

# Investment Office Roadmap

## Organization Systems & Controls

### Investment Office Risk Heat Map and Target Operating Model (TOM) Refresh

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Investment Committee

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## Purpose

- Overview of the updated INVO Risk Assessment and TOM Refresh project
- Describe actions planned (initiatives) to mitigate risk

## CalPERS Investment Office Strategic Priorities

- Performance: Achieve our target rate of return without exposing the fund to the undue risk of major drawdown
- Plumbing: Develop and implement the systems, controls and processes necessary to assure the integrity of operations
- People: Ensure that we have the right number of people with the right skills to enable investment performance improvement and control of operations

*The INVO Roadmap is a set of objectives, initiatives and milestones to achieve these priorities*

# INVO Roadmap Objectives

Improving risk management and organization, systems and controls are strategic objectives in the INVO Roadmap.

<p><b>Investment Performance</b></p>	<ul style="list-style-type: none"> <li>• Restructure the portfolio to deliver consistent risk-adjusted investment returns.</li> </ul>
<p><b>Capital Allocation</b></p>	<ul style="list-style-type: none"> <li>• Implement a risk-based, dynamic asset allocation approach.</li> </ul>
<p><b>Investment Risk Management</b></p>	<ul style="list-style-type: none"> <li>• Establish a comprehensive risk management system and practices to measure, manage, and communicate investment risks.</li> </ul>
<p><b>Organization, Systems and Controls</b></p>	<ul style="list-style-type: none"> <li>• Design, develop and implement a robust operating model that minimizes complexity, improves transparency and strengthens processes, systems and controls.</li> <li>• Reduce operational risk by developing a risk aware culture with clear metrics and operational risk management processes/governance.</li> </ul>
<p><b>Cost Effectiveness</b></p>	<ul style="list-style-type: none"> <li>• Enhance cost effectiveness of the investment program to improve net returns on assets.</li> </ul>
<p><b>Talent Management</b></p>	<ul style="list-style-type: none"> <li>• Enhance our ability to attract, develop and retain a highly-skilled, diverse and motivated team to ensure the success of the Investment Office.</li> </ul>

# Organization Systems & Controls Objective

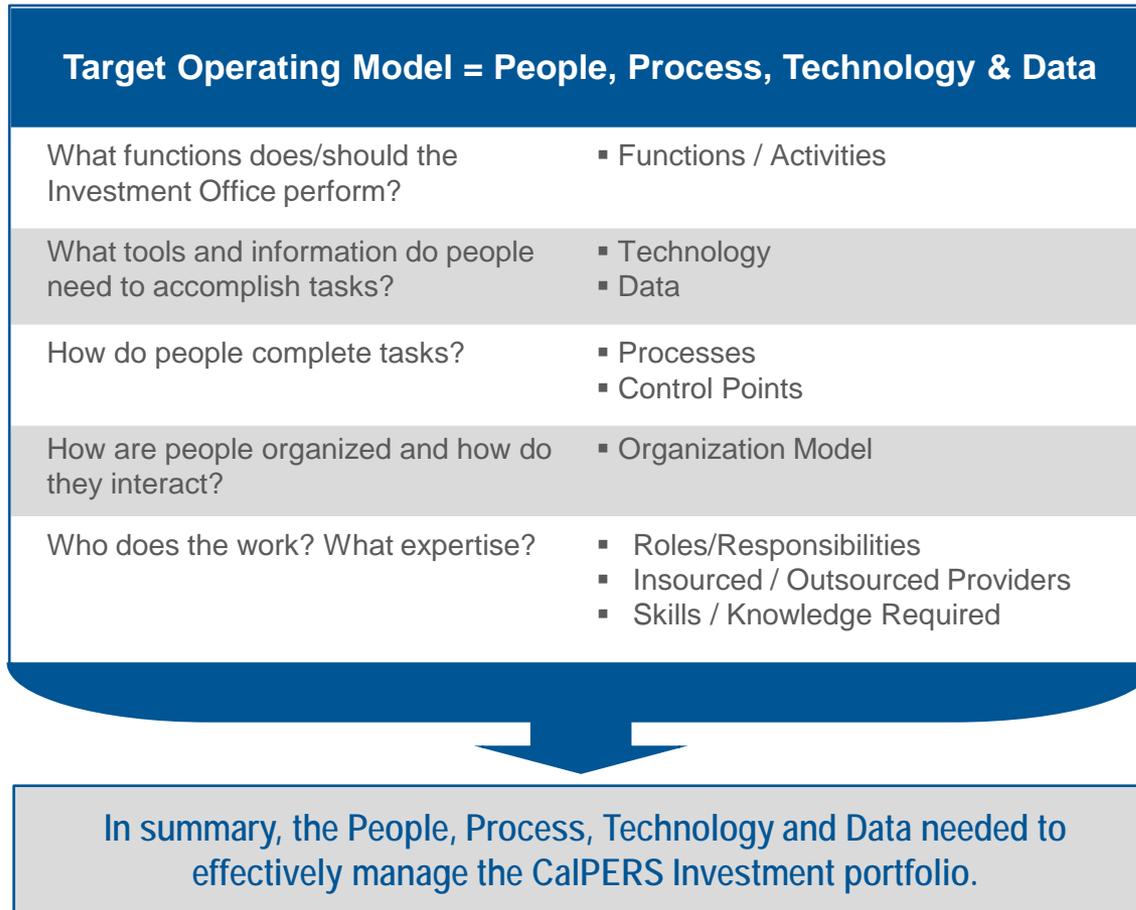
Design, develop and implement a robust operating model that minimizes complexity, improves transparency and strengthens processes, systems and controls.

**TOM Refresh Changes:**

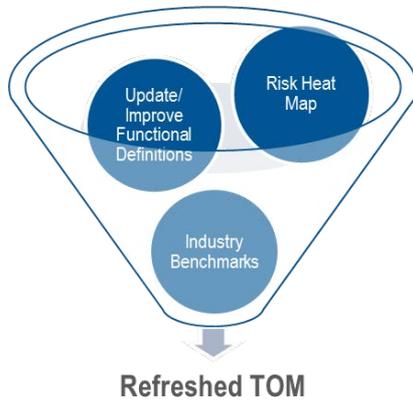
- Removed “best of breed”
- Focus on the desire for sustainable and robust capabilities

Today (FROM)	Vision (TO)
Risk exposure due to inefficient legacy, asset-based “cottage industry” approach geared toward specialized, siloed investment strategies	Efficient operational processes and technology with verifiable, transparent controls necessary to manage INVO’s global investment strategies
Fragmented and incomplete data & infrastructure; impossible to aggregate information for timely investment management and decision making	Integrated data and systems for efficient, timely decision making driving superior investment performance
Unnecessary complexity for the value derived	Appropriate blend of simplicity and complexity
Obscured accountability and unclear roles	Transparent organization structure, roles and processes for clear accountability

# What is a Target Operating Model?



# TOM Refresh includes an updated risk assessment and benchmarks



Initial TOM developed in 2010

## 2012 Risk Assessment

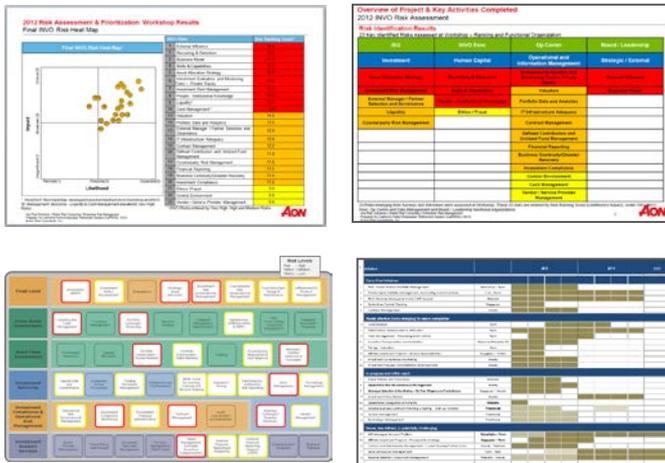
- Staff interviews, surveys and a workshop used to identify and rank risks
- Industry benchmarks used to evaluate functional risks and gaps
- High priority functional risks are addressed by initiatives on the TOM Roadmap

## Industry Benchmarks

- Achieve a sustainable, “managed level” of transparent, effective systems and controls comparable to:
  - *Asset Managers – mid-size (\$100 to \$300 Billion)*
  - *Insurance Companies*
  - *Pension funds with substantial internally managed assets*

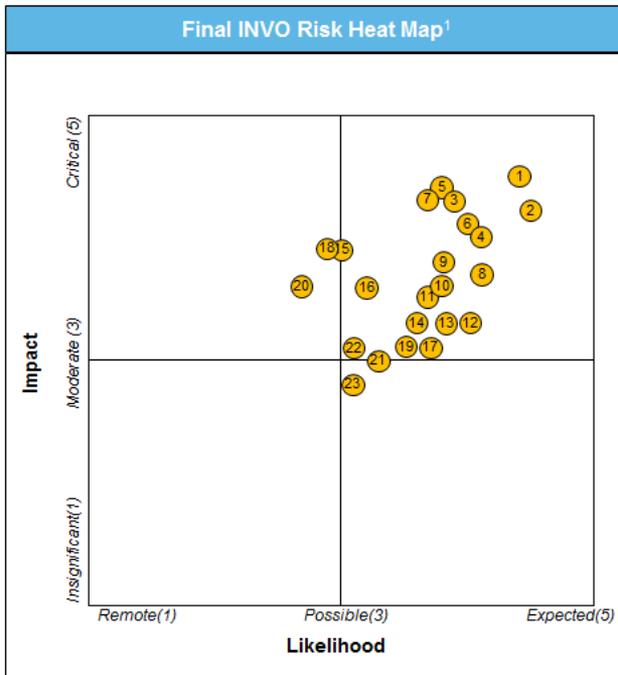
## TOM Components

- Risk Heat Map
- Functional Model and Definitions
- Functional Risk Assessment
- Roadmap (Initiatives, Priorities, Sequence)



# 2012 INVO Risk Assessment - Rankings

## 2012 Risk Assessment & Prioritization Workshop Results Final INVO Risk Heat Map



INVO Risks	Risk Ranking Score <sup>2</sup>
1 External Influence	19.8
2 Recruiting & Retention	18.6
3 Business Model	17.1
4 Skills & Capabilities	16.7
5 Asset Allocation Strategy	16.6
6 Investment Evaluation and Monitoring Tools – Private Equity	16.5
7 Investment Risk Management	15.7
8 People - Institutional Knowledge	15.3
9 Liquidity <sup>1</sup>	11.7
10 Cash Management <sup>1</sup>	9.8
11 Valuation	14.6
12 Portfolio Data and Analytics	13.5
13 External Manager / Partner Selection and Governance	12.8
14 IT Infrastructure Adequacy	12.6
15 Contract Management	12.2
16 Defined Contribution and Unitized Fund Management	11.8
17 Counterparty Risk Management	11.6
18 Financial Reporting	11.5
19 Business Continuity/Disaster Recovery	11.4
20 Investment Compliance	11.0
21 Ethics / Fraud	9.9
22 Control Environment	9.8
23 Vendor / Service Provider Management	8.6

- Numeric values represent combined staff scores (“votes”)
- Order (Rank) represents senior INVO management decision to increase the risk level of Liquidity and Cash Management

<sup>1</sup> Final INVO Risk Heat Map developed based on feedback from Workshop and INVO Sr. Management decisions - Liquidity & Cash Management elevated to Very High Risks

<sup>2</sup> INVO Risks ordered by Very High, High and Medium Risks



# 2012 INVO Risk Assessment – Governance

## 2012 INVO Risk Assessment

23 Key Identified Risks Assessed at Workshop – Rankings and Governance

ISG	Senior Management	Op Comm	Board / Leadership
Investment	Human Capital	Operational and Data Management	Strategic
Asset Allocation Strategy	Recruiting & Retention	Investment Evaluation and Monitoring Tools – Private Equity	External Influence
Investment Risk Management	Skills & Capabilities	Cash Management <sup>1</sup>	Business Model
Liquidity <sup>1</sup>	People – Institutional Knowledge	Valuation	
External Manager / Partner Selection and Governance	Ethics / Fraud	Portfolio Data and Analytics	
Counterparty Risk Management		IT Infrastructure Adequacy	
		Contract Management	
		Defined Contribution and Unitized Fund Management	
		Financial Reporting	
		Business Continuity/Disaster Recovery	
		Investment Compliance	
		Control Environment	
		Vendor / Service Provider Management	

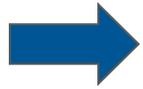
23 risks are ordered by Risk Ranking Score (Likelihood x Impact) under ISG, Senior Management, Operating Committee and Board / Leadership governance.

<sup>1</sup> Liquidity and Cash Management elevated to Very High Risks based on Senior Management insights.

Aon Risk Solutions | Global Risk Consulting | Enterprise Risk Management  
 Prepared for California Public Employees' Retirement System (CalPERS) | INVO  
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## Significant INVO Risk Heat Map Changes between 2010 and 2012



- **Operational and Data Management** related risks were the top three risks in 2010. In 2012, ranked lower overall with only two risks in the top 10.
- People (Human Capital) related risks are significantly higher than 2010
- Investment related risks remain high, or higher than, 2010
- Strategic risks are higher than 2010

## Operational and Data Management Risk: Risk Heat Map Implications

- **Operational and Data Management** related risks were the top three risks in 2010. In 2012, ranked lower overall with only two risks in the top 10:
  - Investment Evaluation and Monitoring Tools – Private Equity is #6
  - Cash Management (Processing and Controls) is #10
  
- **Risk Heat Map Implications**
  - Operational and data-related risks are ranked lower than in 2010, however, there are still a significant number of operational risks on the INVO Risk Heat Map
  - Lower rankings reflect progress, and confidence that issues are being identified and addressed in a structured process.
  - Need to “stay the course” on the TOM Roadmap using more program management discipline for the middle priority initiatives, and continue to use the INVO Operating Committee as a governance body

## Operational and Data Management Risk: Target Operating Model

- **Developed a more granular functional view than in 2010**
  - Identified cross-asset investment functions, such as currency management
  - Expanded the number of functions to reflect a more detailed understanding of INVO's requirements
    - Investment Compliance and Operational Risk Management
    - Affiliate Fund Management
    - Private Markets Servicing
    - Targeted Investment Programs
- **Defined functions and evaluated functional risks**
  - Used the INVO Risk Heat Map and Industry Benchmarks to evaluate functional risks
- **Developed and prioritized calendar year 2013/2014 initiatives to close gaps, reducing functional risk levels**

# TOM Hot Spots – Functional Risk Assessment

**Risk Levels**  
 Red – High  
 Yellow – Medium  
 Others – Low

<b>Trust-Level</b>	Investment Beliefs	Investment Policy Development	Delegations	Strategic Asset Allocation	Investment Risk Governance & Management	Counterparty Risk Governance & Management	Fund Structure Design & Maintenance	Affiliate and DC Product Management	
<b>Cross-Asset Investments</b>	Liquidity and Cash Management	Currency Management	Portfolio Leverage/ Financing	Security Lending	Collateral Management (Optimization)	Rebalancing (Affiliates Plans & PERF)	ESG, Proxy Voting, Corporate Engagement	Targeted Investment Programs	
<b>Asset Class Investments</b>	Investment Research	Capital Allocation	Portfolio Management - Private Markets	Portfolio Construction - Public Markets	Trading	Counterparty Negotiation & Due Diligence	Manager/ Partner Selection & Oversight		
<b>Investment Servicing</b>	Capital Calls and Commitments	Corporate Action Processing	Trading Document Management	Settlement and Confirmations	IBOR, Fund Accounting, Custody and Record-keeping	Valuation / Pricing	Performance, Attribution, Risk Reporting	Data Management	Technology Management
<b>Investment Compliance &amp; Operational Risk Management</b>	Operational Risk Governance & Management	Investment Compliance Monitoring	Investment Proposal Administration	Contract Management	Audit Coordination and Resolution	Business Continuity/ Disaster Recovery	Vendor Management		
<b>Investment Support Services</b>	Board Process Management	Travel Policy and Process	Document (Records) Management	Contact Management (INVO-wide)	Talent Management (includes Incentive Compensation)	Internal Expense Reporting & Budgeting	External Financial Reporting Support (CAFR)	Communication Programs	Business Planning

# TOM Roadmap - 2013/2014 Initiatives

Legend	
Significant Level of Effort	
Moderate Level of Effort	

ID	Initiative	INVO Owner(s)	2013				2014				2015
<b>Top Priorities, Carry Over</b>											
1	PM2: "Public Markets Portfolio Management"	Bienvenue & Flynn									
2	Private Equity Portfolio Management, Accounting & Data Services	Corr & Flynn									
3	INVO Expense Management & CAFR Support	Niebank									
4	Derivatives Central Clearing & Processing	Baggesen & Flynn									
<b>Needs Turbo Charging, Carry Over</b>											
5	Contract Management	Moody									
10	Trust (Fund) Structure Validations & Redesign	Flynn									
11	Performance Measurement & Attribution	Flynn									
21	Incentive Compensation Reengineering	HRSD & Niebank									
25	Pricing / Valuation	Flynn									
24	Affiliate Investment Programs – Roles & Responsibilities	Baggesen & Guillot									
24	Affiliate Investment Programs – Process & Technology	Baggesen & Flynn									
6	Investment Compliance Monitoring	Moody									
23	Investment Proposal Administration Enhancements	Moody									
<b>In-progress and Within Reach</b>											
7	Travel Policies & Procedures	Niebank									
9	Operational Risk Governance & Management	Moody									
8	Manager Selection & Monitoring - Standards and Compliance	Baggesen & Moody									
26	Operational Delegation of Authority (Non-Investment related)	Niebank									
15	Vendor Management	Flynn									
14	Technology Management	Flynn									
<b>Focus Primarily on Scope and Design in 2013</b>											
20	ARS Legal Structure & Technology	Robertiello & Flynn									
13	Cash Management - Processing & Controls	Flynn									
19	Investment Policy Revisions	Moody									
22	Disaster Recovery / Business Continuity	Flynn									
18	Contact & Relationship Data Mgmt – Current Business Partners Only	Moody & Niebank									
17	Data Management - Core Capabilities	Flynn									
16	Records Retention, Document Management	Niebank & Moody									

# Enterprise Risk Dashboard: Investment Controls and Systems

- **Investment Controls and Systems are Red on the Enterprise Risk Heat Map**
  - The current Enterprise Risk rating was assigned based on INVO's 2010 Risk Heat Map
  - Have made good progress, but retaining Red status due to the functional risk assessment and amount of essential work remaining on the TOM Roadmap
  
- **How do Investment Controls and Systems migrate to Yellow?**
  - Complete the PM2 Project for Internal Global Equity
  - Implement the Private Equity Portfolio Management System and Private Equity Accounting and Data Collection Services
  - Fully implement enhancements to INVO expense tracking and reporting
  - Establish investment compliance monitoring program
  - Develop more robust investment performance analysis and attribution capabilities
  - Improve contract management processes/controls and better align contract terms and conditions with services

*Estimated completion date: FY 2013-14*
  
- **How do Investment Controls and Systems migrate to Green?**
  - Materially complete all initiatives identified in the refreshed Target Operating Model

*Optimistic completion date: FY 2014-15*
  
- **Factors that impact the speed of delivery**
  - INVO's ability to recruit and fill key leadership positions
  - Dependency issues, such as the need to sequence initiatives so they build and support each other
  - Organizational bandwidth: There are limits on the amount of change INVO can absorb

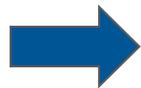
## Significant Risk Heat Map Changes between 2010 and 2012 - Continued

- Operational and Data Management related risks were the top 3 risks in 2010. In 2012, ranked lower overall with only two risks in the top 10.



- **People (Human Capital)** related risks are significantly higher than 2010.

- Recruiting and Retention is #2 was #14
- Skills and Capabilities is #4 was #10
- Institutional Knowledge is #8 was #20



- **Investment** related risks remain high or higher than 2010.

- Asset Allocation is #5 was #13
- Investment Risk Management is #7



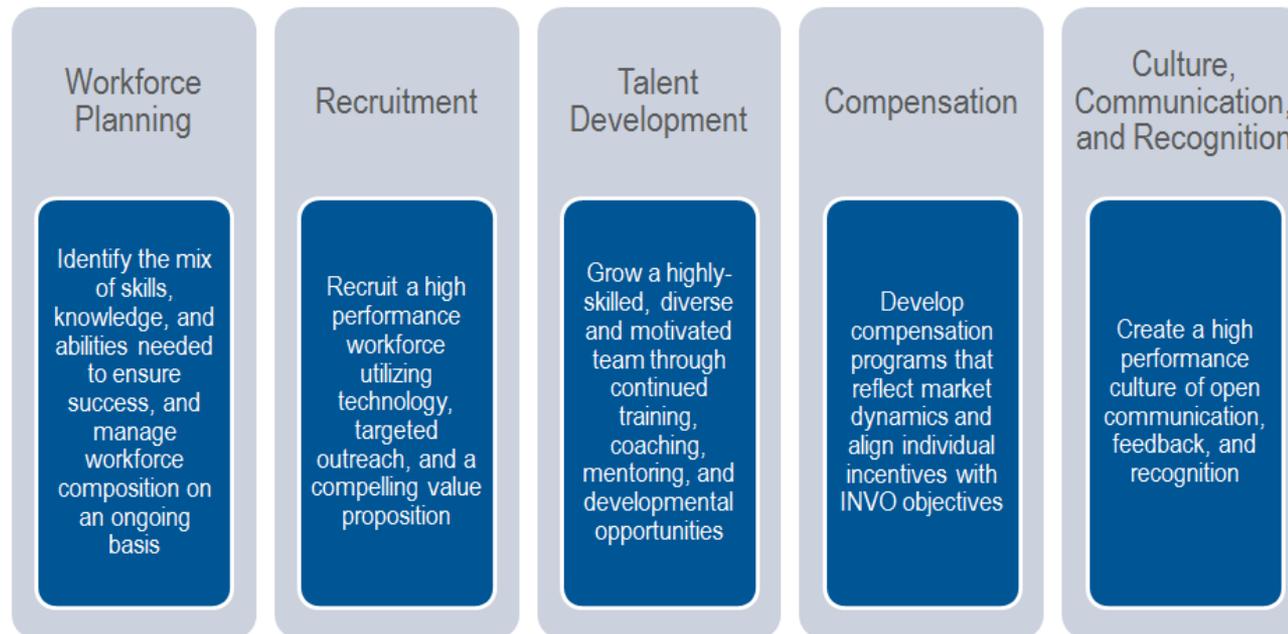
- **Strategic** risks are higher than 2010

- External Influence is #1 was #8
- Business Model is #3 was #9

## Risk Heat Map Implications (cont.)

- Human Capital Risks ranked very high, indicating that the current INVO roadmap initiative needs senior management attention, more resources, and wider communication across INVO about work in process and accomplishments.

### Talent Management: What Do We Need To Do



## Risk Heat Map Implications (cont.)

- **Investment Risks:** **Asset Allocation** and **Investment Risk Management** are ranked higher than 2010.
  - Likely reflects slow progress in improving fund-wide investment risk management capabilities due to open senior leadership role and limited staff in Investment Risk
  - Good progress in collaborating with Actuarial Office on asset liability risk management; need to communicate progress more widely to staff
  
- **Strategic Risks:** **External Influence** and **Business Model** are ranked higher than in 2010.
  - **External Influence Ranked #1** is defined as the “inability to execute activities that support long-term strategic goals and performance objectives due to undue influence on investment decision making by external stakeholders”

Significant progress has been made since 2010 in mitigating this risk by:

    - Undue Influence Policy managed by Enterprise Compliance
    - Formal communication protocols between CalPERS Board, staff and investment managers
    - Dedicated team to manage Targeted Investment Programs
    - Prioritization framework for Global Governance program
  - **Business Model Risk Ranked #3** is defined as the “difficulty in performing investment functions in an effective, timely manner due to the inflexibility of State government regulations and policies”



## Appendix

- Risk Rankings and Definitions
- TOM Initiatives and Objectives
- Investment Risk Management and Operational Risk Definitions

# Risk Rankings and Definitions

Risk Level	Definition
Very High Risk	Very High Risk
High Risk	High Risk
Moderate Risk	Moderate Risk

Risk Name	Risk Level and Rank	Risk Definition
External Influence	1	Inability to execute activities that support long-term strategic goals and performance objectives due to undue influence on investment decision making by key external stakeholders
Recruiting & Retention	2	Inability to identify, attract, select, hire and retain appropriately skilled and experienced employees to execute the organization's activities and maintain a stable workforce
Business Model	3	Difficulty in performing investment functions in an effective, timely manner due to the inflexibility of State government regulations and processes
Skills & Capabilities	4	Lack of key business, investment management and/or technical expertise necessary to run the organization and ensure the appropriate division of in-house vs. outsourcing of skills, functions and expertise
Asset Allocation Strategy	5	Lack of clearly articulated and agreed to Investment Beliefs to drive strategic Asset Allocation. Inability to develop and execute an asset allocation strategy that aligns with Investment Beliefs and provides acceptable risk-adjusted returns
Investment Evaluation and Monitoring Tools – Private Equity	6	Lack of efficient process, systems and data to evaluate investment opportunities and monitor existing investments in Private Equity
Investment Risk Management	7	Inadequate understanding of impacts of market risk factors on the value and performance of the total fund. Insufficient understanding of total and active risk at the total fund and within each asset class
People – Institutional Knowledge	8	Loss of key operational and institutional knowledge
Liquidity	9	Inability to forecast, maintain or access cash necessary to fund operations and meet obligations, including the inability to convert certain investments to cash without significant loss of value
Cash Management	10	Fragmented approach to cash management leads to sub-optimal cash management decisions or inappropriate movement of cash

# Risk Rankings and Definitions

Risk Level	Definition
Very High Risk	Very High Risk
High Risk	High Risk
Moderate Risk	Moderate Risk

Risk Name	Risk Level and Rank	Risk Definition
<b>Valuation</b>	11	Lack of a framework and governance over the valuation of assets may result in performance and financial reports not reflecting Fair Value
<b>Portfolio Data and Analytics</b>	12	Inadequacy in the quality and timeliness of data and analysis needed to perform critical investment functions within INVO including portfolio construction, performance attribution, and risk management
<b>External Manager / Partner Selection and Governance</b>	13	Limitations and inconsistencies in selecting, overseeing and compensating external managers to ensure alignment/compliance with INVO’s objectives
<b>IT Infrastructure Adequacy</b>	14	Lack of appropriate technology systems to support timely and accurate collection of data and execution of investment and other processes
<b>Contract Management</b>	15	Inability to develop and negotiate appropriate contractual terms for service providers results in an inability to retain the most qualified vendor. Inability to identify, catalog and manage required documentation in a consistent and automated manner in order to ensure contractual term compliance, expense management and contractual performance
<b>Defined Contribution and Unitized Fund Management</b>	16	The DC and Affiliate programs lack an automated system to manage asset allocation and unit order across INVO unitized funds. Duplicative processes across DC fund management and the Public Asset classes (e.g. manager selection and monitoring) could result in inconsistent decision making across INVO
<b>Counterparty Risk Management</b>	17	Inadequate systems, analyses, reports, or controls over the management of counterparties and trading partners, including setting collateralization terms and exposure limits
<b>Financial Reporting</b>	18	Inability to accurately and efficiently produce 1) internal management reports that capture all investment expenses with associated allocations to the Trusts, 2) a consolidated budget that combined INVO administrative and investment expenses and 3) investment content in the external financial reports (CAFR)
<b>Business Continuity / Disaster Recovery</b>	19	Inability to maintain business operations during and following a disruptive event, including effective business continuity, disaster recovery and crisis management planning
<b>Investment Compliance</b>	20	Violation of existing investment and other policies by employees or partners; or lack of processes or procedures to ensure compliance with existing policies, laws, regulations or industry best practices for asset manager
<b>Ethics / Fraud</b>	21	Improper behavior or unlawful action taken in pursuit of personal gain by employee(s) or others associated with or acting on behalf of the organization
<b>Control Environment</b>	22	Lack of appropriate separation of duties, well documented procedures, and well defined and effective controls within the business processes used in INVO
<b>Vendor / Service Provider Management</b>	23	Inadequate systems, analyses, reports, or controls over external business partners results in either excessive cost or poor service quality

# TOM Initiatives and Objectives

	Initiative Name	Proposed Objective(s)	Business Owner
1	<b>PM2: "Public Markets Portfolio Management"</b>	Upgrade the technology and investment servicing capabilities used in Internal Equity Portfolio Construction (IEPC) to assure an accurate investment book of record is used when making investment decisions, replace existing portfolio management tools, improve controls and increase capacity to take on new investment strategies.	Bienvenue and Flynn
2	<b>Private Equity Portfolio Management, Accounting &amp; Data Services</b>	Establish an integrated solution that incorporates (1) Portfolio Management System and (2) Accounting and Data Services so that Private Equity managers have the depth of data and support needed to enhance investment monitoring, improve risk management and reduce operational inefficiencies.	Corr and Flynn
3	<b>INVO Expense Management &amp; Comprehensive Annual Financial Report (CAFR) Support</b>	Establish effective practices for (1) managing INVO Expenses (e.g., budgeting, capturing, reporting) and allocating expenses to investment trusts and investment programs/asset classes, and (2) supporting production of investment-related data in the CAFR.	Niebank
4	<b>Derivatives Central Clearing &amp; Processing</b>	Establish capabilities needed to implement Central Clearing mandated by Dodd Frank and improve policies and procedures associated with derivatives trading.	Baggesen and Flynn
5	<b>Contract Management</b>	Establish an efficient, effective contracting process and system that ensures terms and conditions are appropriate for the nature of the services, and clear performance standards for vendor services and payment instructions exist.	Moody
6	<b>Investment Compliance Monitoring</b>	Establish compliance monitoring processes that follow defined protocols and ensure compliance with laws, regulations and investment policies, and where possible, appropriate industry best practices.	Moody

## TOM Initiatives and Objectives

	Initiative Name	Proposed Objective(s)	Business Owner
7	<b>Travel Policies &amp; Procedures</b>	Enhance and clarify policies and procedures that enable necessary travel, streamline management controls and improve timelines for reimbursing staff.	Niebank
8	<b>Manager Selection &amp; Monitoring - Standards and Compliance</b>	Incorporate minimum standards for manager selection and monitoring into the Rapid Results framework that is being used as a guide by each asset class, periodically assess the standards and practices adopted by each asset class, and conduct an annual compliance survey. (Note: Senior Investment Officers will monitor implementation of standards and practices appropriate for investments within each asset class.)	Baggesen and Moody
9	<b>Operational Risk Governance &amp; Management</b>	Enhance the operational risk governance and monitoring program (process and systems) to identify operating events related to current/proposed initiatives and the operating model, and address key risks.	Moody
10	<b>Trust (Fund) Structure Validation &amp; Design</b>	Validate the continued use of unitized investment pools, design an optimized pool structure that complies with legal requirements and implement changes.	Flynn
11	<b>Performance Measurement &amp; Attribution</b>	Provide timely, standard analytic reports and analyses that accurately measure performance, risks and exposures to assist in managing portfolios, monitoring risk and performance drivers and reporting to the Board.	Flynn
12	<b>Pricing / Valuation</b>	Assure ownership and governance of policies, and improve escalation procedures and control processes that ensure accurate prices/values for each type of asset.	Flynn
13	<b>Cash Management - Processing &amp; Controls</b>	Establish clear ownership for cash processing and authorizations for moving cash, and correct specific issues with forecasting, reporting and controls.	Flynn

# TOM Initiatives and Objectives

	Initiative Name	Proposed Objective(s)	Business Owner
14	<b>Technology Management</b>	Establish an appropriate support model for all INVO applications, build skills and capabilities needed to manage third-party support services and drive changes to INVO technology architecture/infrastructure to meet INVO business needs.	Flynn
15	<b>Vendor Management</b>	Complete implementation of the vendor management framework and establish capabilities (skills) consistent with the vendor management framework to assure that service levels of critical vendors are monitored and assessed.	Flynn
16	<b>Records Retention, Document Management</b>	Establish a comprehensive automated solution for storing business records that conforms with policy and legal requirements, streamlines Public Record Act (PRA) requests, and enables indexing of and access to authoritative documents.	Niebank and Moody
17	<b>Data Management – Core Capabilities</b>	Establish the core capabilities and a governance/architecture model needed to manage investment data including (1) evaluating needs for investment data, (2) integrating data into internal functions and third-party services, (3) managing costs and licenses, and (4) defining a long-term strategy.	Flynn
18	<b>Contact &amp; Relationship Data Management – Current Business Partners Only</b>	Establish processes and systems to maintain a limited amount of contact information about organizations with whom INVO has an existing contractual relationship in a central database/system, and determine feasibility of expanding the scope as a second phase of work.	Moody and Niebank
19	<b>Investment Policy Review</b>	Review and revise existing investment policies for consistency and completeness, and establish processes for developing new policies, managing changes and monitoring compliance.	Moody

## TOM Initiatives and Objectives

	Initiative Name	Proposed Objective(s)	Business Owner
20	<b>ARS Legal Structure &amp; Technology</b>	Implement a legal structure and investment servicing model including technology that meets the current and future requirements for managing investments in Absolute Return Strategies.	Robertiello and Flynn
21	<b>Incentive Compensation Reengineering</b>	Redesign the end-to-end processes and responsibilities to improve the accuracy and timeliness of incentive compensation calculations.	HRSD and Niebank
22	<b>Disaster Recovery / Business Continuity</b>	Establish and maintain a desired level of business continuity capabilities to assure key investment activities are sustained (recovered) during disasters.	Flynn
23	<b>Investment Proposal Administration Enhancements</b>	Establish a business owner and implement enhancements to Investment Proposal Administration processes and technology (IPTs) to improve Board reporting, external party usability and assure timely responses to proposals.	Moody
24	<b>Affiliate Investment Programs – Process &amp; Technology</b>	Develop more robust processes and technology(s) to replace the current manual/spreadsheet methods used in the Affiliate Investment Plans for processing cash flows, rebalancing, communicating trades and reporting.	Baggesen and Flynn
25	<b>Affiliate Investment Programs – Roles &amp; Responsibilities</b>	Integrate investment responsibilities for the Affiliate Investment Programs with Asset Allocation, Global Equity and Investment Risk, and maintain a robust Product Management role that assures the overall quality of investment services provided to affiliate plans.	Baggesen and Guillot
26	<b>Operational Delegation of Authority (Non-Investment related)</b>	Maintain appropriate and consistent levels of authority across INVO to streamline approvals required for Non-Investment related requests (e.g., paying invoices, equipment requests, request for bid letters, travel requests, tax reclaims, foreign market declarations).	Niebank

# Investment Risk Management and Operational Risk Definitions

**Operational Risk** is the risk of loss (monetary and non-monetary, e.g. human costs) from inadequate or failed processes, people and systems or from external events. This definition includes Legal Risk.

**Legal Risk** is risk from legal actions resulting from violations of contractual terms, laws or regulations. Legal Risk includes, but is not limited to, exposure to fines, penalties, or punitive damages, as well as private settlements. Legal Risk can arise when the applicability of contractual terms, laws or regulations is unclear.

**Investment Risk Management** is the risk of loss resulting from an (1) inadequate understanding of impacts of market risk factors on the value and performance of the total fund or (2) insufficient understanding of total and active risk at the total fund and within each asset class.

Investment Risk Management includes effective management of counterparty, liquidity and leverage risks.