

# Digital Transformation Through Technology Driven Innovation

Goldman Sachs U.S. Financial Services Conference

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Executive Vice President and Global Chief Information Officer

Wednesday, December 7, 2016



STATE STREET.

# Forward-Looking Statements

This presentation contains forward-looking statements within the meaning of United States securities laws, including statements about our goals and expectations regarding our business, financial and capital condition, results of operations, strategies, the financial and market outlook, dividend and stock purchase programs, governmental and regulatory initiatives and developments, and the business environment. Forward-looking statements are often, but not always, identified by such forward-looking terminology as "vision," "outlook," "expect," "priority," "objective," "intend," "plan," "forecast," "believe," "anticipate," "estimate," "seek," "may," "will," "trend," "target," "strategy" and "goal," or similar statements or variations of such terms. These statements are not guarantees of future performance, are inherently uncertain, are based on current assumptions that are difficult to predict and involve a number of risks and uncertainties. Therefore, actual outcomes and results may differ materially from what is expressed in those statements, and those statements should not be relied upon as representing our expectations or beliefs as of any date subsequent to December 7, 2016.

Important factors that may affect future results and outcomes include, but are not limited to: the financial strength and continuing viability of the counterparties with which we or our clients do business and to which we have investment, credit or financial exposure, including, for example, the direct and indirect effects on counterparties of the sovereign-debt risks in the U.S., Europe and other regions; increases in the volatility of, or declines in the level of, our net interest revenue, changes in the composition or valuation of the assets recorded in our consolidated statement of condition (and our ability to measure the fair value of investment securities) and the possibility that we may change the manner in which we fund those assets; the liquidity of the U.S. and international securities markets, particularly the markets for fixed-income securities and inter-bank credits, and the liquidity requirements of our clients; the level and volatility of interest rates, the valuation of the U.S. dollar relative to other currencies in which we record revenue or accrue expenses and the performance and volatility of securities, credit, currency and other markets in the U.S. and internationally; the credit quality, credit-agency ratings and fair values of the securities in our investment securities portfolio, a deterioration or downgrade of which could lead to other-than-temporary impairment of the respective securities and the recognition of an impairment loss in our consolidated statement of income; our ability to attract deposits and other low-cost, short-term funding, our ability to manage levels of such deposits and the relative portion of our deposits that are determined to be operational under regulatory guidelines and our ability to deploy deposits in a profitable manner consistent with our liquidity requirements and risk profile; the manner and timing with which the Federal Reserve and other U.S. and foreign regulators implement changes to the regulatory framework applicable to our operations, including implementation of the Dodd-Frank Act, the Basel III final rule and European legislation (such as the Alternative Investment Fund Managers Directive, Undertakings for Collective Investment in Transferable Securities Directives and Markets in Financial Instruments Directive II); among other consequences, these regulatory changes impact the levels of regulatory capital we must maintain, acceptable levels of credit exposure to third parties, margin requirements applicable to derivatives, and restrictions on banking and financial activities. In addition, our regulatory posture and related expenses have been and will continue to be affected by changes in regulatory expectations for global systemically important financial institutions applicable to, among other things, risk management, liquidity and capital planning, resolution planning and compliance programs, and changes in governmental enforcement approaches to perceived failures to comply with regulatory or legal obligations; we may not successfully implement our plans to address the deficiencies jointly identified by the Federal Reserve and the FDIC in April 2016 with respect to our 2015 resolution plan, or those plans may not be considered to be sufficient by the Federal Reserve and the FDIC, due to a number of factors, including, but not limited to challenges we may experience in interpreting and addressing regulatory expectations, failure to implement remediation in a timely manner, the complexities of development of a comprehensive plan to resolve a global custodial bank and related costs and dependencies. If we fail to meet regulatory expectations to the satisfaction of the Federal Reserve and the FDIC in our resolution plan submission filed on October 1, 2016 or in any future submission, we could be subject to more stringent capital, leverage or liquidity requirements, or restrictions on our growth, activities or operations; adverse changes in the regulatory ratios that we are required or will be required to meet, whether arising under the Dodd-Frank Act or the Basel III final rule, or due to changes in regulatory positions, practices or regulations in jurisdictions in which we engage in banking activities, including changes in internal or external data, formulae, models, assumptions or other advanced systems used in the calculation of our capital ratios that cause changes in those ratios as they are measured from period to period; increasing requirements to obtain the prior approval of the Federal Reserve or our other U.S. and non-U.S. regulators for the use, allocation or distribution of our capital or other specific capital actions or programs, including acquisitions, dividends and stock purchases, without which our growth plans, distributions to shareholders, share repurchase programs or other capital initiatives may be restricted; changes in law or regulation, or the enforcement of law or regulation, that may adversely affect our business activities or those of our clients or our counterparties, and the products or services that we sell, including additional or increased taxes or assessments thereon, capital adequacy requirements, margin requirements and changes that expose us to risks related to the adequacy of our controls or compliance programs; economic or financial market disruptions in the U.S. or internationally, including that which may result from recessions or political instability, for example, the decision by the U.K.'s referendum to exit from the European Union may continue to disrupt financial markets or economic growth in Europe; our ability to develop and execute State Street Beacon, our multi-year transformation program to digitize our business to deliver significant value and innovation for our clients and lower expenses across the organization, any failure of which, in whole or in part, may among other things, reduce our competitive position, diminish the cost-effectiveness of our systems and processes or provide an insufficient return on our associated investment; our ability to promote a strong culture of risk management, operating controls, compliance oversight and governance that meet our expectations and those of our clients and our regulators; the results of our review of our billing practices, including additional amounts we may be required to reimburse clients, as well as potential consequences of such review, including damage to our client relationships and adverse actions by governmental authorities; the results of, and costs associated with, governmental or regulatory inquiries and investigations, litigation and similar claims, disputes, or civil or criminal proceedings; the potential for losses arising from our investments in sponsored investment funds; the possibility that our clients will incur substantial losses in investment pools for which we act as agent, and the possibility of significant reductions in the liquidity or valuation of assets underlying those pools; our ability to anticipate and manage the level and timing of redemptions and withdrawals from our collateral pools and other collective investment products; the credit agency ratings of our debt and depositary obligations and investor and client perceptions of our financial strength; adverse publicity, whether specific to State Street or regarding other industry participants or industry-wide factors, or other reputational harm; our ability to control operational risks, data security breach risks and outsourcing risks, our ability to protect our intellectual property rights, the possibility of errors in the quantitative models we use to manage our business and the possibility that our controls will prove insufficient, fail or be circumvented; our ability to expand our use of technology to enhance the efficiency, accuracy and reliability of our operations and our dependencies on information technology and our ability to control related risks, including cyber-crime and other threats to our information technology infrastructure and systems including those of our third-party service providers and their effective operation both independently and with external systems, and complexities and costs of protecting the security of such systems and data; our ability to grow revenue, manage expenses, attract and retain highly skilled people and raise the capital necessary to achieve our business goals and comply with regulatory requirements and expectations; changes or potential changes to the competitive environment, including changes due to regulatory and technological changes, the effects of industry consolidation and perceptions of State Street as a suitable service provider or counterparty; changes or potential changes in the amount of compensation we receive from clients for our services, and the mix of services provided by us that clients choose; our ability to complete acquisitions, joint ventures and divestitures, including the ability to obtain regulatory approvals, the ability to arrange financing as required and the ability to satisfy closing conditions; the risks that our acquired businesses and joint ventures will not achieve their anticipated financial and operational benefits or will not be integrated successfully, or that the integration will take longer than anticipated, that expected synergies will not be achieved or unexpected negative synergies or liabilities will be experienced, that client and deposit retention goals will not be met, that other regulatory or operational challenges will be experienced, and that disruptions from the transaction will harm our relationships with our clients, our employees or regulators; our ability to recognize emerging needs of our clients and to develop products that are responsive to such trends and profitable to us, the performance of and demand for the products and services we offer, and the potential for new products and services to impose additional costs on us and expose us to increased operational risk; changes in accounting standards and practices; and changes in tax legislation and in the interpretation of existing tax laws by U.S. and non-U.S. tax authorities that affect the amount of taxes due.

Other important factors that could cause actual results to differ materially from those indicated by any forward-looking statements are set forth in our 2015 Annual Report on Form 10-K and our subsequent SEC filings. We encourage investors to read these filings, particularly the sections on risk factors, for additional information with respect to any forward-looking statements and prior to making any investment decision. The forward-looking statements contained in this presentation speak only as of the date hereof, December 7, 2016, and we do not undertake efforts to revise those forward-looking statements to reflect events after that date.

# We have a strong global franchise

## STATE STREET GLOBAL SERVICES.

Maintaining the inventory of client capital and dividends / interest owing products

- Assets under custody and administration of approximately \$29.2 trillion as of September 30, 2016
- One of the world's leading investment service providers
- Fund accounting and administration, custody, investment operations outsourcing, recordkeeping, performance and analytics, and transfer agency services

## STATE STREET GLOBAL MARKETS.

Creating access to alpha, insights, liquidity and financing

- Delivering investment research, foreign exchange trading and securities lending
- Providing liquidity across 36 international markets, with approximately \$3.23 trillion in lendable assets as of September 30, 2016
- \$23.5 trillion in foreign exchange and interbank volume traded in 2015

## STATE STREET GLOBAL ADVISORS.

Developing investment strategies aligned with clients' desired outcomes

- Proven experience, with approximately \$2.4 trillion in assets under management\* as of September 30, 2016
- Access to a wide range of investment strategies across the risk/return spectrum
- With approximately \$478 billion\* in global ETF assets under management, we have one of the broadest ranges of ETFs in the industry

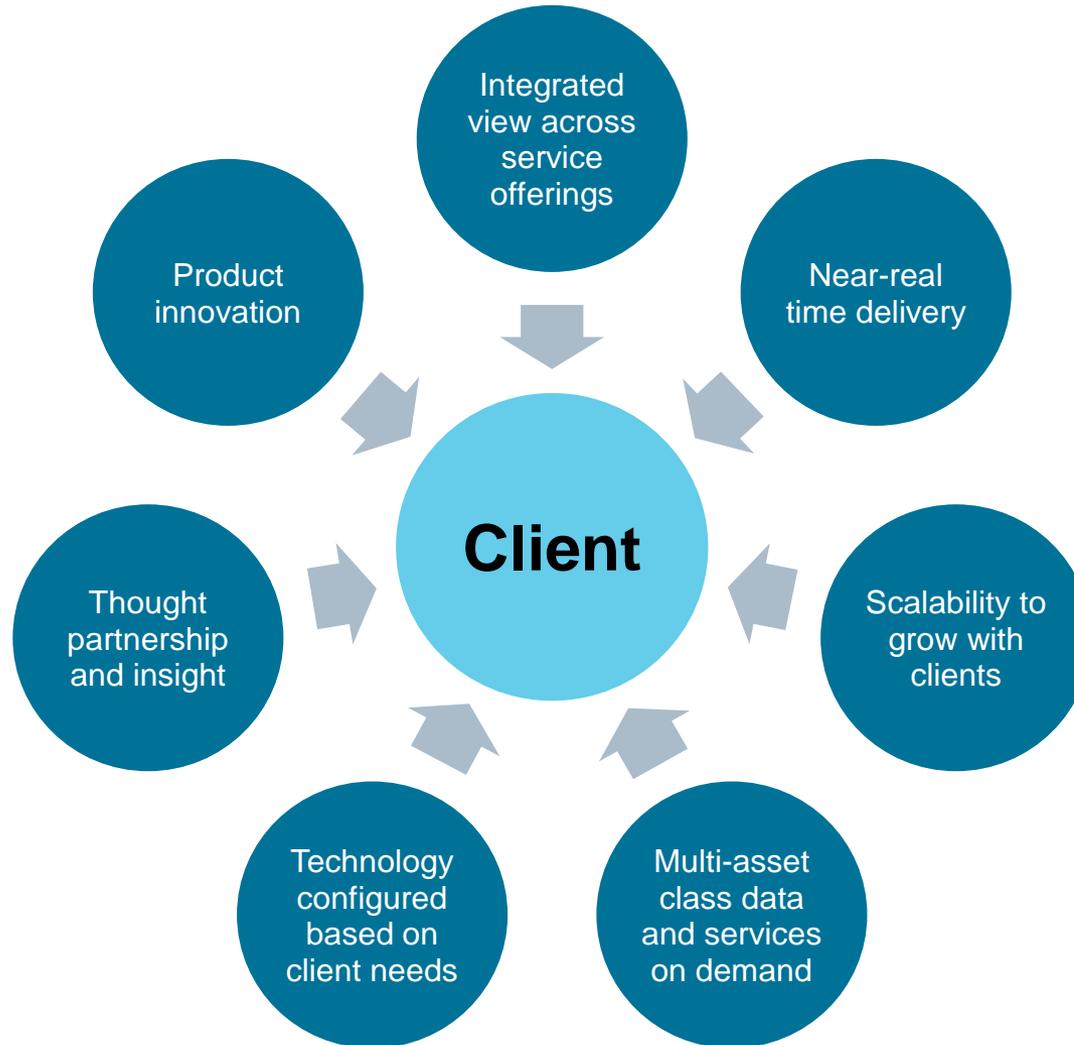
## STATE STREET GLOBAL EXCHANGE.

Delivering new perspective and insight into risk management and investment strategy

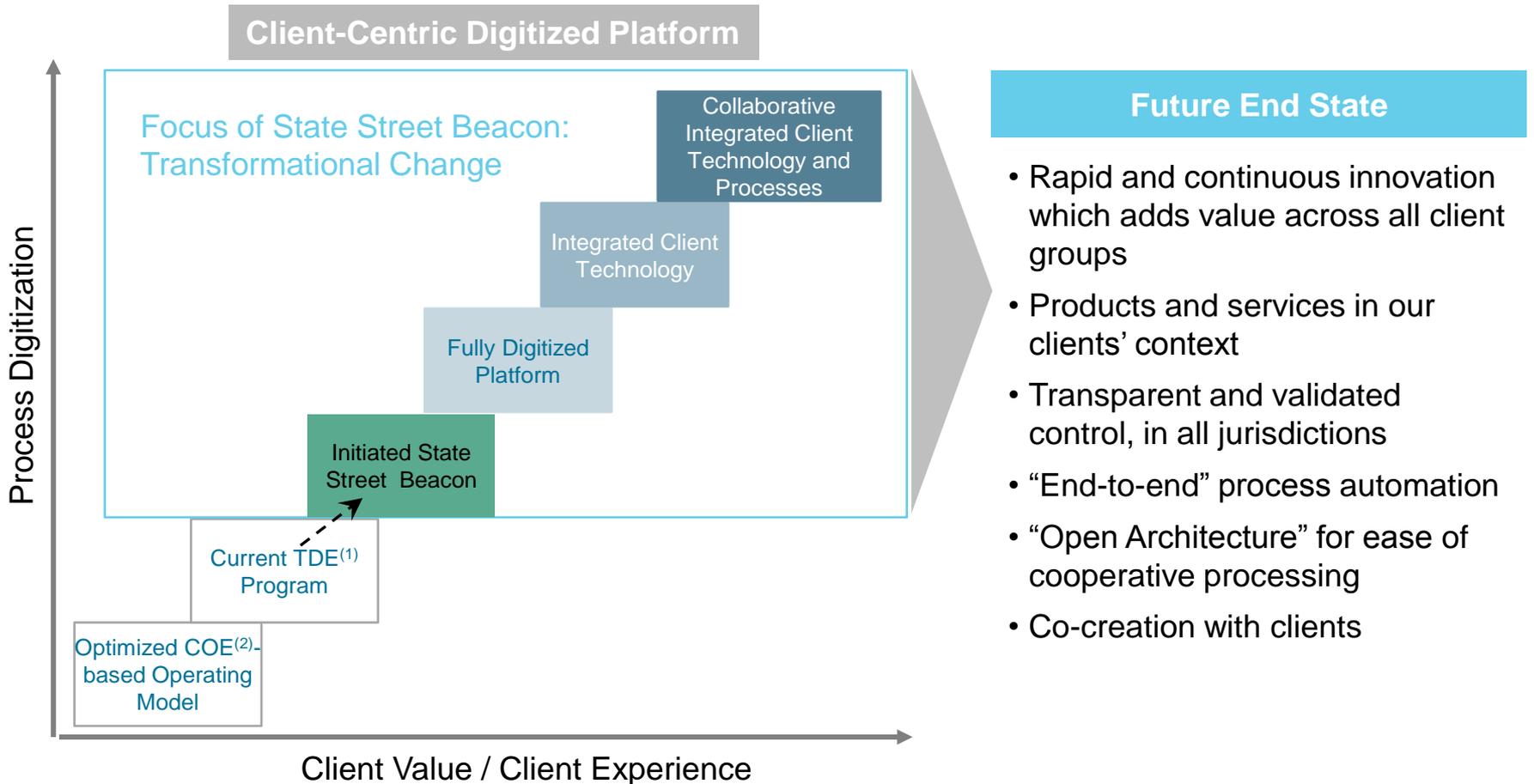
- Integrated solutions across the lifecycle of trades
- Aligning research and advisory, portfolio performance and risk analytics, information and data management to deliver innovation
- Customized and flexible multi-asset class products and services

\*This AUM includes the assets of the SPDR® Gold ETF (approximately \$40.3 billion as of September 30, 2016), for which State Street Global Markets, LLC, an affiliate of State Street Global Advisors, serves as the distribution agent.

Our vision for State Street Beacon is to be a client-centric digital services company delivering:



# To achieve our vision we are undertaking a digital transformation with a client focus



1 TDE stands for “The Digital Enterprise”.  
2 COE stands for “Centers of Excellence”.

# Initiatives designed to drive ongoing value to key stakeholders

## Themes

- **Integrated Infrastructure**
  - **Intelligent Data**
- **Cloud Scale**
  - **Strong Security**

## Initiatives

### Value to State Street

### Value to Clients

#### Digitization of Services and Solutions

#### Reduced cost, less labor needed to:

- Process work: from trade capture to reporting
- Maintain platforms
- Support inquiries: internal and external, info available on demand, near real-time

#### Near real-time data enabling:

- Dynamic analytics and insight
- Process transparency for faster decision making
- Enhanced risk management for oversight and control

#### Next Generation of Platforms

#### Reduced cost, less maintenance and infrastructure:

- Simplified platform structure: minimizing complexity
- Capacity: available on demand
- Provides best available technology

#### Supports client growth and improves risk management:

- Automated scaling
- Strengthened resiliency
- Best-in-class security
- Greater speed

# State Street Beacon is a technology journey

## Near term:

Enhancements to existing products and solutions

*Built on common components*

- **Quicker data and information:** improved straight through processing and speed
- **New data and information:** aggregated in one place for easier use and greater transparency
- **Focus on what matters:** with alerts and exception-based processing
- **Improved interface:** easier to use with new functionality

*Enable us and our clients to work more efficiently and effectively through improved speed, transparency, and user experience*

## Longer term:

End-to-end transformational delivery of services

*Bringing together the common components*

- **Move towards near-real time updates:** increased transparency to process and data
- **Enhanced integration** across State Street services: providing a consistent view across key solutions
- **Enhanced data solutions** delivering dynamic and impactful insights

*Deliver an information-edge to transform our operating model and drive growth for us and our clients*

# State Street Beacon is already delivering improved operational and systems performance

| Initiatives                                      | Metrics  |
|--|--|
| Digitization of data, applications, and services | <ul style="list-style-type: none"><li>• Percentage of service digitized</li><li>• Processing cost reduction</li><li>• Systems integrations: number of Day 1 defects / reconciliations</li><li>• Digitization of processes: number of funds per FTE</li></ul> |
| Client centric design and execution              | <ul style="list-style-type: none"><li>• Number of products enabled</li><li>• Number of clients impacted and engaged</li><li>• Reduction in cycle time</li></ul>  |
| Next generation of platforms                     | <ul style="list-style-type: none"><li>• Mainframe usage reduction</li><li>• Number of cloud-based applications</li></ul>   |

# Capitalizing on market opportunities to fuel growth with innovation

## Drivers

Increased Complexity with Regulatory and Market Changes

Data Revolution

## Challenges and Solutions

### Client Challenges

- Increasing complexity and intensity from multiple regulators as well changing market dynamics
- Rising costs and greater fee transparency
- Increasing trading and liquidity challenges and requirements
- Managing risk

### Solutions

- SEC Modernization Solution
- Net Asset Value (NAV) Oversight
- Enhanced Asset Owner Strategy
- Enterprise Pricing Web
- Fund Insights
- TruView
- DataGX

### Client Challenges

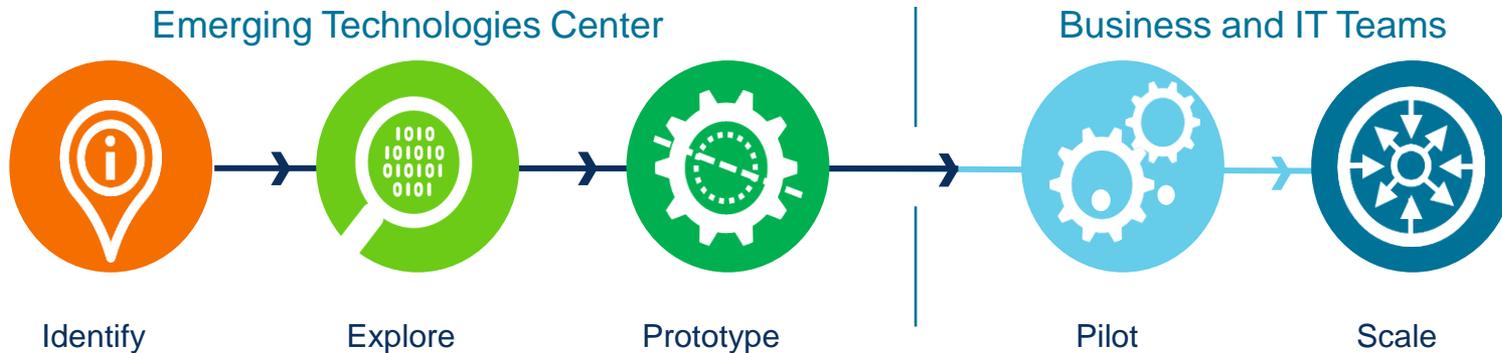
- Data proliferation and analytics providing new insights, but at a cost
- Distribution effectiveness demands new data solutions
- Data monetization opportunities multiplying, creating revenues for some and new costs for others

### Solutions

- State Street Media Stats - Quantitative investment insights derived from digital media consumer data sets
- Capabilities to help clients meet evolving needs, such as around U.S. Money Market Reform, Liquidity Stress Testing and other recent regulatory initiatives

**STATE STREET.**

# Innovation is at our core



A portfolio approach to managing emerging and disruptive technologies

- Undertake multiple projects concurrently to diversify risk
- There is no one single technology that can define the future

Design-thinking as a way of creative idea generation and prototype implementation

- Apply analysis then synthesis when evaluating trends
- Start with divergent thinking before converging ideas

Willingness to take action and experiment without all the information

- Avoid “paralysis by analysis” by taking quick actions

Embracing “not created here” ideas and encourage “outside-in” thinking

- Ideas are generated everywhere and we must be willing to try competitive ideas (e.g., Blockchain and Distributed Ledger Technology)

Acceptance of failure

- Must be willing to take calculated risks when evaluating disruptive trends
- Resiliency is key with this type of work

# Innovation at State Street: Target outcomes of the Emerging Technologies Center



**Increased Awareness**  
of emerging technologies and their impact



**Enhanced Thought Leadership**  
position through industry engagements



**Hands-on Experience**  
of emerging technologies through prototypes, proofs of concept and pilots



**Accelerated Adoption**  
of emerging technologies by business units and support groups



**Monetizing Opportunities**  
through new service offerings and generating cost saving through efficiency gains

# Innovation at State Street: Industry Engagement on Disruptive Technologies

State Street has FinTech relationships in seven global hubs

## Boston & New York

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- Founding members of R3 and Hyperledger block chain consortia
- Prototyping efforts with several block chain technology providers
- Board member at FinTech Sandbox
- Investments in and collaborations with several FinTech start-ups

## Dublin, Cork & London

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- Start-up mentoring at Level39 and for 3D FinTech Challenge
- Member of Innovate Finance
- Collaboration with Accenture in Dublin accelerator
- 2 research partnerships: University College Cork and CeADAR

## San Francisco Bay area

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- Research consortium with Stanford and UC Berkeley
- Research connection to further explore machine learning
- Active engagement with VC community

## Hangzhou

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- Collaborations with Alibaba and Ant
- Partnership with Zhejiang University



# Innovation at State Street is part of our fabric

- **Innovation is essential to our future**
- **State Street Beacon transformation underway to transform our core businesses and corporate functions**
- **Actively testing emerging technologies, assessing their ability to transform our business, and engaging with the FinTech community to drive toward a more open technology architecture and business model**
- **Expect to deliver new processes and product introductions over the coming years**

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**Questions  
and  
Answers**



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