity to act as issuer agent for digital assets such as equities (listed equity as well as unlisted (private) shares) and bonds, custodian for the own account and clients, paying agent for issuers (cash dividends, interest, maturity payments etc.) and settlement agent (dvp,dfp). For settlement against payment SDX network members will be using digital swiss francs accessible via Swiss Interbank Clearing (SIC). Members will be able to access the CSD through an proprietary portal and/or via an ISO message gateway.

### Listing on SDX Trading AG

The listing process on SDX Trading AG will be analogous to listing on SIX Swiss Exchange, including the self-regulatory regime involving SIX Exchange Regulation (SER) in the admission of issuers to listing and monitoring their compliance with exchange rules. Listing on SDX Trading AG is initially intended for equities (incl. participation notes and convertible bonds) issued under swiss law respectively by swiss share companies and bonds, with potential for expansion over time. For these securities, the future applicable SDX Listing Rules (Kotierungsreglement) will be conceptually aligned with those of SIX Swiss Exchange. All existing recognized representatives for equities and bonds at SIX Swiss Exchange will also be eligible for SDX.

### Trading on SDX Trading AG

Access to the exchange trading system will take place via the established systems of SIX Group. Trading currency on SDX will be the digital swiss franc. Order matching is going to be auction based and the SDX trading system will be directly connected to the SDX DLT settlement layer: in case of matching, the matched order will be sent to the DLT layer of the CSD for "atomic settlement", by which the trading engine and the settlement layer are integrated to ensure that trade execution in the book and settlement in the ledger become part of one atomic transaction. As the term implies, the market model is designed to alleviate any delay caused by the interaction of the trading system with the settlement layer by considering it as integral to the trading process, thus avoiding the need for clearing services or central counterparties. As a result uncovered short-selling as well as insufficiently funded buys will not be possible on SDX. The SDX trading rules will enable direct market participants to provide liquidity in the market (liquidity provider).

## Sygnum Digital Asset Trading Facility (OTF) and BEKB Trading Facility

Sygnum announced that it has received regulatory clearance from FINMA for its digital asset trading facility (OTF). This is a central element of Sygnum's end-to-end tokenization offering, a regulated solution which covers the complete life-cycle of a security – from primary issuance, settlement, custody and now, secondary trading. Using Sygnum's digital asset trading facility, investors can broaden their investment opportunities and add diversification by trading previously non-accessible securities in a tokenized form, including equity, debt, and real estate. They also benefit from instant settlement via the Sygnum-issued digital CHF (DCHF), the flexibility of moving between fiat, DCHF and asset token positions in real-time, and bank-grade custody of their digital assets - all within one integrated platform.

Berner Kantonalbank (BEKB) is developing a technological infrastructure for issuing, trading and custody of digital assets. For companies, this makes access to the capital market and shareholder management easier and more efficient. BEKB's clients will also have access to new investment opportunities. BEKB is supported in the implementation of its project by Hypothekbank Lenzburg and daura AG. For transaction processing and custody of digital assets, it will use the Finstar Open Banking Digital Asset Platform of Hypothekbank Lenzburg. daura AG is responsible for the issuance of tokens and the digital share register. The technical integration of the modules in the different systems is done via an open interface architecture. The organized trading system is scheduled to go live in the first half of 2021.

## Mt. Pelerin Exchange (Decentralized Exchange)

Mt Pelerin deployed a smart contract into the Ethereum system that resides at address 0x38B7EC49EC1369209fB273fD7e21bFe9D159dC83 and represents a decentralized exchange. It's source code can be found on github.<sup>5</sup> Anyone skilled in the art can interact with this smart contract and use it to place orders for any pair of tokens that adhere to the ERC-20 standard. The contract is ownerless. The deployer (in this case Mt Pelerin) does not have any special privileges. Even though no one seems to use this contract, it in theory has the capability to function as an exchange, facilitating the trustless exchange between a buyer and a seller. When placing an order, the exchange takes possession over the offered tokens, pooling them with the tokens of other pending orders. There are only two ways to get the tokens out of the exchange again: first, anyone can accept the corresponding offer, thereby completing the trade. Second, the person who issued the order can also cancel it again, at which point in time the offered tokens are returned. Since there is no possibility for Mt Pelerin to interfere with any of this, this smart contract is a good example for a fully decentralized exchange.

## Uniswap (Decentralized Exchange)

Another example of a decentralized exchange is Uniswap ([www.uniswap.org](http://www.uniswap.org)), a protocol for automated token exchange on Ethereum launched in 2018. Uniswap describes itself as a simple smart contract interface for swapping ERC20 tokens. It has a formalized model for pooling liquidity reserves. It serves as an open-source frontend interface for traders and liquidity providers.

Uniswap smart contracts hold liquidity reserves of various tokens, and trades are executed directly against these reserves. Prices are set automatically using the constant product ( $x*y=k$ ) market maker mechanism, which keeps overall reserves in relative equilibrium. Reserves are pooled between a network of liquidity providers who supply the system with tokens in exchange for a proportional share of transaction fees.

An important feature of Uniswap is the utilization of a factory/registry contract that deploys a separate exchange contract for each ERC20 token. These exchange contracts each hold a reserve of ETH and their associated ERC20. This allows trades between the two based on relative supply. Exchange contracts are linked through the registry, allowing for direct ERC20 to ERC20 trades between any tokens using ETH as an intermediary.

According to our assessment, the owners of the domain uniswap.org would not be operating an exchange under Swiss law even if they were based in Switzerland. Even though they wrote the smart contracts behind uniswap and provide the most popular interface to access uniswap, anyone skilled in the art is free to access the underlying smart contracts directly without restrictions. Also, anyone is free to add new trading pairs, making this exchange fully decentralized. Furthermore, liquidity provision on uniswap should not qualify as market making under Swiss law due to a lack of active, short-term management of the pooled assets. A license would only be required if the volume of the traded security tokens attributable to a Swiss liquidity provider lifts that provider's total trading volume with securities above 5 billion Swiss Francs per year.

## daura (Bulletin Board)

daura owns and operates a digital share platform for corporate governance, financing and investing in Swiss SMEs, bringing together companies and investors. The platform encompasses a technology solution to tokenize traditional shares enabling documentation of shareholdings and transactions in shares in an innovative, cost efficient and transparent manner.

Daura will provide a bulletin board on its platform at some point in the future enabling investors to publish interests in offering or asking for shares in a company and to publish contact information. The contacting, communication, agreement and payment takes place outside of the daura platform, i.e. daura does not operate an exchange.

## quitt. (Issuer Operated Market)

The firm ServiceHunter AG runs the service quitt. and publicly offers its shares for sale as well as to buy them back through a smart contract that automatically adjusts prices depending on the number of shares sold (see [quitt.ch/investoren](http://quitt.ch/investoren)). Thereby, a small liquid market is created. Unlike with uniswap, the liquidity is provided by the firm itself and therefore all trades have the issuer as counterparty. Legally, this poses the questions of whether ServiceHunter AG runs a bilateral exchange that qualifies as OTF and whether the provision of liquidity constitutes market making. Both answers are "no". This offering is not considered an OTF as it lacks the typical set of rules of OTFs and it is not considered professional market-making as it is not done for profit. More information about the technology used by ServiceHunter AG is available from Aktionariat ([aktionariat.com](http://aktionariat.com)).

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<sup>5</sup> <https://github.com/MtPelerin/bridge-v2/blob/master/contracts/exchange/Exchange.sol>



## Flovtec (Market Making)

flovtec is a Swiss technology company that specializes in providing liquidity for digital assets. With a team combining the expertise of traditional financial markets, fully automated liquidity provision and some of the pioneers of the Swiss blockchain ecosystem, the company has built a technological infrastructure, which allows it to offer its services to any token and any digital asset exchange. flovtec provides liquidity off-balance sheet, through an asset management operating model that complies with the Swiss regulatory framework. The company was founded in May 2018 and has been deploying its technology & providing liquidity to the world's largest digital asset exchanges for over a year. Liquidity providers, sometimes also known as market makers, play a crucial role in any financial market. Their specialized infrastructure and algorithms make sure that there is an offer to buy and sell an asset on the market, at any given time. This is especially relevant in the digital asset space, where liquidity is still scarce, and large price jumps are the norm rather than the exception. Illiquid tokens quickly become very unattractive for investors, which is why both the exchanges and token issuers have a strong incentive to work with liquidity providers on the path to a more professional digital asset ecosystem.