16th/ 17th Jan 2018

NEXT GENERATION POST-TRADE PLATFORM TOWN HALL

NextGen

Trevor Spanner
Group Chief Information Officer

Calvin Tai
Joint Chief Operating Officer

Richard Leung
Chief Technology Officer

AGENDA

1. NextGen Strategy
2. Risk Management and Operational Change
3. Technology Change
4. Next Steps
5. Q&A

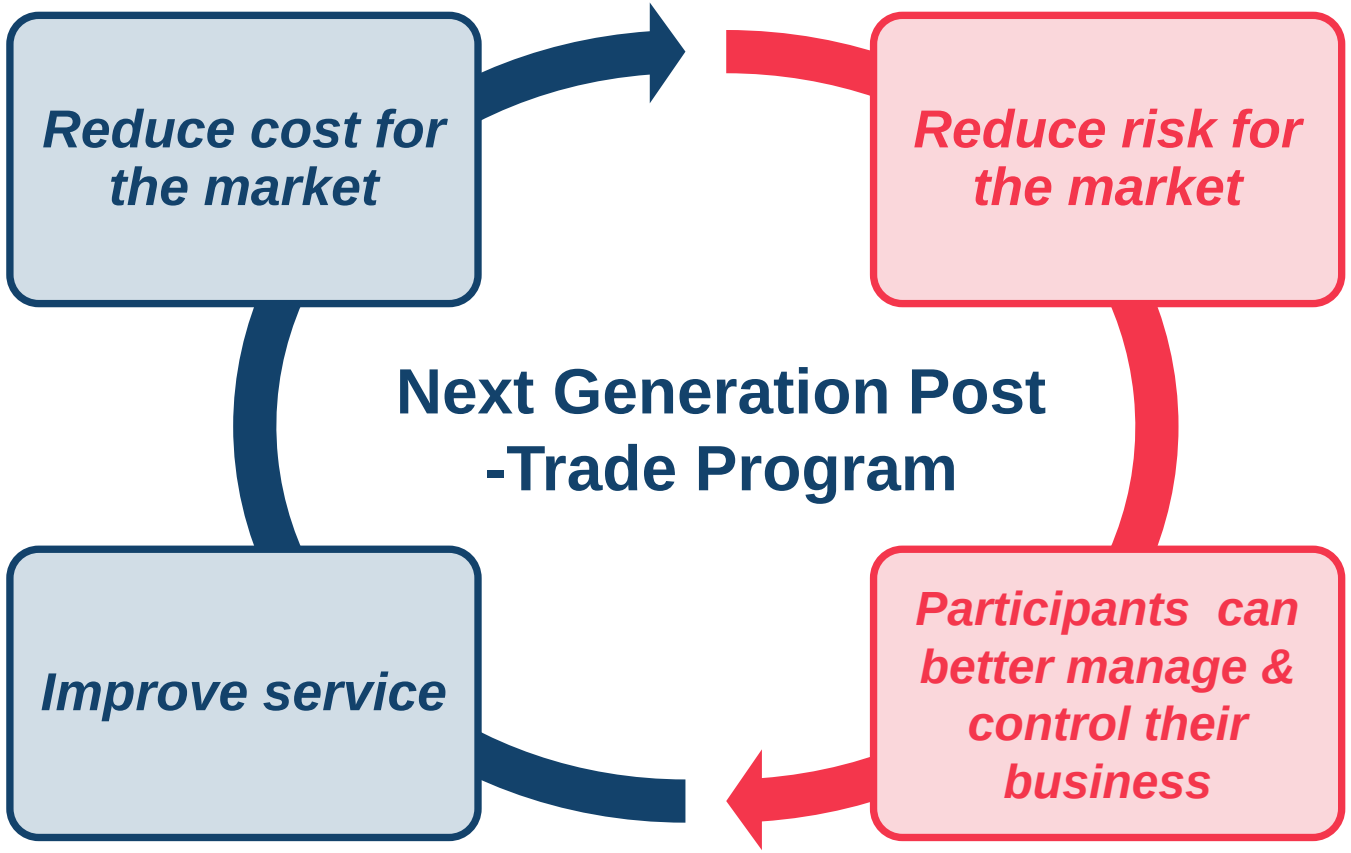
STRATEGY

HKEX
香港交易所

Trevor Spanner
Group Chief Information Officer

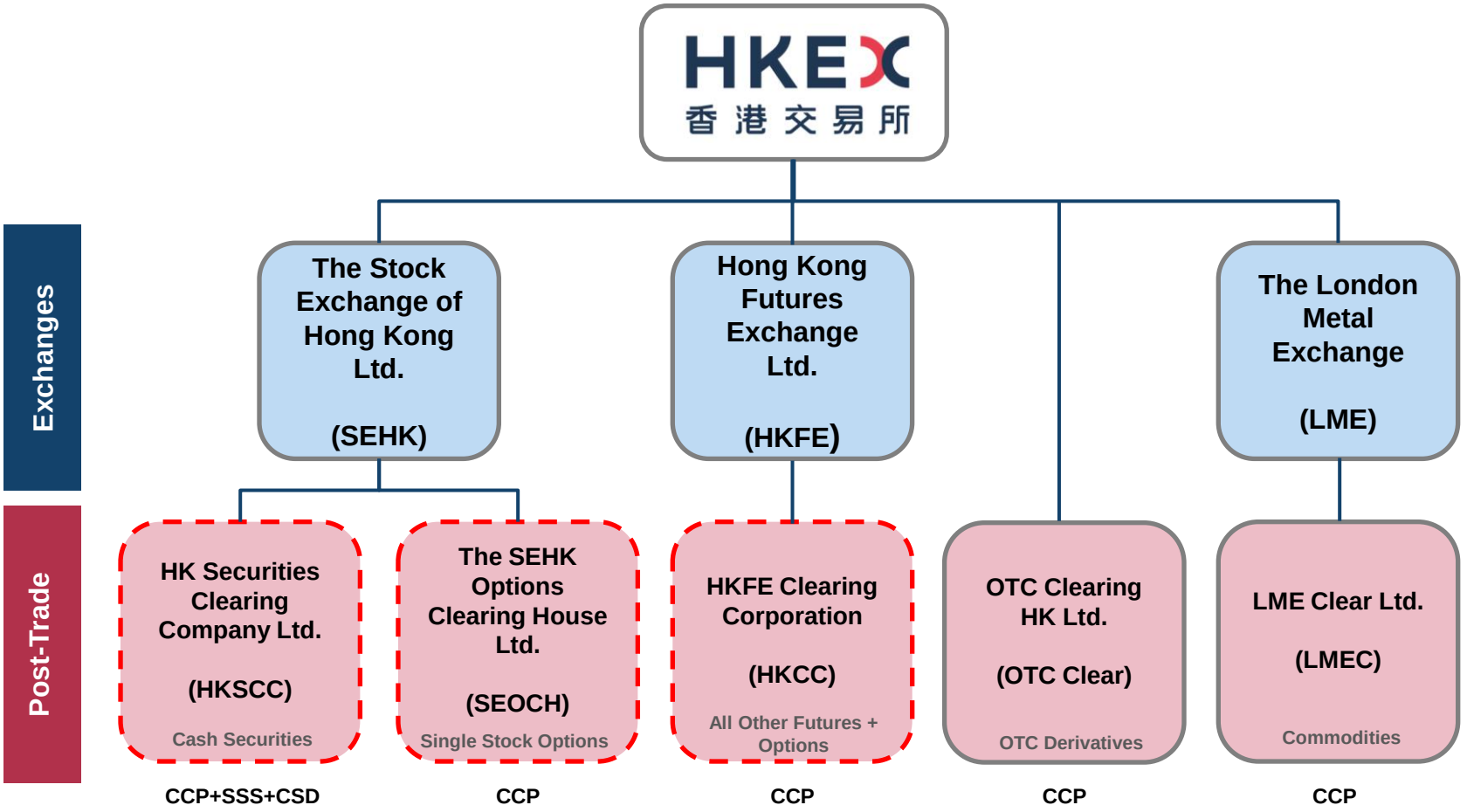
NextGen Key Drivers

Our drivers are simple:



Driven by new technology

NextGen Post Trade Scope



In scope for the NextGen Post-Trade Platform

Note:
(1) Lines indicate functional, rather than legal, relationships between entities.
(2) CCP: Central Counterparty ; SSS: Securities Settlement System ; CSD: Central Securities Depository

Key Objectives

Streamline and modernise our Post -Trade systems to maintain competitiveness

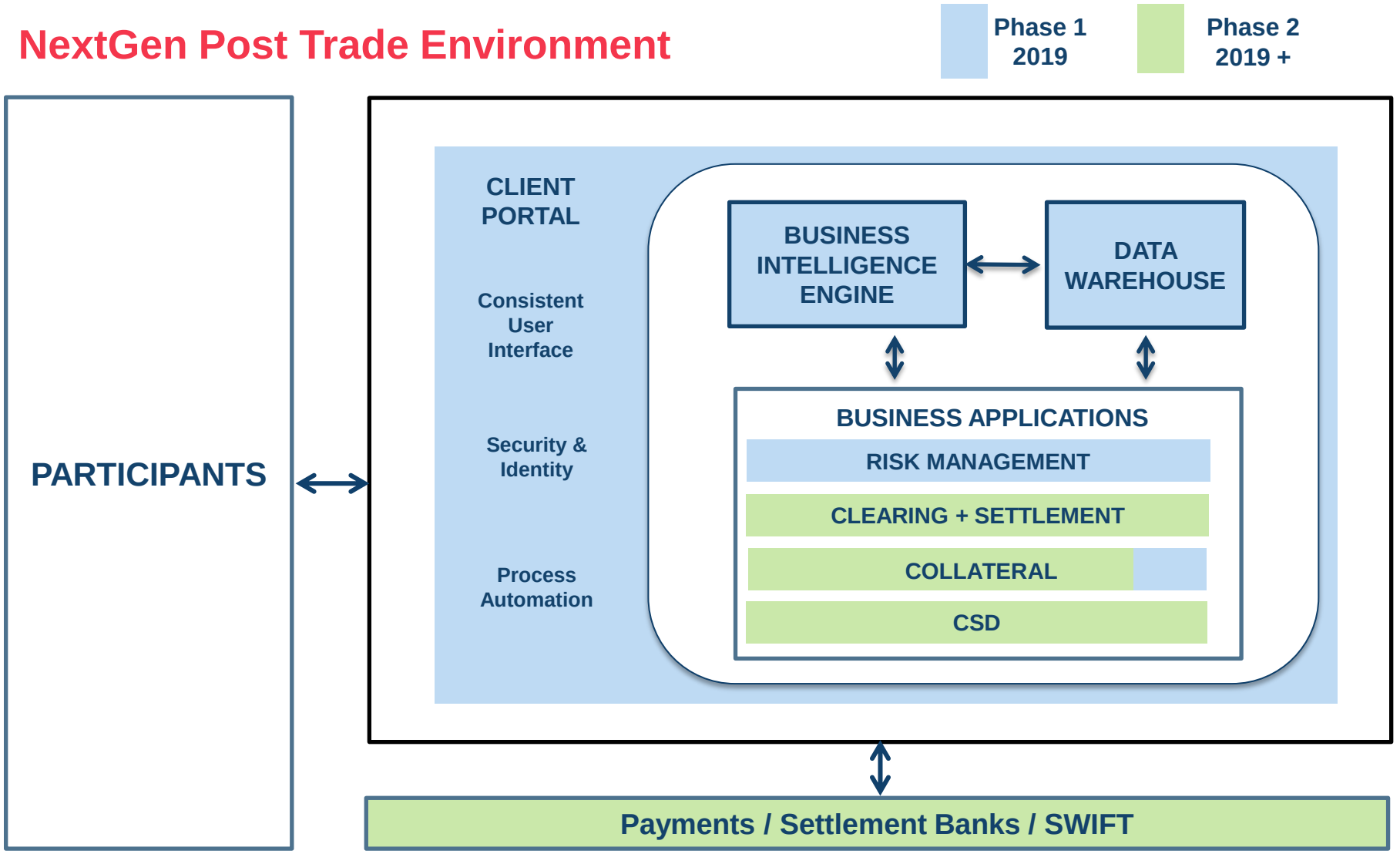
- **Holistic upgrade for HKEX's post-trade infrastructure**
  - Not just a technology refresh

- **Enhance HKEX's offering throughout the post trade value chain**
  - Enhance capital efficiencies for the market
  - Improve risk management capabilities
  - Agility to launch new products and services

- **Improve efficiency and resilience**
  - Process automation & improvements
  - Cost and risk reduction
  - Maintain compliance with international regulations

- **Prepare for the future**
  - Respond to an increasingly global regulatory environment
  - Greater integration with Mainland market infrastructure
  - Support future products and services

NextGen Post Trade Environment



Reduce cost and risk for the market as a whole, improve service and provide tools for Participants to better manage and control their businesses

NextGen 2018/19 Programme of Work – Four Areas of Focus

Implement a new single risk engine

- Introduction of revised risk models – VaR, starting with the securities market targeted for Q2 2019 *(subject to SFC discussions and detailed planning)*
- Followed by Listed Derivatives

Initiate underlying infrastructure foundations for the new platform

- Data Warehouse / Business Intelligence / Consolidated Reporting capabilities
- Client Portal (single client view into HKEX Post-trade) for Clearing Participants

Explore innovation through new technologies

- How Distributed Ledger Technology (DLT) could work within the HK market and integration with legacy technology
- Cloud adoption and leverage
- Data mining and analytics

Take business decisions that impact the market

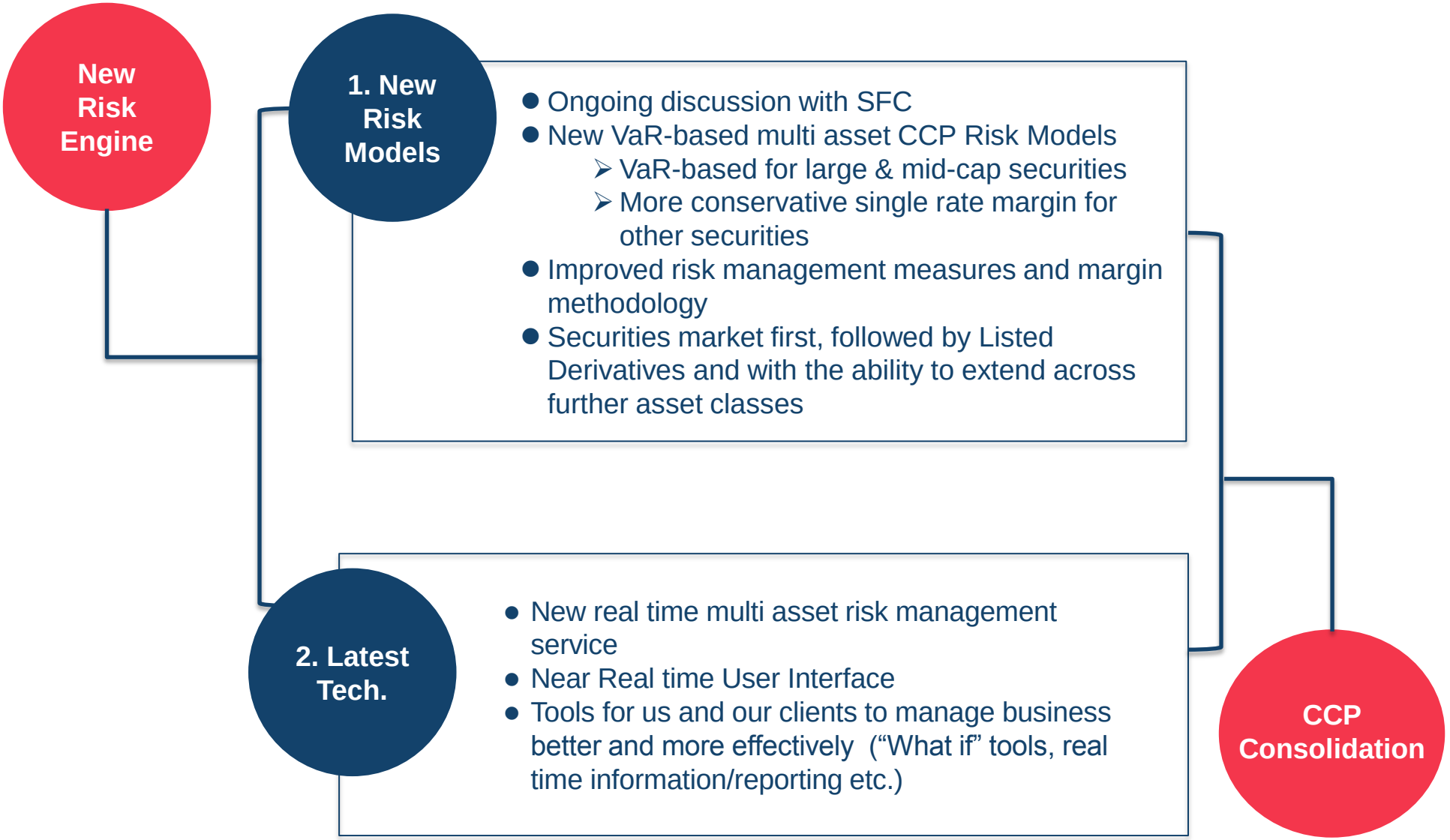
- Defining the appropriate clearing and settlement model/ USM (previously known as scripless)
- Determining the requirement and/or solutions for post-trade services

RISK / OPERATIONS

HKEX
香港交易所

Calvin Tai
Joint Chief Operating Officer

Multi Asset Single Risk Engine



New Risk Model – Overview of Changes

Current HKSCC Model

Single scenario to capture CP's risk exposure

- **Initial Margin:** single margin rate based on Hang Seng Index (HSI) applied to **all** securities
- **Stress Testing:** up and down scenario applied to **all** securities to generally cover systemic risk

Next Generation Risk Models

Multiple scenarios to capture CP's risk exposure

- **Initial Margin:** Better reflects exposure of different stocks positions and offers risk offset within the portfolio
- **Stress Testing:** Multiple product-specific scenarios applied to **each** security

Improved risk protection to market and higher margin efficiency to participants

New Single Risk Engine - Drivers

Robust and Efficient Risk Management Capabilities

- Support and better scale for additional products and services
- Near real-time monitoring, reporting and management of risks
- Portfolio margining within and across asset classes with NG Risk Models
- Support growing usage of non-cash collateral with enhanced risk management capabilities

1 Robustness & Resilience

- Strengthens robustness and resilience of CCP and markets

2 Risk-based Approach

- Initial Margin (IM) and Default Fund (DF) better reflect the portfolio risk of each CP
- Higher IM requirement for portfolios with higher risk; reinforces the “defaulter-pays” principle

3 Capital Efficiency

- Higher capital efficiency for CPs due to lower risk-based margin requirements → beneficial to competitiveness of Hong Kong financial market

4 International best practices

- Consistent with global practices
- Enhanced compliance with evolving international and regulatory standards

Provides better protection for HKEX and overall capital savings for the market

Core Components - Multi Asset Single Risk Engine

Near Real Time User Interface

- Allow users' to access the most up to date risk information

Tools to better manage your business

- Provide a more comprehensive picture of risk exposure

"What if" tool

- A simulation tool that helps predicts the outcome base on users' preference of inputs

CCP Consolidation - Key Drivers

1 COMPETITIVE POSITIONING
and making the model future-proof

- ***Modernizing current structure to support expansion and market growth***
- ***Capital & collateral efficiencies of CPs are key differentiators***

2 STRATEGIC TIMING/ OPPORTUNITY
to simplify current platform

- ***Launch of NextGen offers a prime strategic opportunity to implement a simplified structure***
- ***Aligning HKEX with international practices***

3 OPERATIONAL EFFICIENCIES
by removing duplicated functions

- ***Savings for market participants & HKEX***
- ***Better scale for Cover 2 [1] and/or higher ADT***
- ***Efficient use of liquidity resources***

4 DIRECT FINANCIAL SAVINGS
for HKEX and the market

- ***Reduce capital contributions by CPs and HKEX***
- ***Reduce reliance on bank financing***

1. Counterparty default assumptions:default of the two largest Participants

NEXTGEN COMMON SERVICES & TECHNOLOGY

HKEX 香港交易所

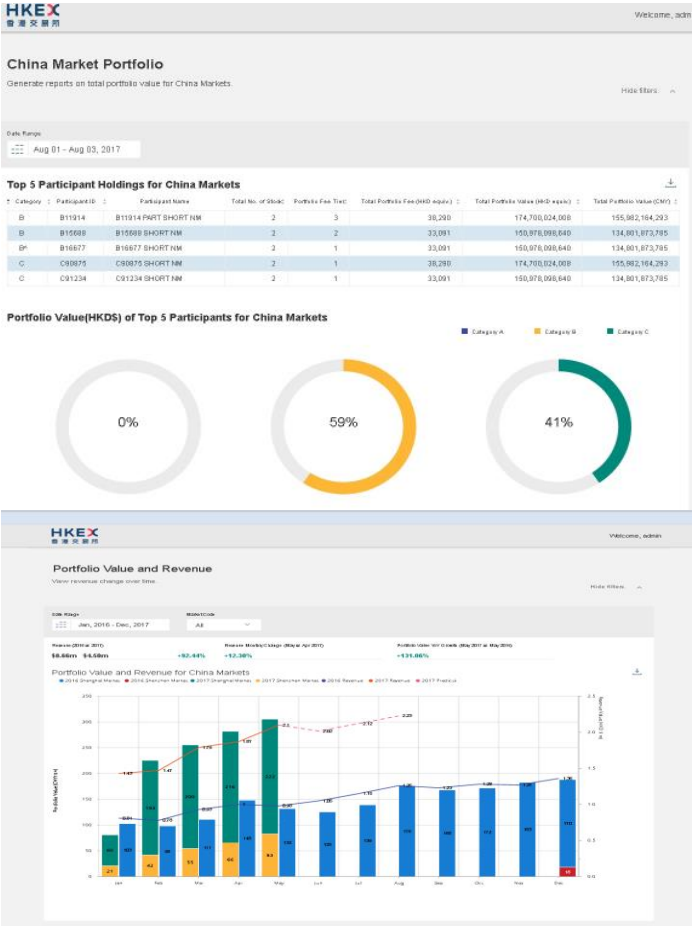
Richard Leung
Chief Technology Officer

Data Warehouse & Business Intelligence

Allows Clients and HKEX to better manage their businesses

- Provides business intelligence and analytics for clients and ourselves to gain insight into our market and performance
- Offers a Dashboard to collate and display data and reports, a full query analytical tool, and powerful reporting capabilities
- Automated, machine readable reports – CSV files etc.
- New tools and services to CPs such as interactive queries

Data Warehouse	- Centralized data repository - Interfacing capability with data sources (e.g. Legacy and new post trade systems including market data.
Business Intelligence	- Customizable dashboards - Interactive queries and analysis tool and associated visualizations in form of reports - Role based access control to functions and data
Services	- Data modelling, automated, machine readable reports - New tools and services to CPs and internal users, such as interactive queries



Client Portal

1. Web Portal

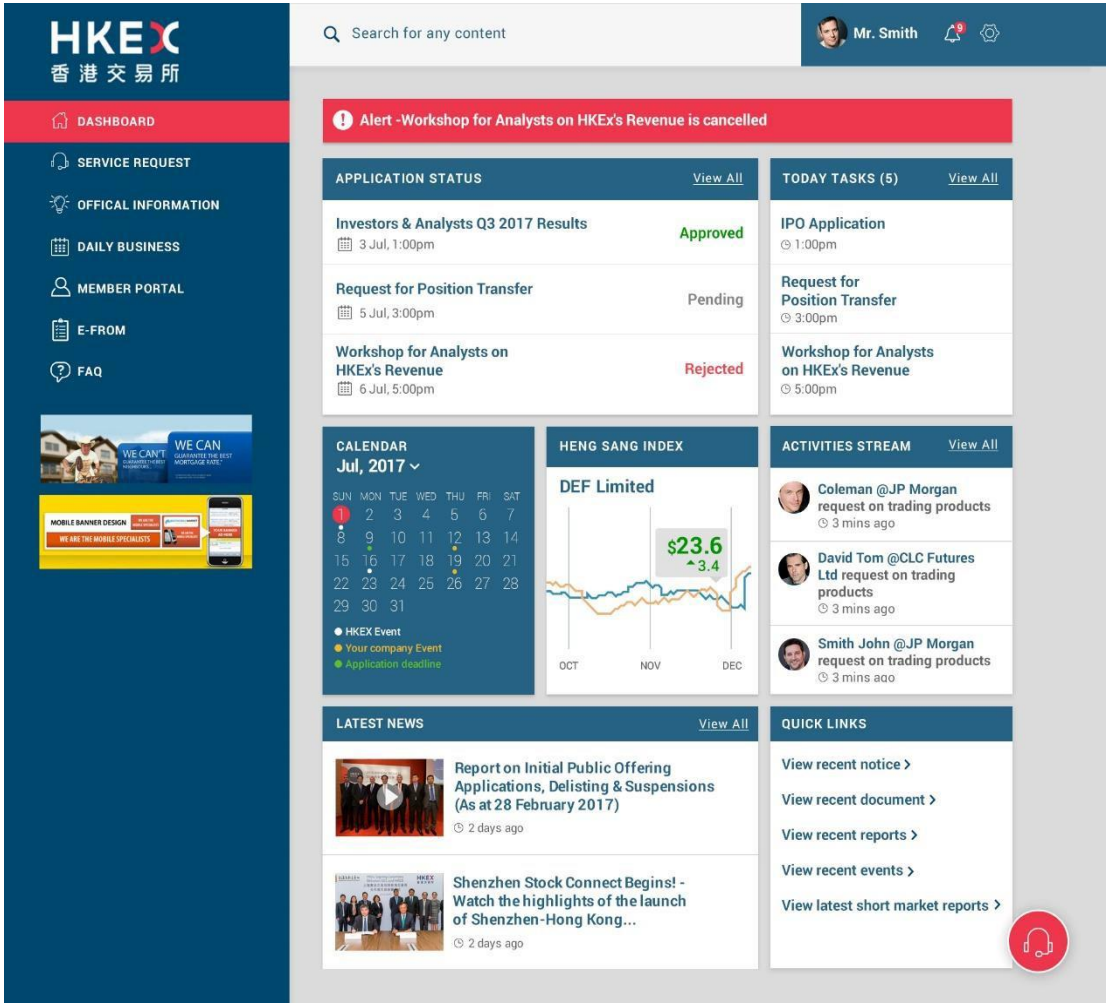
- Single entry point
- Customisable user dashboard
- Centralized alert and notifications
- Tailored HKEX News and Updates

2. Workflow Engine and e-Forms

- Automated communication
- Digitization of manual forms
- Simplified operations
- Streamlined processes

3. Identity and Access Management

- Enterprise-grade security
- Flexible and client-controlled user account structure
- Integration across NextGen applications
- Depth of knowledge of market



A secure, attractive and easy to use portal for all participants to access HKEX services.

Client Portal Phased Scope

Phase 1 | **Phase 2**

Users

Services

CPs

- Participant & account data maintenance
- SPSA application
- Declaration and confirmations
- Activity enrolment
- Technical setup application
- Service requests

ETF, Registrars

- Ad-hoc/ special CA instructions
- Securities transfer application with other CSDs.

Issuer Services

- Unify potential revenue generating issuer services under common interface
- Deep integration between Custodian/Broker processes and Issuers

New Applicants

- CCEP & CCCP application
- Targeted ‘wizard’ form selection
- Information at fingertips reducing errors and queries

CP System Vendors

- Project communication
- System materials
- Vendor requirements
- Declaration and confirmation (e.g. system readiness)

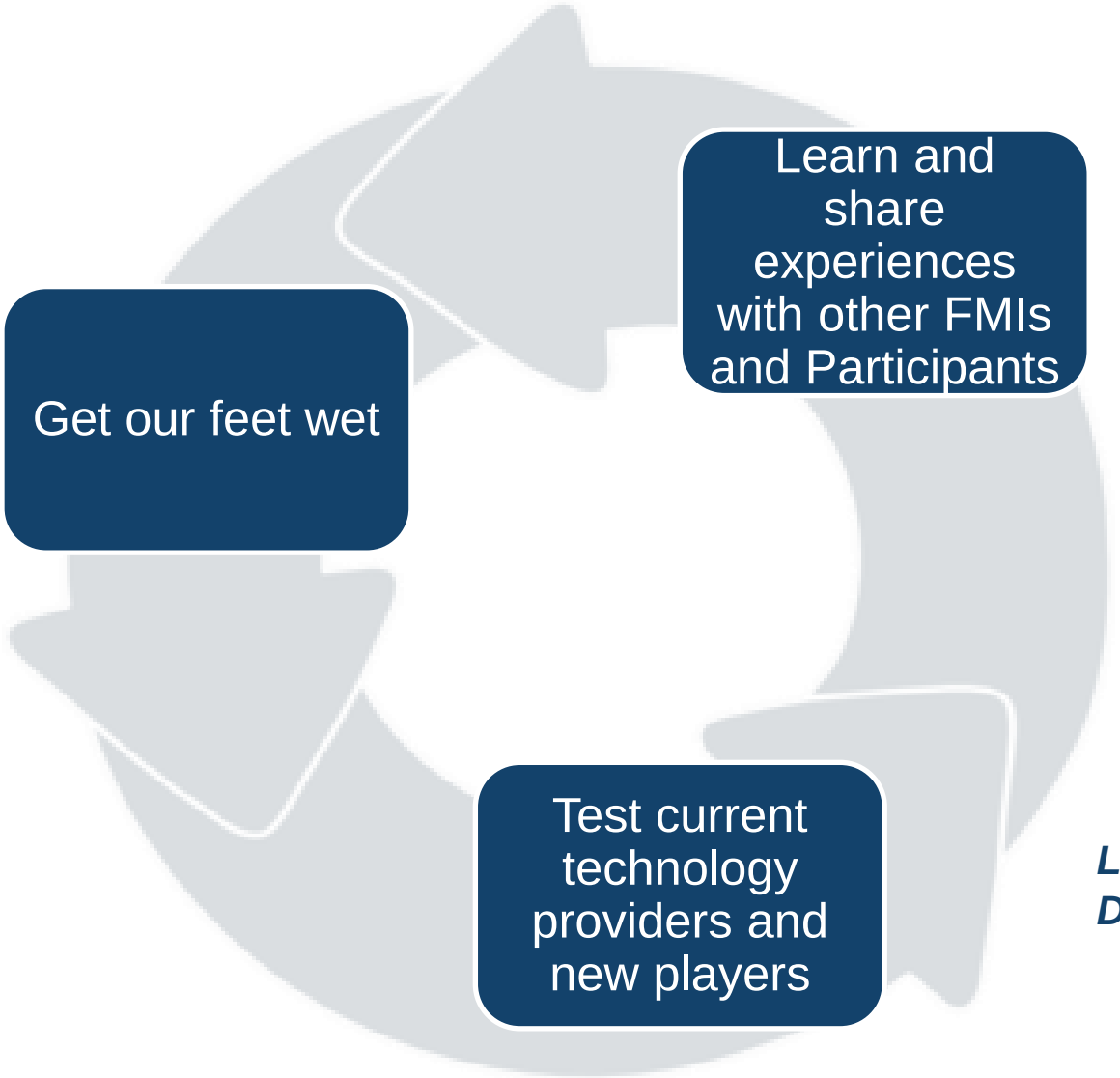
Unified Onboarding

- Single Interface to all CP & IP onboarding activities

Digitising over 90 individual forms in Phase 1

Transitional business services will be migrated back to their respective applications in the future.

HKEX DLT Strategy – Identifying Potential Value to Our Industry



Practical use cases applicable in our FMI space

Acquisition of DLT skills and expertise

Looking beyond the DLT powerpoints

NEXT STEPS

Trevor Spanner
Group Chief Information Officer

CP NextGen Operational / Technical Changes

New Risk Models VaR

- *VaR parameter file available via browser / Secure File Transfer (SFTP)*
- *Machine readable .csv or similar*
- *CP can use the file to calculate the portfolio margin*

Reports

- *Consolidated set of standard automated Clearing Reports – including risk and position reports*
- *Position and price reports will be provided at day-end*
- *Clearing Participants retrieve NextGen reports via Secure File Transfer (SFTP)*

Margin Simulation Tools

- *Several options and a combination of options can be offered to CPs*
- *Browser based / API / Parameter File* ***etc.…***

Next Steps

- Publish Project Plans and Key Milestones – Q1 2018

- Publish dates for all technical specifications – Q1 2018
    - Automated Reports specification
    - VaR Parameter File specification
    - Connectivity Specification
    - User Guides etc.

- Continue/ Initiate CP Working Groups as required, for e.g.:
    - Clearing Risk WG
    - Report Data Specification WG
    - Client Portal WG
    - NG Technical WG
    - USM Working Group

- Active engagement with Industry Bodies
    - Broker Associations
    - ASIFMA
    - FIA

Q & A

HKEX
香港交易所

DISCLAIMER

The information contained in this presentation is for general informational purposes only and does not constitute an offer, solicitation, invitation or recommendation to subscribe for or purchase any securities or other products or to provide any investment advice of any kind. This presentation is not directed at, and is not intended for distribution to or use by, any person or entity in any jurisdiction or country where such distribution or use would be contrary to law or regulation or which would subject Hong Kong Exchanges and Clearing Limited ("HKEX") to any registration requirement within such jurisdiction or country.

This presentation contains forward-looking statements which are based on the current expectations, estimates, projections, beliefs and assumptions of HKEX about the businesses and the markets in which it and its subsidiaries operate or aspires to operate in. These forward-looking statements are not guarantees of future performance and are subject to market risk, uncertainties and factors beyond the control of HKEX. Therefore, actual outcomes and returns may differ materially from the assumptions made and the statements contained in this presentation. The implementation of these initiatives is subject to a number of external factors, including government policy, regulatory approval, the behaviour of market participants, competitive developments and, where relevant, the identification of and successful entry into agreements with potential business partners. As such, there is no guarantee that the initiatives described herein will be implemented, or that they will be implemented in the form and timeframe described herein.

Although the information contained in this presentation is obtained or compiled from sources believed to be reliable, HKEX does not guarantee the accuracy, validity, timeliness or completeness of the information or data for any particular purpose, and shall not accept any responsibility for, or be liable for, errors, omissions or other inaccuracies in the information or for the consequences thereof. The information set out in this presentation is provided on an "as is" and "as available" basis and may be amended or changed. It is not a substitute for professional advice which takes account of your specific circumstances and nothing in this document constitutes legal advice. HKEX shall not be responsible or liable for any loss or damage, directly or indirectly, arising from the use of or reliance upon any information provided in this presentation.

16th/ 17th Jan 2018

NEXT GENERATION POST-TRADE PLATFORM TOWN HALL

NextGen

Trevor Spanner
Group Chief Information Officer

Calvin Tai
Joint Chief Operating Officer

Richard Leung
Chief Technology Officer