

Updates to State Street Custody Services and Performance Accounting

Arizona State Retirement System

April 17, 2018

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Overview

- The purpose of this presentation is to describe the changes in services with State Street for custodial, investment and performance that are currently in process.

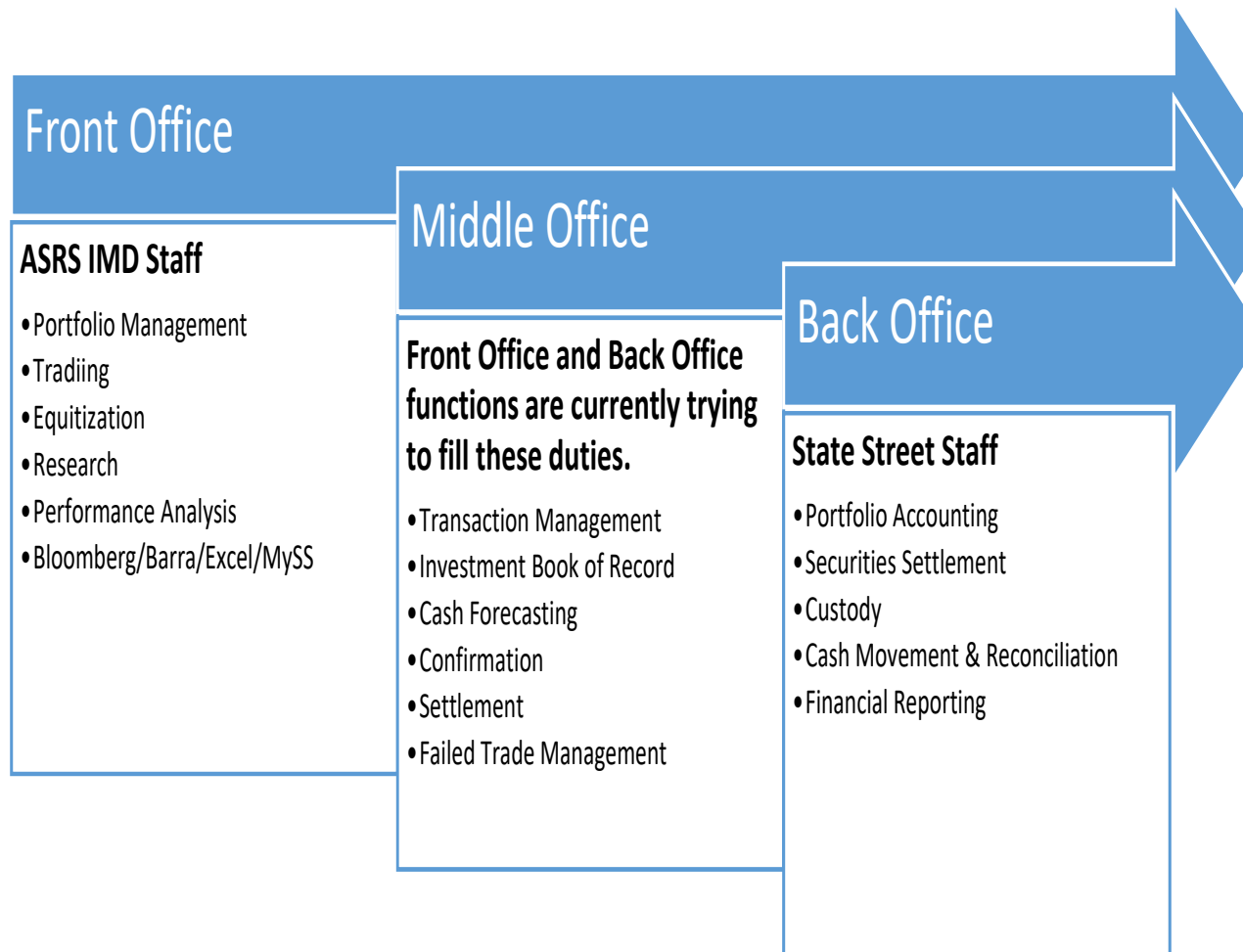
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Relationship with State Street

- The ASRS's relationship with State Street began in 2009.
 - State Street was contracted as the custodial bank for ASRS.
 - State Street implemented the “Core” service model for custody and accounting.
- The “Core” model is designed for clients who are asset allocators with a single plan structure and has limited servicing capabilities for less complicated plans.
- The “Core” model components Back Office services and single point of contact that manages multiple clients with client requests put into queue.

Current Operations Under the Core Model



Case for Change

- Changes within ASRS have outgrown the Core Service Model capabilities.
 - Front (ASRS) and Back Office (State Street) functions are not adequately resourced for providing middle office coverage.
 - The strategic change to end active management and to manage more assets internally requires a dedicated middle office function.
 - Increased internal trading and enhanced portfolio management requires more thorough and detailed trade management.
 - The size and scale of internal portfolios has continually increased requiring daily manual reconciliation, both in cash and performance by ASRS staff.
 - ASRS investments continue to diversify in type and complexity requiring custom reporting.
 - Marked increase in hour to multi-day delays in obtaining needed assistance to requests in order to maintain efficiency requires multiple contacts that are exclusive to ASRS.
 - Anomalies in basic reporting requires ASRS staff resources to be spent on quality control and actively govern State Street's processes and reports to ensure correct information.

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Introduction to the “Enhanced” Service Model

- The “Enhanced” Service Model (EAOS), provides ASRS with a needed middle office solution.
 - Designed for both Asset Allocators and Asset Managers
 - Provides an Investment Book or Record (IBOR) T+0 at Start Of Day (SOD)
 - Several other T+0 reconciliations allow for analytics ready data
 - Full transaction management handled by State Street EAOS team
 - Daily cash forecasting is automated through EAOS
 - Accounting Book of Record (ABOR) is reconciled at T+1 End Of Day (EOD)
 - ABOR and IBOR are integrated into one customizable book of record
 - Focused client team with multiple points of contact with ASRS specific knowledge
 - Multi plan structure support
 - Complete Middle Office to bridge the gaps between the Front Office and Back Office

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Front Office Advantages

- A middle office will allow staff to dedicate time to:
 - More robust Corporate Action Analysis
 - Research and strategy to work towards taking advantage of market dislocations
 - Rigorous performance analysis

ASRS Current State Analysis				
Function	ASRS Front Office	Middle Office	ASRS and State Street Back Office	Notes
Portfolio Construction & Analysis	X			ASRS Front Office team is managing multiple functions that traditionally sit in a middle office team/arrangement at peer organizations of similar size and complexity. As the internal portfolio grows both in size and complexity the lack of a middle office is straining the front office and pulling time away from critical investment functions.
Trading	X			
Equitization	X			
CA Analysis and Election				
Research and strategy				
Performance Analysis				
Front Office				

ASRS Proposed State Analysis				
Function	ASRS Front Office	State Street Middle Office	State Street Back Office	Notes
Portfolio Construction & Analysis	X			ASRS front office time and focus aligned to cover additional front office activities
Trading	X			
Equitization	X			
CA Analysis and Election	X			
Research and Strategy	X			
Performance Analysis	X			
Front Office				

- Red highlights represent stress points in the front and back office operations due to a missing middle office component.

Middle Office Advantages

- The gains from a middle office strengthen the equities program by:
 - Creating an Investment Book of Record (IBOR) for decision making from accurate, timely, reliable data.
 - IBOR file inclusive of all mandatory & voluntary corporate actions
 - IBOR data is 40 Act Compliant
 - Manual processes are automated
 - Improved data integrity
 - Elimination of reconciliation by disparate sources and multiple parties
 - ASRS trading staff is only responsible for executing the transaction
 - Cash forecasting is completed daily by a focused client EAOS team, reconciled and provided each morning

ASRS Current State Analysis					
Function		ASRS Front Office	Middle Office	ASRS and State Street Back Office	Notes
Middle Office	IBOR Creation	X			ASRS is manually converting back office information into usable middle office information which is time consuming, risky, and headache prone.
	Transaction Management	X			
	Cash Forecasting	X		X	

ASRS Proposed State Analysis					
Function		ASRS Front Office	State Street Middle Office	State Street Back Office	Notes
Middle Office	IBOR Creation		X		ASRS leverages State Street middle office solutions to outsource these functions away from their front office, build scale, and de-risk ASRS in supporting it's growing and complex front office needs and requirements.
	Transaction Management		X		
	Cash Forecasting		X		

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Back Office Advantages

- A middle office removes pressure from the back office by:
 - Allowing back office staff to focus on Accounting and Custody.
 - Reducing time required for month end closing and report delivery.
 - Accounting Data would no longer need to be coerced into trying to meet IBOR needs.

ASRS Current State Analysis					
Function		ASRS Front Office	Middle Office	ASRS and State Street Back Office	Notes
Back Office	Portfolio Accounting			X	State Street service challenges have amplified the ASRS middle and front office arrangement challenges.
	Securities Settlement			X	
	Custody			X	
	Cash Movement & Reconciliation			X	
	Financial Reporting			X	

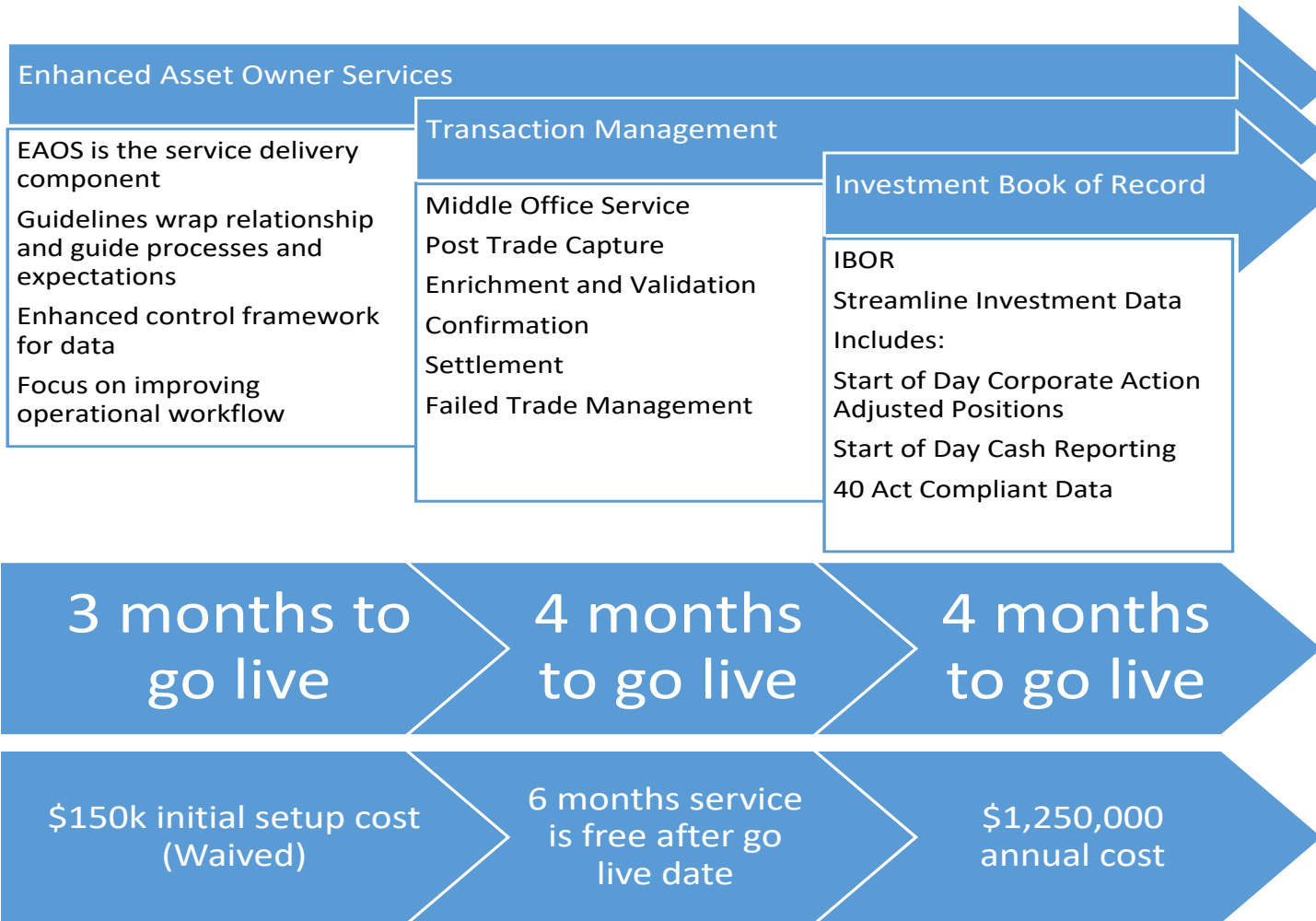
ASRS Proposed State Analysis					
Function		ASRS Front Office	State Street Middle Office	State Street Back Office	Notes
Back Office	Portfolio Accounting			X	Adopt premium State Street back office solution which is tailored to service complex asset owners who manage assets in house and the unique set of requirements this creates.
	Securities Settlement			X	
	Custody			X	
	Cash Movement & Reconciliation			X	
	Financial Reporting			X	

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Enhanced Service Model Pricing and Timeline



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Rationale for State Street Performance

- Private Markets profit & loss will be captured once State Street Private Edge processes Partner Capital Statements
 - Simpler calculation of Total Fund performance
 - Greater transparency
 - Real-time total fund performance estimates
- Currently there are two reporting systems and two performance calculations for total fund performance within State Street, in addition to NEPC's calculations
 - Moving to a single book of record eliminates confusion caused by having three sets of calculations
 - This also causes delay in final performance numbers by two months, at a minimum, for quarter end reporting
- Quarterly performance will be available approximately three weeks after quarter end

Current Calculation Methodology

- Total Fund performance is calculated as a weighted average sum of the underlying composites (bottom up)
- Private Markets profit and loss is booked on the last day of the quarter, regardless of when capital account statement processed
- Drawbacks to this methodology
 - Total Fund performance in non-quarter end months is understated and overstated in quarter end months, when measured on a month-to-month basis
 - This causes marginal differences when compounding for annualizing return history
 - Inefficient processing due to multiple parties
 - Private Edge finalizes all Private Markets returns and releases to accounting 1 1/2 months after quarter end
 - State Street calculates Total Fund performance and then sends to NEPC
 - NEPC recalculates performance independently (with State Street data) and reconciles with State Street performance calculations

New Process

- NEPC will review calculations for reasonableness
- NEPC will continue to provide investment performance oversight to the Board
- Total Fund will be calculated top-down instead of bottom-up

$$Return_{Daily} = \frac{(Ending\ Market\ Value - Beginning\ Market\ Value\ less\ cash\ inflows + Cash\ Outflows)}{(Beginning\ Market\ Value + Cash\ Inflows - Cash\ Outflows)}$$

$$Return_{Multi-Period} = ((1 + Return_{Daily1}) * (1 + Return_{Daily2}) * ... (1 + Return_n)) - 1$$

- Recommended methodology stipulated in the GIPS Reporting Standards
 - Eliminates rounding differences that result from the weighted average methodology
- With the concurrent move to State Street EOS platform, Total Fund final performance will be available approximately 3 weeks after the quarter end