**1. Algo Selection & Venue Analysis**

**Algo ‘landscape’ history & categories**

* **Phase 1 (1990s–2000s):** Simple schedule algos like **VWAP/TWAP** – designed to break orders into smaller slices and track historical volume curves. Focus was **reducing signalling and impact**.
* **Phase 2 (2000s–2010s):** Benchmark-based algos (Implementation Shortfall, Close) and **adaptive participation**. Algos started using **real-time volume curves**, quote/imbalance detection.
* **Phase 3 (2010s–today):** Sophisticated **liquidity-seeking algos** integrating dark pools, systematic internalisers, midpoint venues. Conditional block access became standard.
* **Phase 4 (today → future):** **AI/ML-driven adaptive algos** with predictive volume modelling, dynamic venue scoring, smart cross-asset hedging.

👉 **Categories & use cases**

* **Schedule-based:** VWAP, TWAP. Stable, predictable, low-impact → good for low urgency orders.
* **Benchmark-based:** IS (arrival), Close (MOC), POV. Chosen to minimise cost vs specific benchmark.
* **Liquidity-seeking:** Opportunistic fills in dark/SIs/ATS → good for urgent or block liquidity.
* **Portfolio algos:** Execute baskets with risk constraints, correlations, and cross-hedges.

**For CalPERS:**

* Given their **size and low turnover**, VWAP/IS remain the workhorses.
* For rebalance days → **Close/MOC algos** are critical.
* For more active tilts → controlled **liquidity-seeking algos** with venue filters.

**Systematic Internaliser (SI) usage**

* SIs (esp. in EU) provide **bilateral liquidity** off-exchange.
* They offer **midpoint price improvement** and reduced market impact.
* Risks:
  + **Recycled risk** (SI fills may just be broker facilitation).
  + **Adverse selection** if interacting with high-frequency counterparties.
* Across desks:
  + **Quant & systematic managers** prefer stable exchange liquidity.
  + **Active & block desks** leverage SIs for larger orders.
* Algos integrate SIs via **liquidity wheels** → continuously score venue quality (fill rates, price improvement, information leakage).

**For CalPERS:**

* Key is ensuring transparency: insist on **venue tagging in TCA** to monitor SI quality.
* Use SI fills where it’s **additive (true contra flow)**, but not as the default.

**CalPERS trading profile becoming more active**

* Historically **benchmark-driven, low turnover**, but if more active:
  + Need **adaptive algos** (IS, liquidity-seeking).
  + More reliance on **pre-trade analytics** (spread cost, expected volume, volatility forecast).
* Increased active trading → increases risk of **crowding with other asset owners/passives**.
* Solution: diversified **execution style mix**, not just defaulting to VWAP/Close.

**Controllable parameters / interfaces**

* **Urgency sliders:** control trade-off between cost vs risk.
* **Participation caps:** min/max POV (e.g. 5–15%).
* **Venue inclusion:** control SI/dark/ATS vs lit.
* **Price limits:** hard caps on aggression.
* **Conditional access:** allow/disallow blocks.
* **Pause/restart, inline rescheduling.**
* For governance, asset owners increasingly ask for **algo parameter templates per order type** (so the desk can enforce consistency).

**Algo wheel usage**

* **Pros:**
  + Removes bias in broker routing.
  + Provides **performance benchmarking** across providers.
  + Allows **systematic post-trade analysis**.
* **Cons:**
  + Wheels need ongoing **calibration**.
  + Risk of **convergence** if everyone uses them (herding).
  + Not flexible enough for **idiosyncratic situations (rebalance, blocks)**.

**Best practice:**

* Use wheels for **standard orders**.
* Allow manual discretion for **events, large trades, bespoke risk buckets**.

**🔹 Which algo fit for CalPERS as it becomes more active?**

**1. Current profile (baseline)**

* **Long-term, low turnover, index-like mandates.**
* Historically, execution has been:
  + **VWAP / POV / IS algos** for core cash flow and rebalance orders.
  + **Heavy use of MOC** for NAV alignment and index tracking.
* Trading objective: **minimise tracking error** vs benchmark rather than maximise short-term alpha.

**2. What “more active” means for CalPERS**

* If CalPERS becomes “more active,” it implies:
  + **Higher turnover** in equity portfolios (sector rotations, factor tilts, tactical shifts).
  + **More discretionary timing** (not just waiting for closes or rebalances).
  + **Potential alpha-driven execution** rather than purely benchmark replication.
* They’ll need a toolkit that supports **intra-day flexibility, block access, and faster reactivity**.

**3. Algo categories that fit a more active CalPERS profile**

**a. Implementation Shortfall (IS) algos**

* Best for **urgent orders** where the goal is to minimise slippage vs arrival price.
* Fits when CalPERS wants to **move risk quickly** without waiting until close.
* Useful in **tactical rotations** (e.g. reducing financials, increasing tech).

**b. Adaptive Participation algos (Dynamic POV)**

* Adjust participation dynamically based on **real-time volume, spread, volatility**.
* Ensures CalPERS is trading in line with the market without over-exposing in thin liquidity.
* Reduces **intraday market impact** vs static POV/VWAP.

**c. Liquidity-seeking algos (Dark / Conditional access)**

* As activity rises, CalPERS can benefit from **opportunistic block liquidity** in SIs, ATSs, conditional venues.
* Allows large orders to be crossed **with less footprint** vs lit venues.
* Helps balance **urgency vs market impact**.

**d. Closing Auction participation (MOC with flexibility)**

* Still central, but more active CalPERS would:
  + Use **imbalance-sensitive algos** to size MOC exposure.
  + Shift some flow earlier to reduce crowding at close.
* Dynamic “Close + IS blend” algos are increasingly common.

**e. Multi-day slicing algos**

* For bigger thematic trades (sector rotation, factor rebalancing), CalPERS may split orders **over several sessions**.
* Multi-day algos adjust urgency daily depending on volume forecasts, vol, and crowding risk.

**4. Key enhancements to align with “more active” style**

1. **Pre-trade analytics integration** – forecast liquidity, spreads, crowding → drive algo selection per order.
2. **Greater parameter control** – CalPERS should set: urgency bands, max POV, venue inclusions (SIs yes/no).
3. **Algo wheel with alpha dimension** – not just broker rotation, but **strategy rotation by use-case**.
4. **Intraday re-balancing** – shift orders mid-day if liquidity forecasts change.
5. **TCA feedback loop** – continuously measure IS, VWAP, Close slippage → refine selection rules.

**5. Risks if they don’t adapt**

* If CalPERS increases activity but keeps using **VWAP + Close only**, they risk:
  + **Excess crowding costs** (over-reliance on close).
  + **Alpha decay** (too slow to adjust positions intra-day).
  + **Higher tracking error** when liquidity thins mid-day.

**✅ Soundbite for meeting**

“As CalPERS shifts to a more active trading style, the fit evolves from a heavy reliance on VWAP and Close towards a more balanced toolkit: **Implementation Shortfall algos for urgent tactical trades, adaptive POV for flexible participation, liquidity-seeking for block access, and dynamic MOC strategies for benchmark alignment**. The key is to let **liquidity forecasts and order urgency** drive the algo choice, and to systematically measure outcomes with TCA so the wheel keeps improving.”