

# Expanding market access for the world's largest market infrastructure

HKEX's unique Stock Connect program provides for international investment in mainland China's A-share market. Investor demand for Northbound trades into China continues to surge, with average daily turnover up more than 870% in the last four years. However, the rapid growth has started to strain operational workflows for international market participants, who must overcome difficult time zone challenges to complete same-day settlement.

**HKEX Synapse** delivers a solution: An integrated settlement-acceleration platform designed to improve post-trade efficiencies for Northbound Stock Connect participants. Leveraging Daml, Digital Asset's multi-party application framework, and through links to DTCC's Institutional Trade Processing services, Synapse allows international investors access into an automated, expedited process that lays the foundation for future innovation.

## The challenge

The disparity between Hong Kong's T+2 settlement cycle and mainland China's T+0 cycle gives investors only four hours to complete settlement. For European- and US-based investors, time zone challenges mean that operations teams are working through the night to support settlement.

A complicated, multi-party workflow between buy- and sell-side firms, each using different internal data models and technology stacks, creates an immense challenge for operational teams managing the surge in settlements. Identifying and troubleshooting breaks is difficult, manual, and time-consuming – adding cost and risk for all participants.

The core issue is that today, all information is processed sequentially, with each party only gaining visibility once they are instructed by the party before them in the chain. This inevitably creates a crunch for clearing members and local custodians who are responsible for submitting and matching final settlement instructions in the market.

As more indexes increase the relative weighting of China A-shares, investor interest in Stock Connect is only expected to rise. Ad hoc workarounds are no longer sufficient; a systemic solution is needed to support growth.

## The solution

HKEX chose Daml to provide real-time visibility to all affected parties for settlement, facilitating faster action and reducing risk across the multi-party workflow. Daml will drive enhanced, straight-through automation across participants as they integrate seamlessly into the smart contract environment.

Synapse eliminates sequential processes and offers a single source of truth. Automated trade confirmation and notifications accelerate securities settlement for all market participants and remove post-trade inefficiencies, increasing opportunity across the market.

For managers and investors, improved market access via Synapse not only opens investment options, but also allows them to scale by delivering more efficient operations.

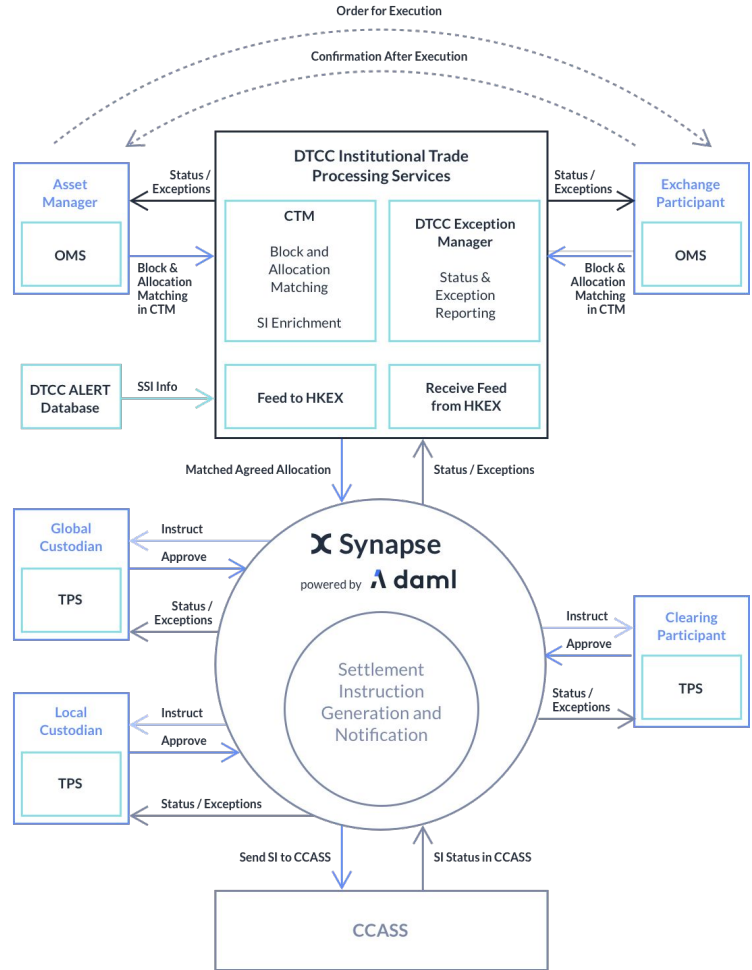
“**Synapse will be of major benefit to global investors when they trade through Northbound Stock Connect. Embracing new technology to further develop our markets is a cornerstone of our strategy.**”

**Charles Li, Chief Executive (2010-2020)**  
**Hong Kong Exchanges and Clearing Limited (HKEX)**

HKEX Synapse is driving market evolution, as legacy, sequential message-based approaches make way for a modern, concurrent and interconnected infrastructure.





Today, each participant to a transaction must enter, communicate, check and enrich data about the trade to match and reconcile it with counterparties before sending it to the next participant in the chain. With multiple entities--asset managers, brokers, custodians, clearinghouses, exchanges, and other intermediaries--this sequential process is cumbersome and ripe for errors.





With Synapse, once a broker executes the asset manager's order and the block trade allocation is completed, the matched allocation will be passed to Synapse where cross border trades will be centrally matched. Direct, simultaneous instruction to all participants speeds settlement and limits exception management, as questions or disputes can be identified and resolved more quickly.



HKEX Synapse will use **Daml's smart contracts** to automate, update and synchronize information for all participants in real time.

Upon launch, HKEX Synapse will extend Northbound Stock Connect's global reach via **DTCC's ITP services** and the CTM platform. CTM centrally matches cross-border and domestic transactions, allowing:

-  Settlement instructions and status updates are created simultaneously and shared with all parties along the settlement chain. Individual participants no longer need to send instructions bilaterally.
-  Concurrent processing significantly reduces settlement time.
-  Greater transparency and current data allow errors to be identified and exceptions managed more quickly.
-  Simplified integration with APIs, databases, networks and ledgers facilitates broad adoption.

-  Automation of the trade confirmation process.
-  Standardization to streamline transaction flows.
-  Seamless connectivity from trade execution to settlement.
-  Direct connectivity via FIX and SWIFT to front and middle offices and custodian banks.

### Benefits and next steps

HKEX Synapse is expected to begin testing in 2021 with a group of pilot users, with production deployment targeted for Q1 2022. Pilot users and the market can expect significant advantages, including:

- Reduced settlement fails and risk with simultaneous instruction capabilities.
- Fewer errors and greater auditability with transparent, timely data and a single source of truth.
- Additional trade capacity as operational complexity diminishes.

**Hong Kong Exchanges and Clearing Limited (HKEX)** is one of the world's major exchange groups, and operates a range of equity, commodity, fixed-income, and currency markets. HKEX is the world's leading IPO market and, as Hong Kong's only securities and derivatives exchange and sole operator of its clearing houses, is uniquely placed to offer regional and international investors access to Asia's most vibrant markets. HKEX is also the global leader in metals trading, through its wholly owned subsidiaries, The London Metal Exchange (LME), and LME Clear Limited. This commodity franchise was further enhanced in 2018 with the launch of Qianhai Mercantile Exchange (QME) in China. HKEX launched the pioneering Shanghai-Hong Kong Stock Connect program in 2014, further expanded with the launch of Shenzhen Connect in 2016, and the launch of Bond Connect in 2017. [www.hkexgroup.com](http://www.hkexgroup.com)

**Daml** is a smart contract language that simplifies multi-party workflows across your infrastructure, the cloud and multiple persistence layers. Used with traditional databases or with enterprise-scale distributed ledger technology (DLT), Daml helps solve complex business problems across internal businesses or with clients, partners, and vendors. It separates business logic from system code, providing a unique way to model and execute the interactions at the heart of the enterprise. By creating a layer that sits across multiple applications, Daml simplifies processes, drives efficiencies by combining common tasks, and creates a single source of data that can be used simultaneously across multiple applications. [www.daml.com](http://www.daml.com)

**DTCC Institutional Trade Processing (DTCC ITP)** is a business unit of The Depository Trust & Clearing Corporation (DTCC). DTCC ITP is the operations expert, automating post-trade life cycle events between 6,000 financial services firms in 52 countries. They enable clients to accelerate the clearing and settlement of trades, seamlessly connect and interoperate with their counterparties, and respond to changing market and regulatory conditions.

## Digital Asset

Digital Asset is a software and services provider that helps enterprises build economic value through interconnected networks. The company designs and delivers technology that reshapes legacy systems and workflows into efficient, secure, and interconnected applications. Daml, our core technology, is a platform for building multi-party applications. It extracts and simplifies business processes to make data accessible and optimizes workflows using smart contracts. Leading organizations across financial services, insurance and healthcare partner with Digital Asset to create new multi-party solutions that transform disparate silos into synchronized networks.

Learn more and view additional case studies at [digitalasset.com](http://digitalasset.com), or

-  Download the Daml Connect Community Edition and view our reference applications at <https://daml.com>
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-  Set up a call or meeting by contacting us at [sales@digitalasset.com](mailto:sales@digitalasset.com)