



**Financial Services Infrastructure
Architectures in China
(One Country, Two Systems)**

Putting China's Capital Markets into Perspective

1848 – Chicago Board of Trade Futures Exchange

1911- 92 Years Ago – Dynastic Rule Overthrown

1911-1949 - 39 Years of Turmoil & Civil War

**1949-1976 – 27 Years Consolidation of Revolution,
Ideological Struggles, Bureaucratic
In-fighting**

**1976-1990 14 Years Consolidation of Reforms &
Opening Up Economy/Society to World**

**1990 13 Years Ago – First Capital Market Open
in China since 1949 (41 years hiatus)**

Since 1990

40 Exchanges to 5 (2 Equities, 3 Commodity)

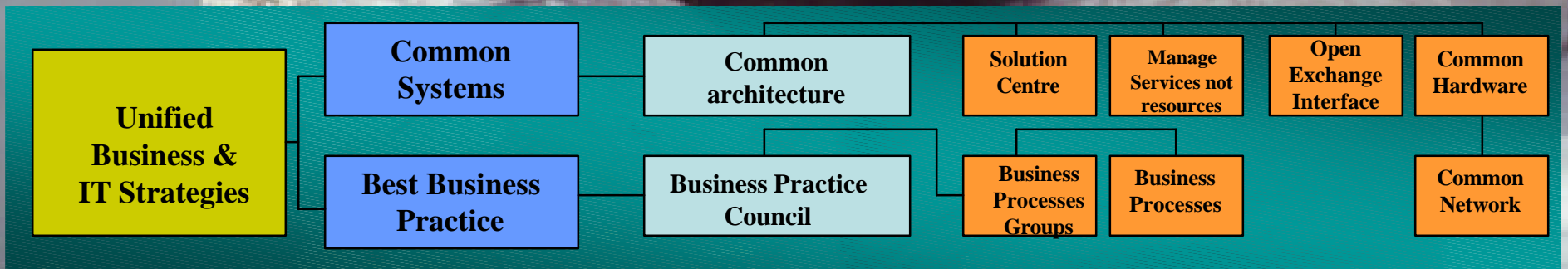
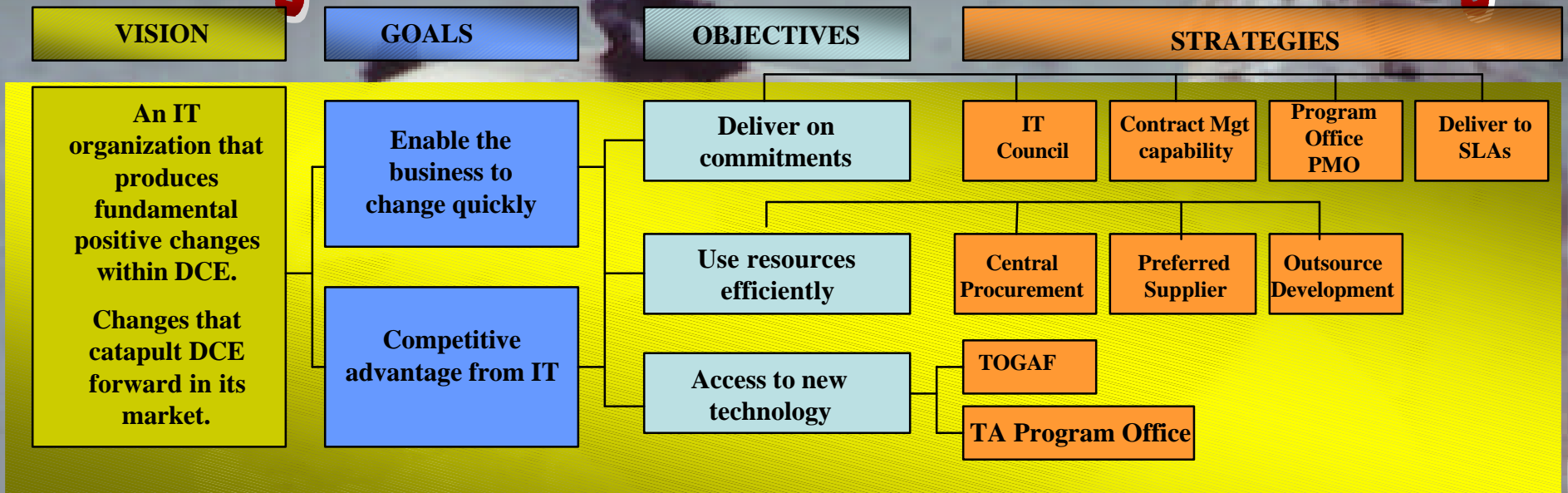
Futures Contracts Forbidden to Trade:

**Oil, Bonds, Sugar, Steel, Coal, Gasoline, Diesel,
Cotton, FX, Index-linked, Coffee, Rice, Plywood.**

**Poor Regulatory, Enforcement, Transparency,
Price Discovery, Liquidity**

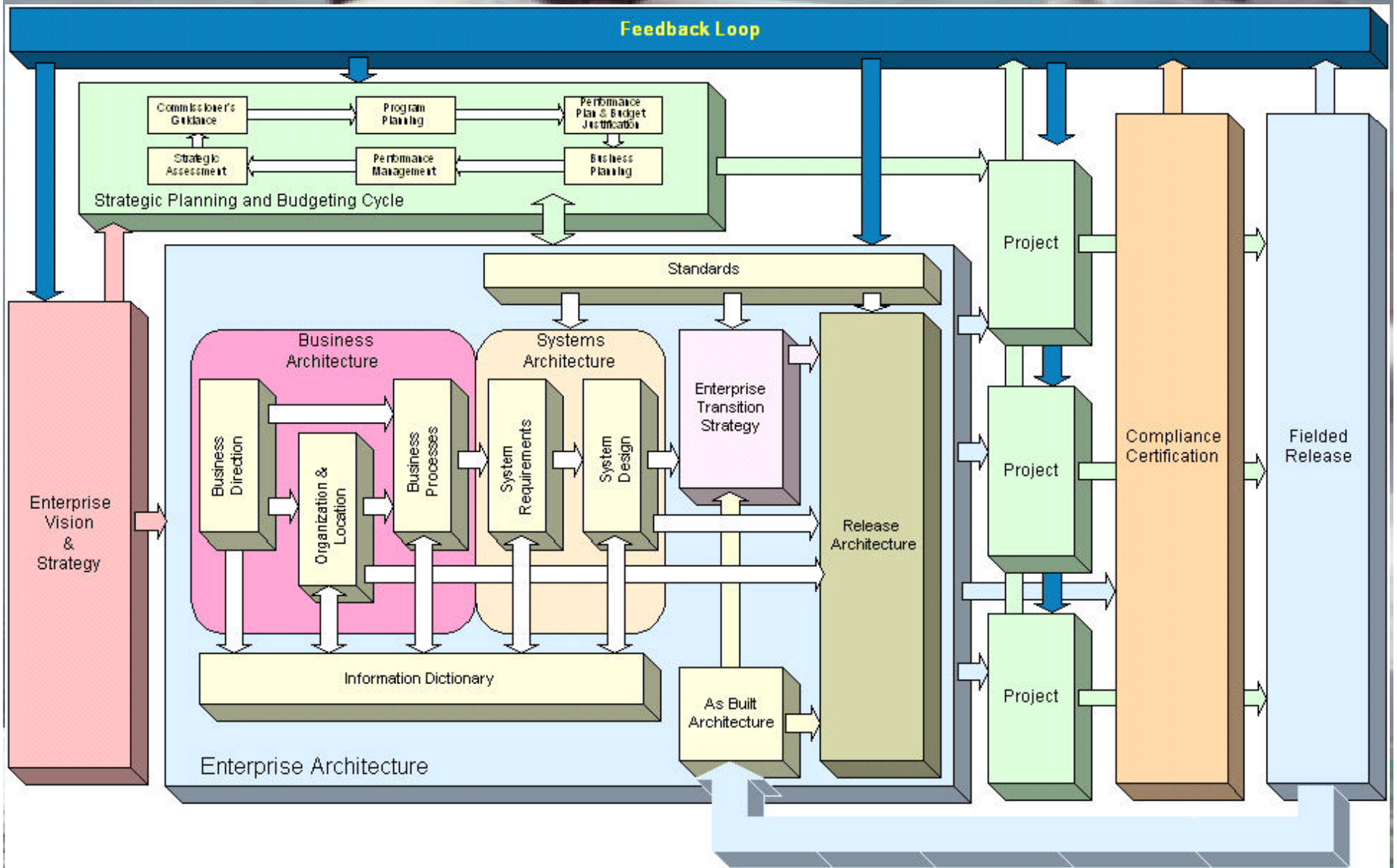
**Crude Risk Controls, Fragmentation of
Clearing, Counter-Party Risk, New Product
Introduction, Concentration of Players**

Bearing with the Burden...of Architecting



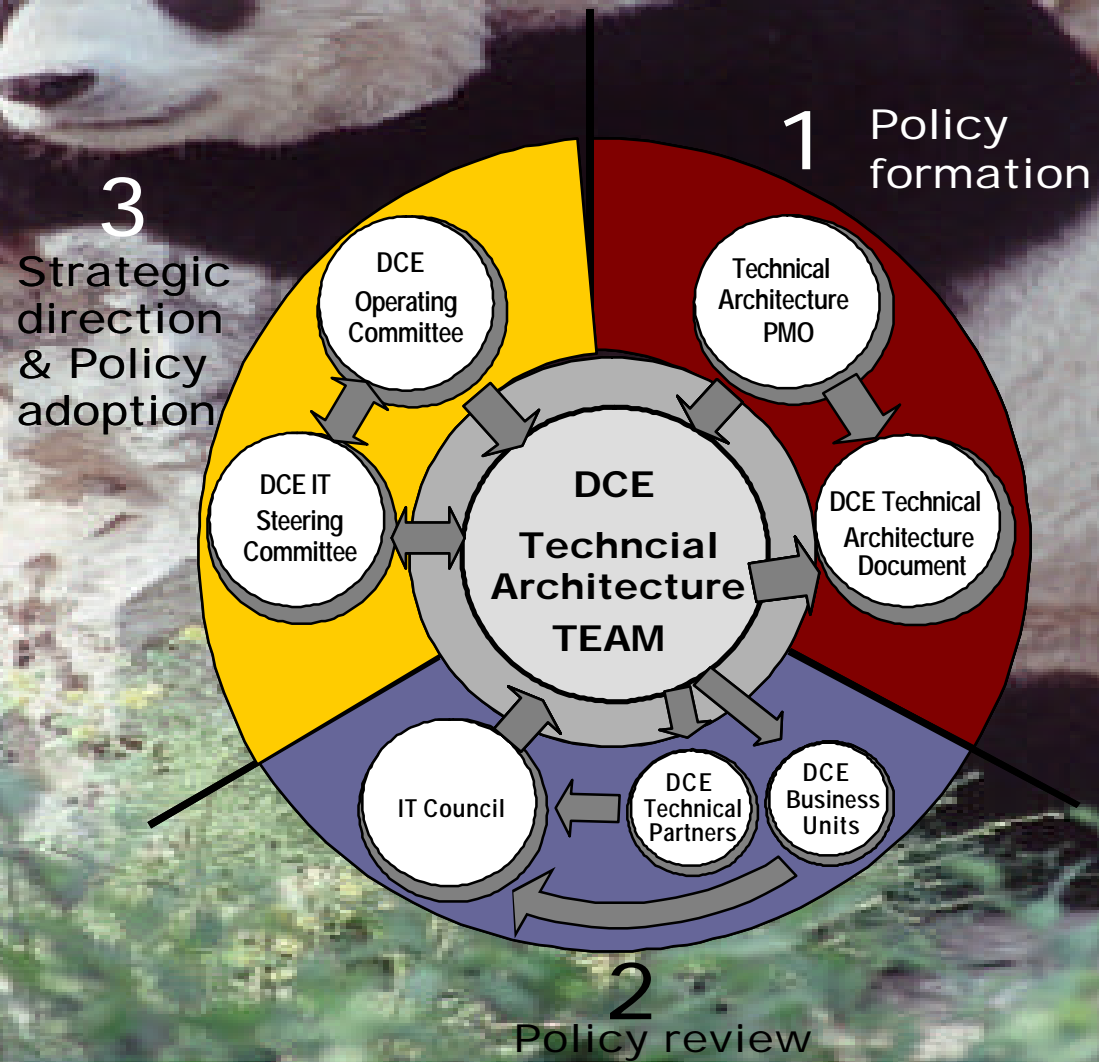
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Illustrating and Explaining the Development Cycle



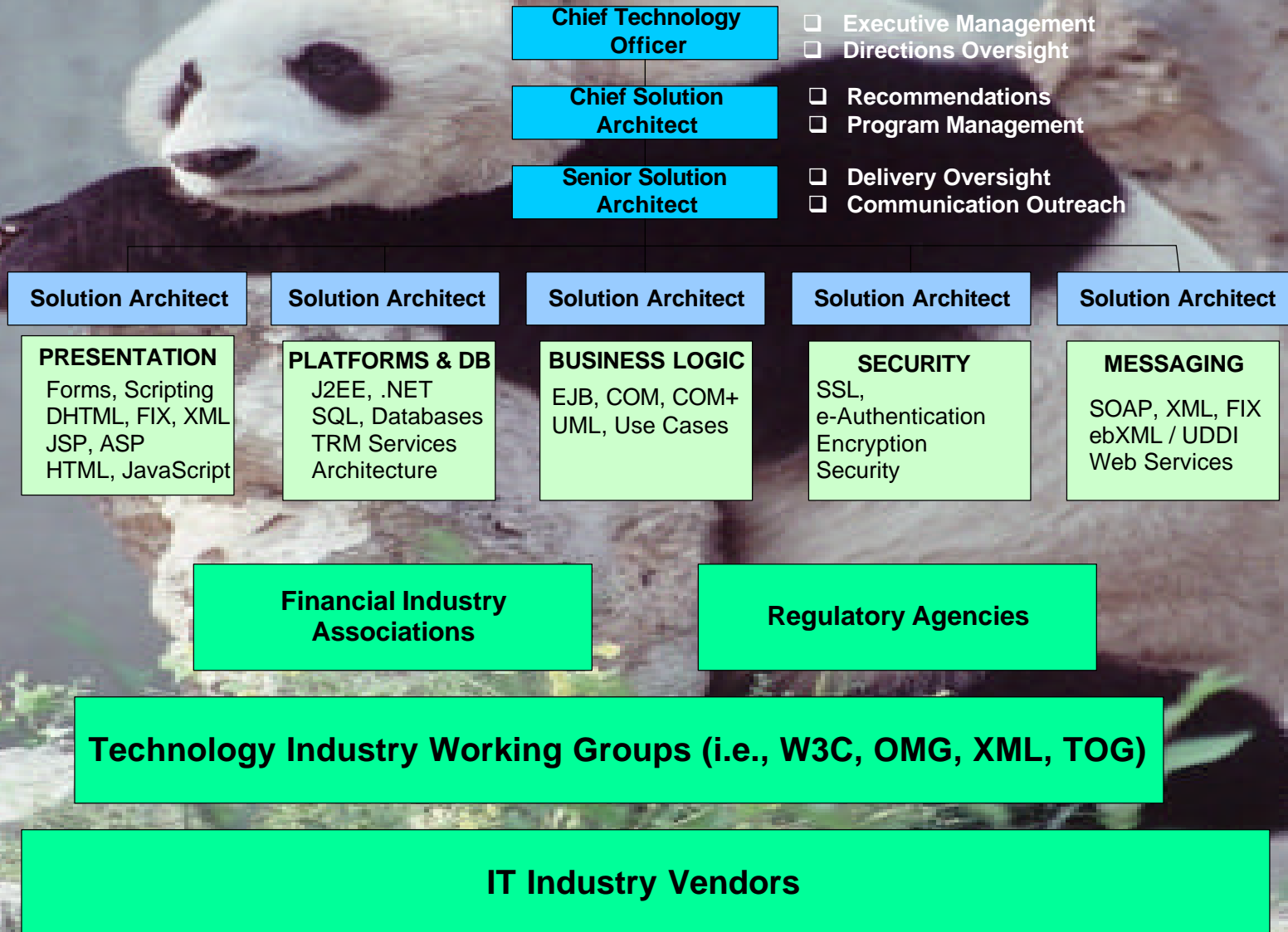
Bearing with the Burden...of Architecting

IT Governance and Organization MOST DIFFICULT Concept



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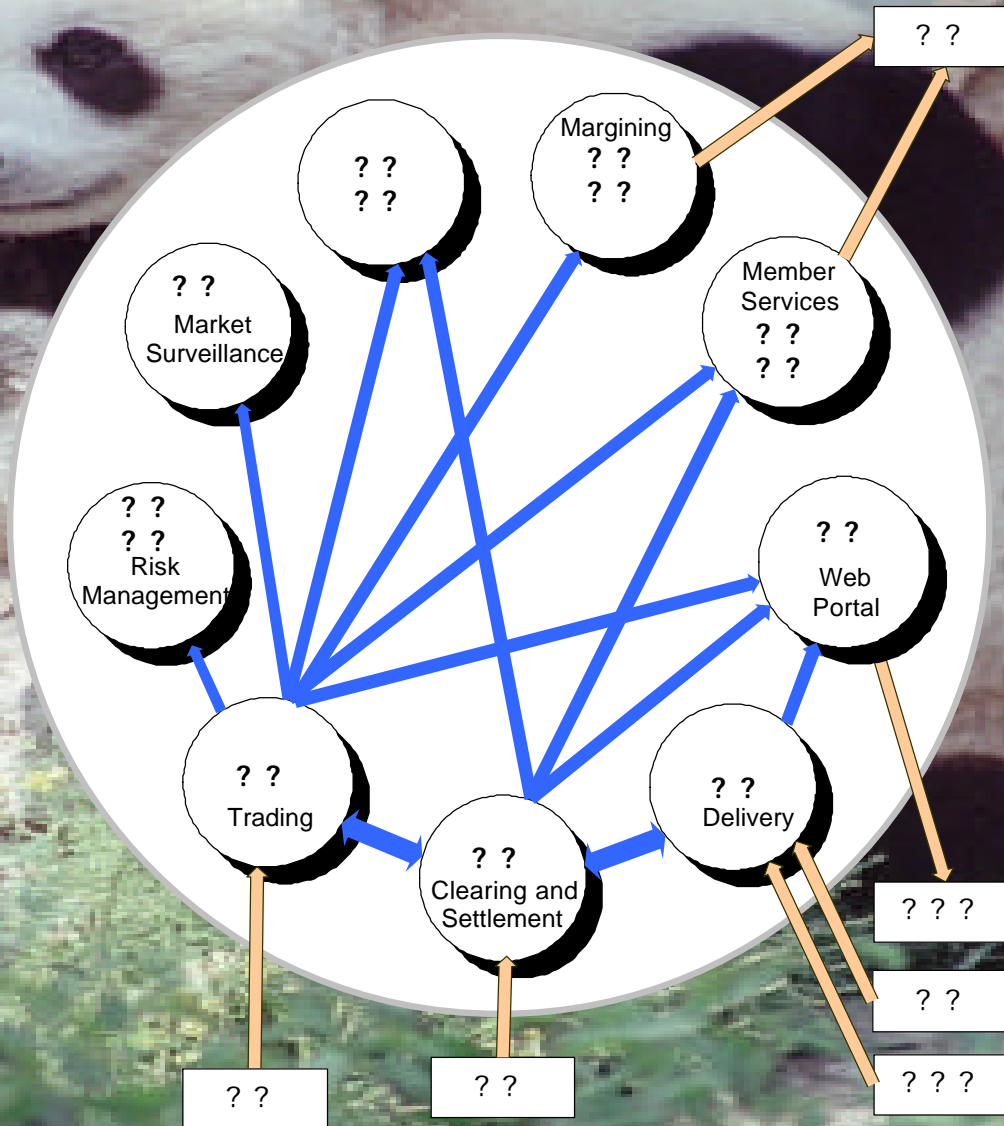
IT Governance and Organization MOST DIFFICULT Concept
Technology Architects Organisation



Bearing with the Burden...of Architecting

Defining the Business Process Domains and

Current Baseline Report of DCE



Bearing with the Burden...of Architecting

Measuring the Maturity of TA in the DCE

STAGE	DESCRIPTION	SATISFIED
<p>Stage 5 Leveraging the TA for Managing Change. [Includes all elements of Stage 4]</p>	<ul style="list-style-type: none"> ▪Written/approved policy exists for TA maintenance ▪Either IT Steering Committee or IT Council has approved TA ▪Matrices exist for measuring TA benefits 	
<p>Stage 4 Completing Architecture Products [Includes all elements of Stage 3]</p>	<ul style="list-style-type: none"> ▪Written/approved policy exists for IT investment compliance to TA ▪TA products describe enterprise's business – data, applications, and technology that supports it ▪TA products describe “as is” environment, “to be” environment, and sequencing plan ▪CIO has approved the TA plan 	
<p>Stage 3 Developing Architecture Products [Includes all elements of Stage 2]</p>	<ul style="list-style-type: none"> ▪Written/approved policy exists for TA development ▪TA products are under configuration management ▪TA products describe <i>or will describe</i> enterprise's business – data, applications, and technology that supports it ▪TA products describe <i>or will describe</i> “as is” environment, “to be” environment, and sequencing plan ▪TA scope is enterprise focused 	
<p>Stage 2 Building the TA Management Foundation</p>	<ul style="list-style-type: none"> ▪Committee or group representing the enterprise is responsible for directing, overseeing, and/or approving TA. ▪Program office responsible for TA development exists. ▪Chief architect exists. ▪TA being developed using a framework and automated tool. ▪TA plans call for describing enterprise in terms of business, data, applications, or technology. ▪TA plans call for describing “as is” environment, “to be” environment, or sequencing plan. 	
<p>Stage 1 Creating TA Awareness</p>	<ul style="list-style-type: none"> ▪The Exchange is aware of TA 	

The End Game for DCE

Managing highly-developed electronic systems to support the services and functions of DCE

Constantly enhancing the technological infrastructure to ensure DCE leads in innovation and open systems in China and be ready to plug-in to the global arena

Creating an open Application Program Interface (API) to trading & clearing platforms to facilitate Straight Through Processing (STP)

Balancing IT resources with business needs with a customer driven focus

Blending in-house development and strategic outsourcing to yield cost-effective and efficient solutions



**eFinancial Services Infrastructure
Architecture for Hong Kong**



Objective:

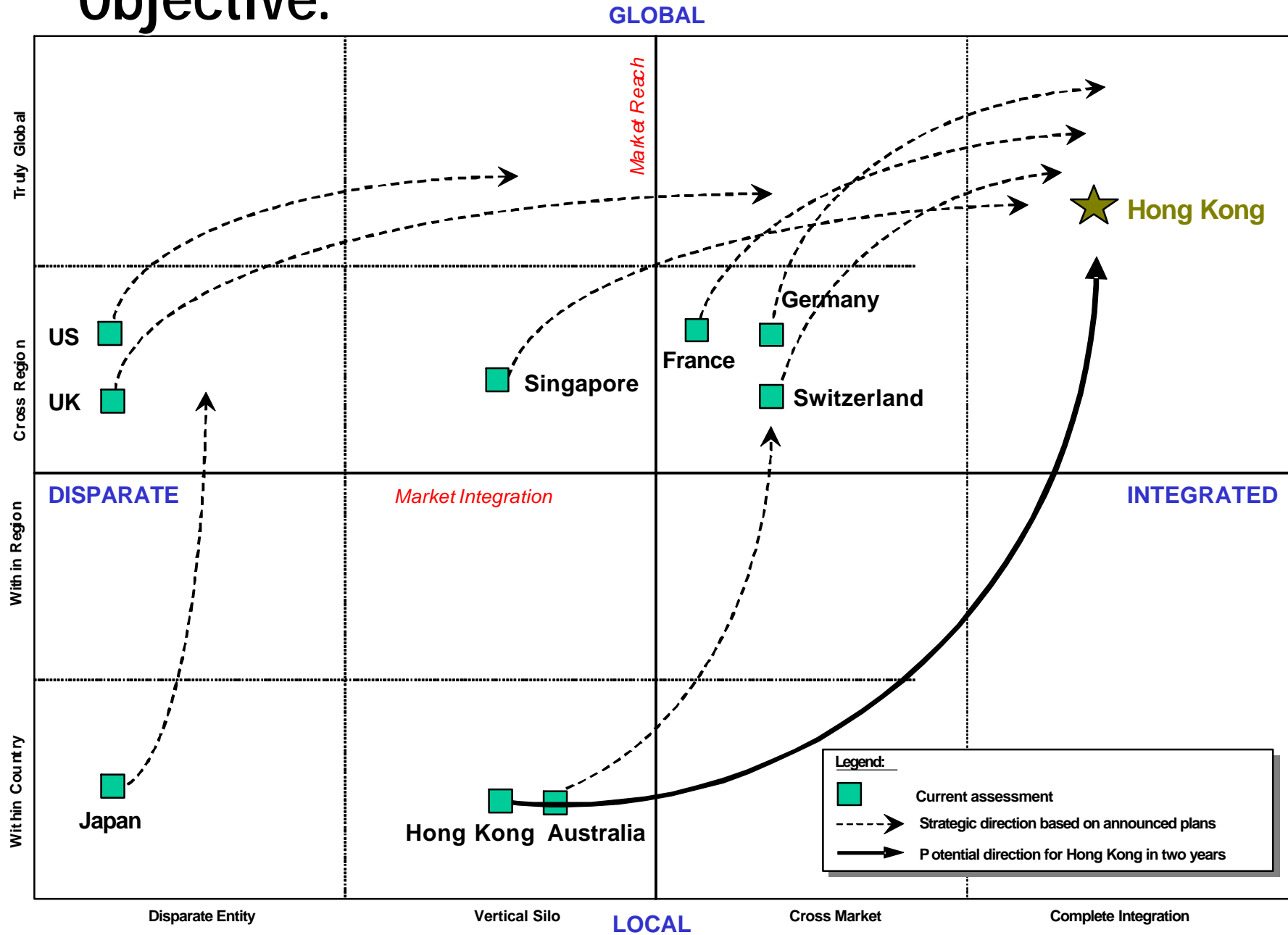
Enhance the competitiveness of Hong Kong as an international financial centre in terms of

Risk Management

Increased Efficiency

Cost Reduction

Objective:





Strategy:

- Setting up of a single clearing arrangement for securities, stock options, futures and other exchange-traded transactions
- Enhancing the financial technology infrastructure to facilitate straight-through processing of transactions across financial markets; and
- Moving towards a secure, scripless securities market



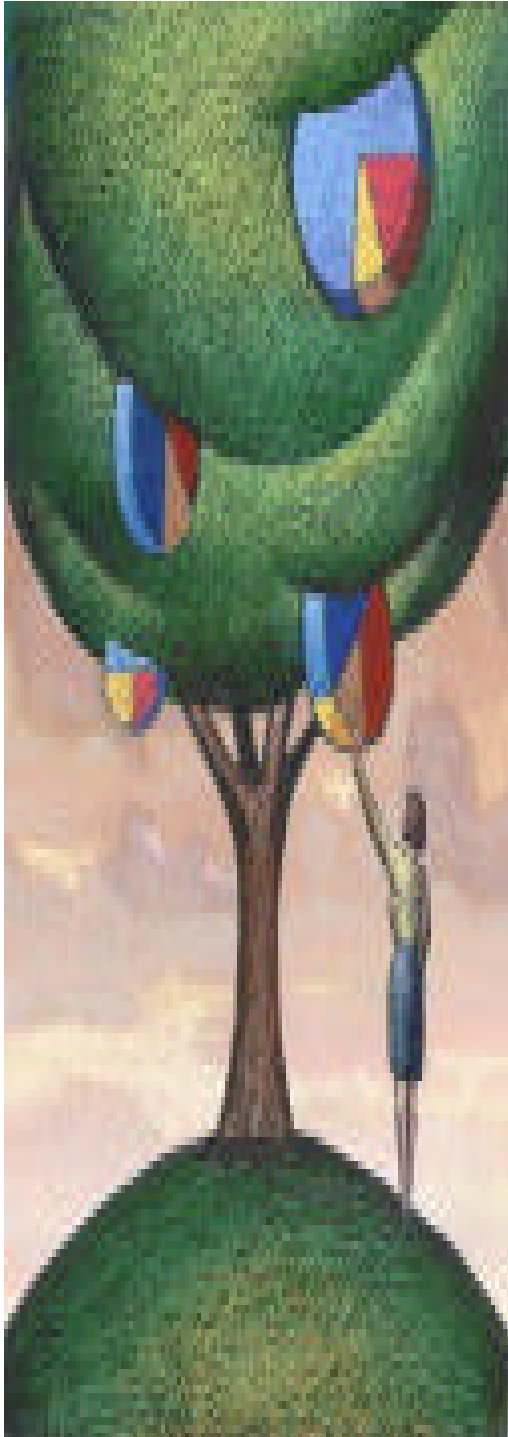
Principles:

- Achieving Risk Management Excellence
- Maximising the possibility of STP
- Ensuring instantaneous finality and legal certainty of transactions
- Complying with international standards and suitable best practices
- Seeking strategic partnerships with leading financial centres, and
- Embracing open and web-enabled technology for universal connectivity and continuous innovation



Aspirations:

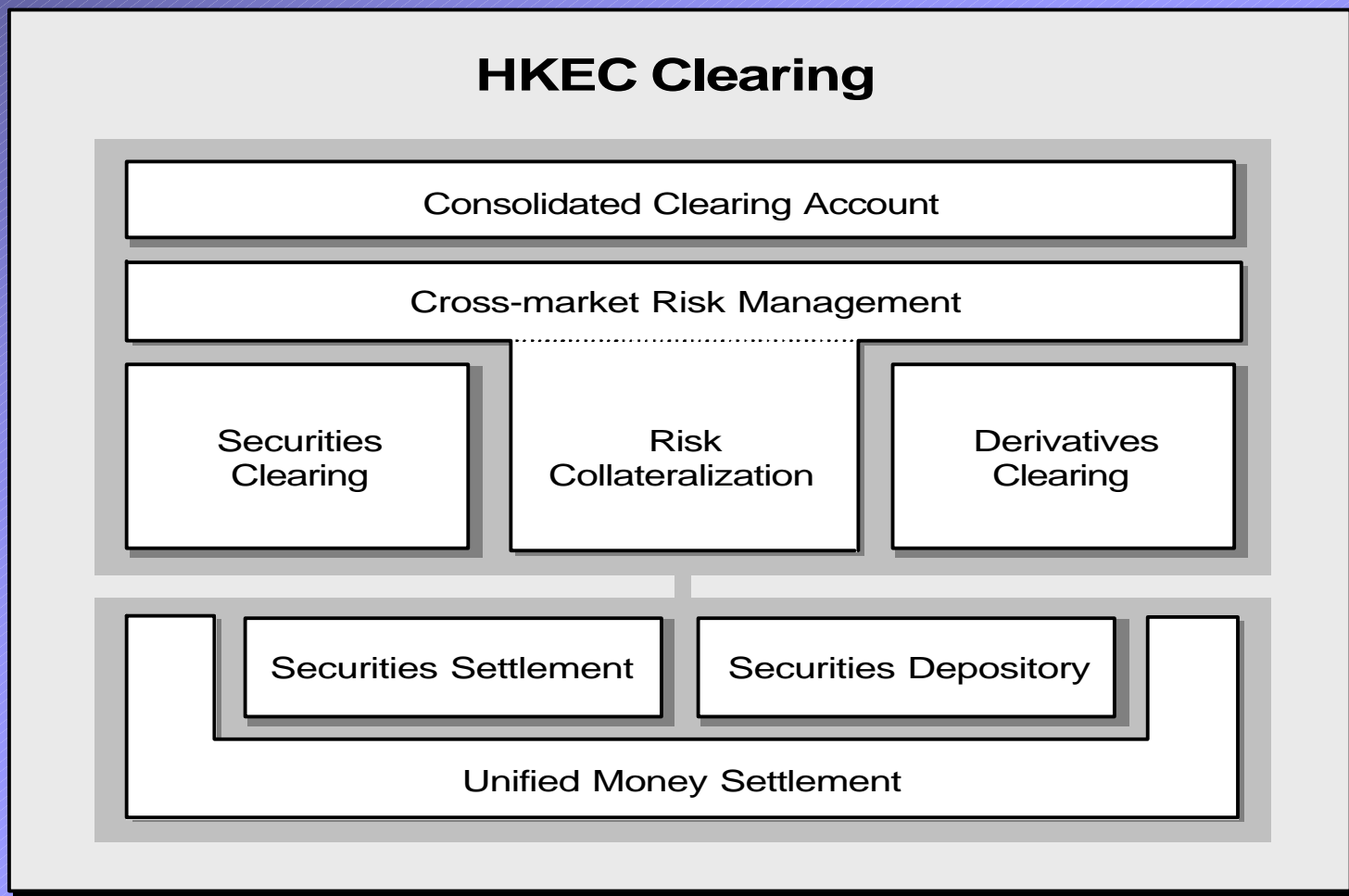
- To be one of the leading clearing and settlement centres in the Asian time zone
- To be a centre of excellence for risk management and a liquidity centre in Asia
- To be Asia's portal for strategic links with global markets, and
- To be a centre of excellence for financial infrastructure



Aspirations:

- Hong Kong should embrace an infrastructure that will allow local and global market participants to access the full spectrum of financial products and services, on an open, robust, secure, scalable and high performance network.

The eFrastructure: Single Clearing Arrangement





The eFrastructure:

Enabling Straight-Through Processing - STP

- Lack of connectivity & compatibility among market participants
- Inadequate deployment of best practice procedures - different timing & procedures for trade confirmation and amendments
- Lack of standards for determining what data should be communicated
- Lack of timeliness & completeness of settlement instructions to custodians

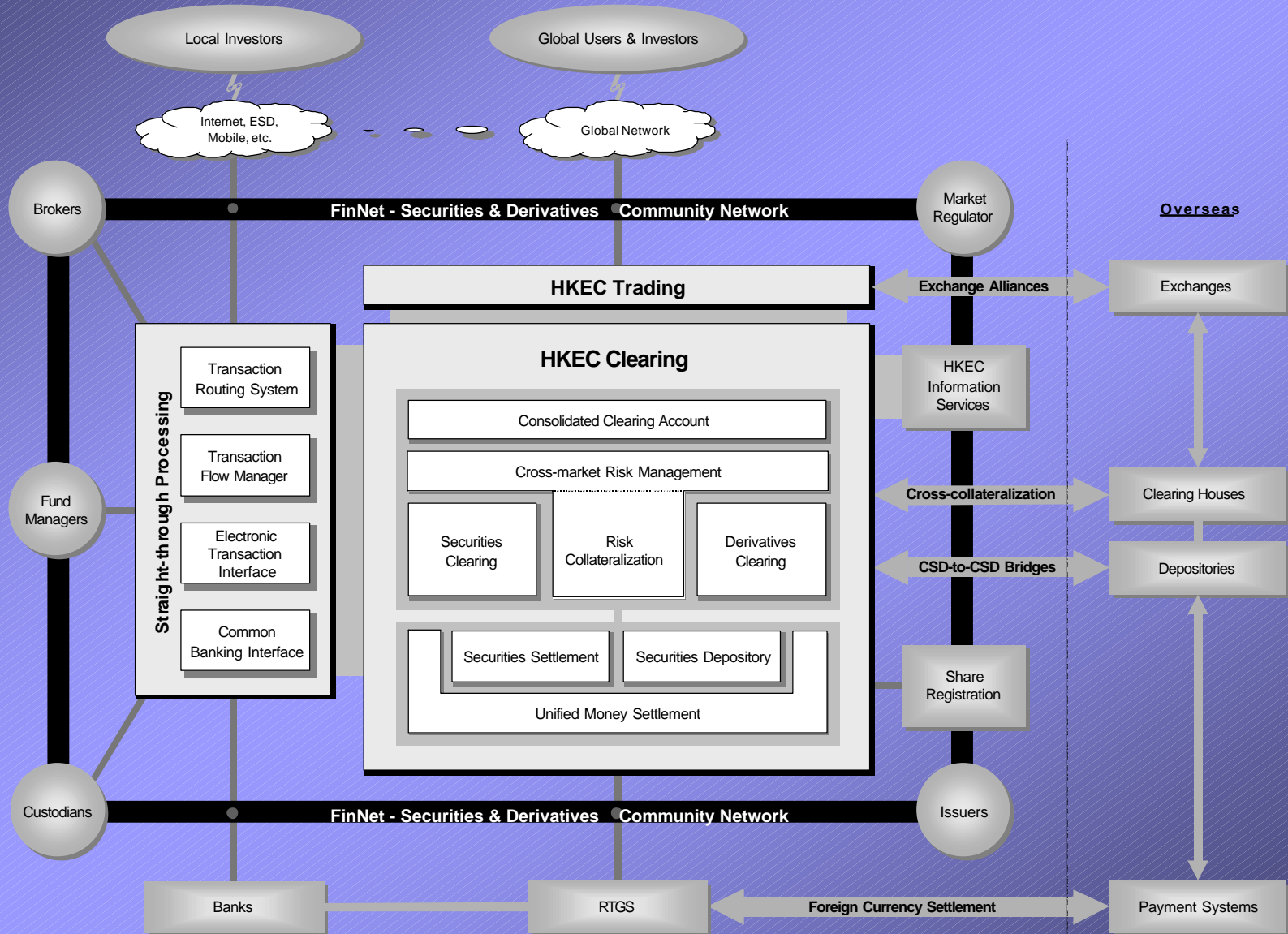


The eFrastructure:

Enabling Straight-Through Processing - STP

- Varying standards from country to country (tolerance limits)
- Inaccessibility or unavailability of standing settlement instructions
- Manual pre-matching processes, and
- Lack of support for efficient use of consistent static data - (standing delivery instructions)

The eFrastructure: Target STP Infrastructure



Building a Robust Technology Structure

- Anchored on technologies and architectures that are open, robust, secure, current, scalable and supportive of continuous innovation
- Support unified and open access for trading and clearing of securities and derivatives
- Provide an integrated for risk management and STP for all markets and products





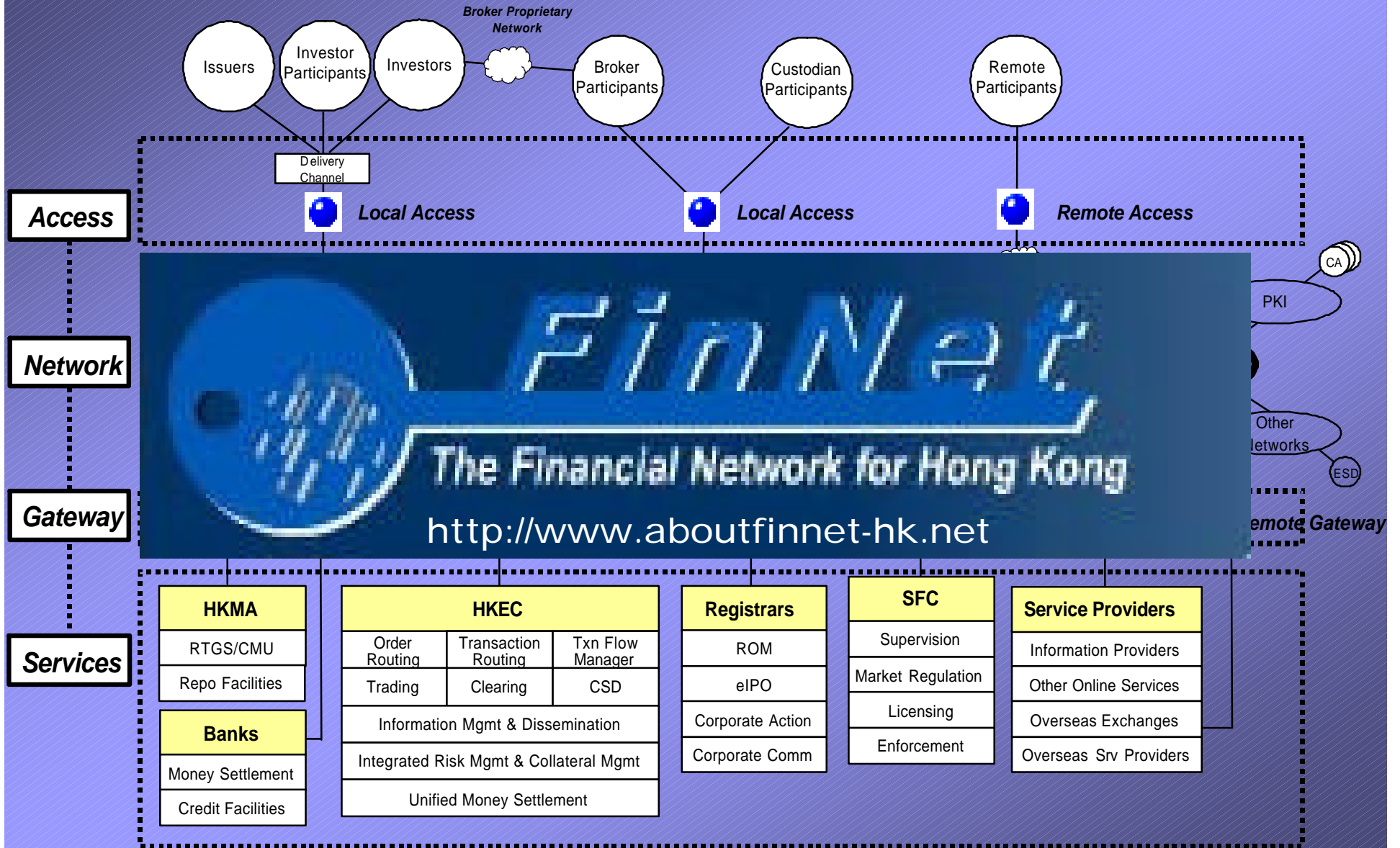
Building a Robust Technology Structure

- Enable connectivity and interoperability with standard interactive and message-based interfaces
- Adopt best-of-breed approach or use proven solutions provided by leading players, and
- Provide a unified, secure, high performance and high resilient network, enabling both local and remote open access

Technology Structure Building Blocks

- Access: entry point to the financial infrastructure via local or remote connections and which must be simple, open, secure and affordable
- Network: standards based TCP/IP connecting market participants and service providers
- Gateway: provides interactive and message-based connections between market participants and service providers
- Services: COTS application solutions used by or provided by global leaders

Topological Structure of Hong Kong's eFrastructure

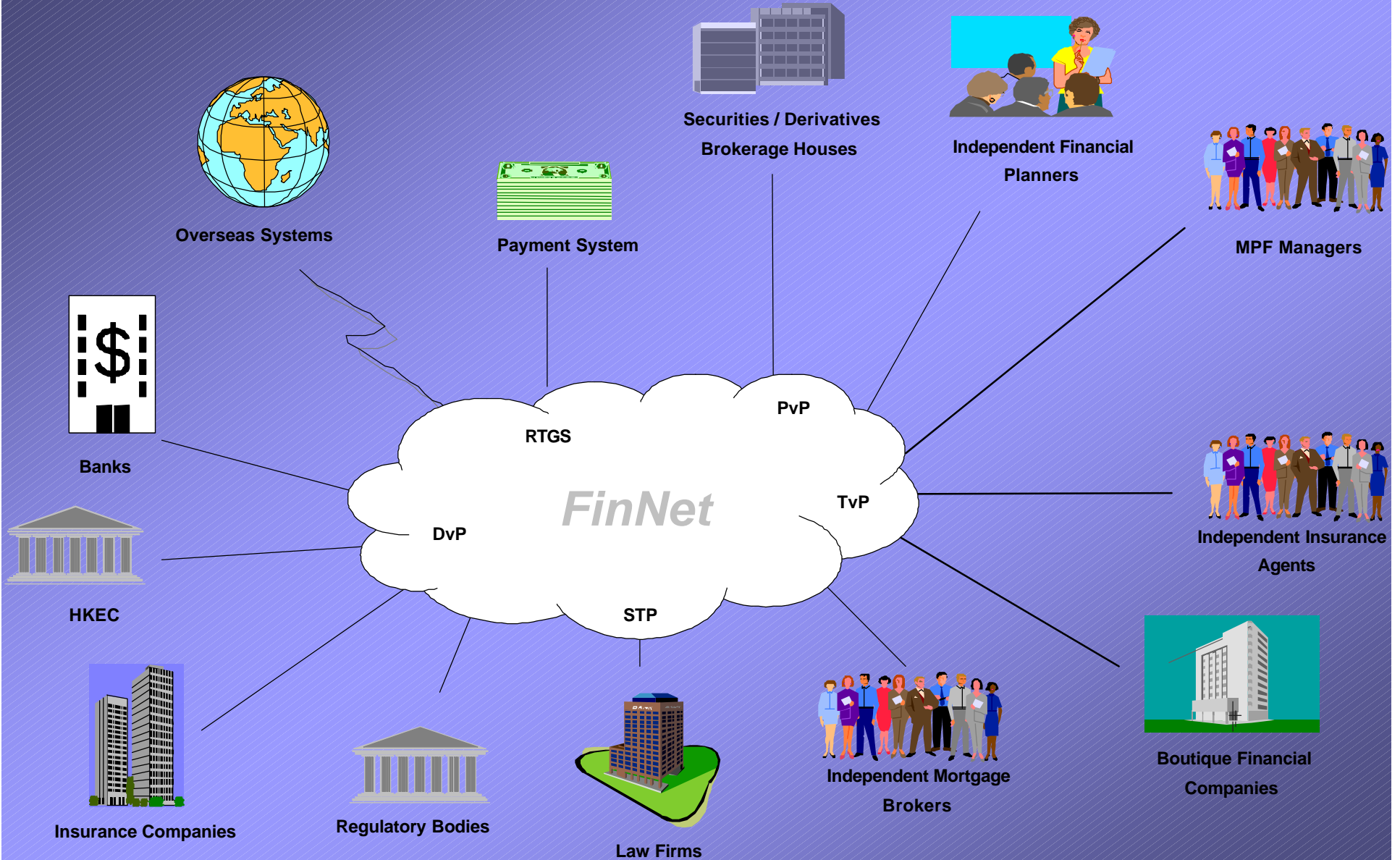


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The Heterogeneous Community of Hong Kong FinNET



Exemplary Scenario for Active Loss Prevention

Closing Thoughts

**"You can't create experience.
You must undergo it".**

Albert Camus

**"If you got them by the architecture,
their hearts and mind will follow".**

John Wayne

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Thank You!

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