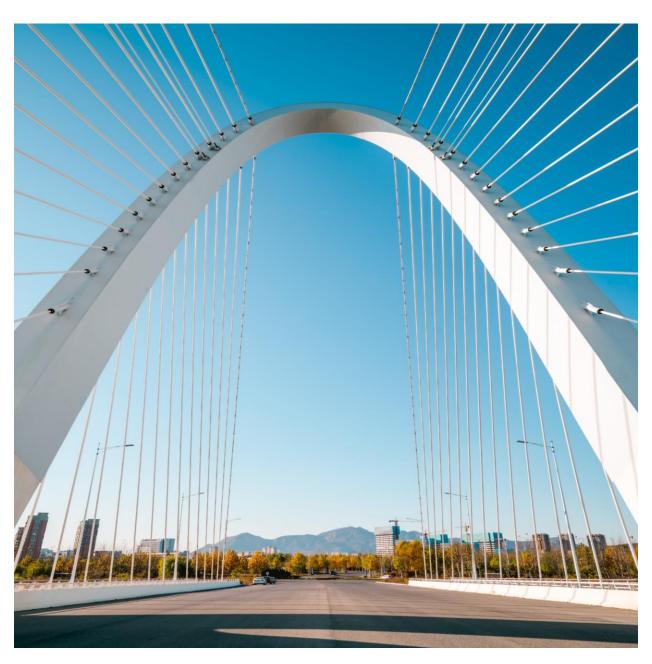
ENHANCED PORTFOLIO IMPLEMENTATION



SEEKING TO IMPROVE AND ENHANCE OPERATIONAL EFFICIENCY AND HELP IN MAXIMIZING ALPHA PRESERVATION



RUSSELL INVESTMENTS RESEARCH

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Enhanced portfolio implementation: Seeking to improve and enhance operational efficiency and help in maximizing alpha preservation

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The Evolution of Investment Management

In recent decades institutional investment management has become more sophisticated across each function, as asset owners and investment managers embrace technological advancements and respond to evolving investor needs.¹

Portfolio management techniques have progressed from static multi-manager portfolios to those that use detailed risk models and total portfolio management methods, aimed at enhancing risk-adjusted returns.

As portfolio management has evolved, implementation practices have had to respond too, working to ensure portfolios and costs are managed as efficiently as possible – ultimately in pursuit of improving total return.

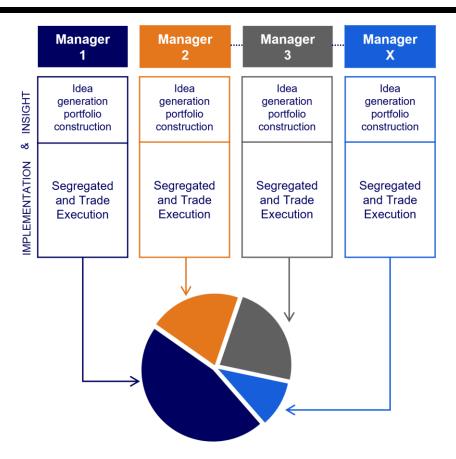
In this paper, we explore implementation structures for multi-manager equity portfolios and introduce Enhanced Portfolio Implementation (EPI) as a method of seeking to simplify the operating model, improving implementation efficiency, and reducing costs.

Implementation Evolution: EPI – Separating implementation from insight

In a traditional multi-manager approach using separate account implementation, each underlying investment manager in a total portfolio is independently allocated a pool of capital to manage in line with their respective investment objective, portfolio guidelines, and operational process. This approach allows for the total portfolio to be exposed to the return stream of each manager in a tailored way. However, the structure also introduces some operational inefficiencies.

¹ NASDAQ https://www.nasdaq.com/articles/a-decade-of-change%3A-how-tech-evolved-in-the-2010s-and-whats-in-store-for-the-2020s

Exhibit 1: Traditional multi-manager framework



Source: Source: Russell Investments, for illustrative purposes only.

The operational inefficiencies of a multi-manager, separate account are outlined below.

- Each manager's portfolio is housed within a separate custody account. This usually requires at least five custody accounts plus any additional accounts for fund level cash or currency management activities.
- Trading is executed independently by each manager. This can lead to offsetting trades, whereby different managers buy and sell the same stock on the same day or within a short period. This introduces execution and transaction costs to the fund, without commensurate change in fund exposure.
- When changing allocations between managers in the fund, each manager
 usually buys securities to spend cash or sells securities to raise cash
 independently. This prevents any netting between buyers and sellers, as the list
 of stocks to be bought and sold is executed without any reference to the other
 side of the trade. This adds unnecessary trading, execution and transaction
 costs to portfolio rebalancing.
- As an extension of the above point, any fund restructuring with manager replacements (transitions) also introduces cost and timing inefficiencies. When changing managers, appointing a specialized transition manager (for a fee) is usually required. Transition management requires additional contracting and account setup, which introduces delays in implementation, as does the need to transfer assets between accounts due to security settlement cycles.

 Any customization or fund-level restriction requires coordination with each individual manager. For example, implementing an exclusion list at the fund level would require each underlying manager to apply an exclusion, with updated investment guidelines and monitoring.

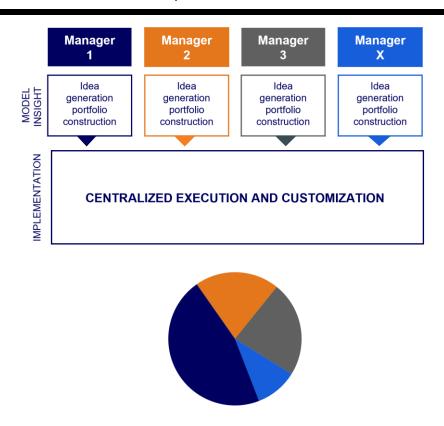
The above potential inefficiencies of a multi-manager portfolio stem from the operational and implementation functions. Enhanced Portfolio Implementation (EPI) is a framework that strives to simplify the multi-manager operating model, enhance implementation efficiencies and reduce costs.

What is EPI and how does it work?

The EPI framework is designed to separate implementation from manager insight within a total portfolio. This is achieved by moving to a model portfolio-based approach, where manager model portfolios are aggregated and executed centrally within a single account. The objective of the EPI framework is to retain the insights from managers in a fund, while significantly reducing operational burden to the investor.

Rather than having managers in a fund independently managing portfolios, the EPI process has each manager periodically submitting a model portfolio. Model portfolios are submitted at least weekly, with many managers choosing to submit daily models to incorporate each day's changes. Model portfolios are based on end of day holdings, incorporating any trading done by the manager on that day. As such, the EPI process is trading after the manager and therefore helps avoid conflict of interest with respect to trade timing.

Exhibit 2: Enhanced Portfolio Implementation framework



Source: Russell Investments, for illustrative purposes only



The EPI framework is designed to separate implementation from insight within a total portfolio.

The EPI portfolio manager is then responsible for aggregating the model portfolios of each manager into a single composite target for the fund, in the same way that a traditional multi-manager fund would aggregate exposures of the underlying portfolios. The fund is then rebalanced as required to align with stock level changes in the underlying model portfolios, and any changes to the manager allocations inside the fund's composite target. EPI portfolios are managed relative to the composite target of the benchmark, with the goal of limiting active risk and preserving the underlying manager return streams.

For an EPI manager, having a robust portfolio management process is key to enhancing implementation efficiency. This includes a risk-based portfolio management and monitoring process relative to the composite manager target to establish trade/no trade decisions. Additionally, rules-based quantitative trade construction aims to ensures cost effective transactions, and efficient trading of an aggregated trade list.



The key engine of cost saving within EPI is reduced trading volume.

The potential benefits of EPI

For institutional investors, the EPI framework has three key areas of focus that work to provide efficiency gains to the portfolio:

- 1. Alpha preservation and cost reduction in a single custody account.
- 2. Portfolio control, efficiency, flexibility, and customization.
- 3. The potential for lower management fees.

1. Alpha preservation and cost reduction in a single custody account

In an EPI structure, the fund trades based on model portfolios which include trades already executed by the manager. This is only done when it makes sense to do so at the overall fund level rather than matching each manager's trade every day. Although the time delay between receiving a model portfolio and rebalancing is small, there is a potential timing impact associated with trades. One of the major potential of EPI is lower costs. Over time these savings tend to outweigh any negative impact from trade timing.

The key engine of cost saving within an EPI framework is reduced trading volume. By centralizing portfolio management and trading in a single custody account that is rebalanced periodically there are three drivers of reduced trading volumes.

- 1. Less frequent trading compared to a manager-of-manager approach. By trading less frequently and only when required from a risk perspective at the total portfolio the level of turnover is significantly reduced.
- 2. Elimination of offsetting trades between manager models. If one manager model portfolio buys Apple stock while another sells Apple stock, the EPI portfolio is only required to trade the net change in exposure at a total portfolio level.
- 3. Elimination of trivial trades and positions. The EPI portfolio will only execute trades above a materiality threshold at the total portfolio level and will not hold insignificant positions. For example, an active manager might be allocated 10% of an overall equity strategy or portfolio. This active manager executes trades as part of the normal rebalancing process, some of which are 30-50bps in size. At the manager level these trade sizes are normal and expected but at the client's total equity portfolio level these trades only equate to 3-5bps. At this size, most are too small to have a meaningful impact on performance, especially when transactional cost of the turnover are considered.

By reducing trading volumes and lowering turnover, the portfolio can benefits from lower trading costs.

- Execution costs are reduced in line with the reduction in trading volumes.
 Relative to a traditional multi-manager portfolio using separate account implementation, an EPI portfolio in global equities may reduce turnover by up to 35%.²
- Centralized execution in a single custody account not only helps reduce overall
 portfolio turnover, but also the number of trade tickets. Limiting the number of
 trade tickets can reduce custody charges, which can be expensive in some
 regions e.g., emerging markets. An EPI approach also helps reduce the number
 of holdings at a total portfolio level vis a vis a manager-of-manager approach,
 can also reduce custody holding charges at a fund level.

It is important to note that gross performance is closely monitored through the EPI portfolio management process. Portfolios are managed to an agreed upon level of tracking error with the client, including specific constraints around the country, sector, factor, and stock specific risks to help ensure similar performance outcomes to the target. Models represent positioning that investment managers have already bought and sold, leading to an inherent timing difference between when investment managers update their model positioning and when the centralized EPI portfolio trades. While this timing difference can result in a managed performance variance, it is usually offset by the EPI process. This process aggregates trading activity with the goal of increasing implementation efficiency and generating net performance improvements.

2. Portfolio control, efficiency, flexibility and customization

The EPI framework enables a stronger focus on investment priorities, by helping reduce the operational burden of multi-manager portfolio management.

Centralizing a strategy or fund assets into a single account, offers possible improvements beyond performance . A single portfolio of assets allows for:

- Consolidation of reconciliations and pre- and post-trade compliance.
- A single set of fund portfolio guidelines.
- Simplified trade settlements, account and market opening procedures.
- More streamlined data flow for total portfolio reporting.

Allocation decisions, cash flows and transition events are also simplified in an EPI structure using a single custody account. The EPI structure requires only one account to be maintained for cash, instead of individual liquidity reserves for each manager. This makes operations more efficient for fund inflows and outflows, where assets can be added and redeemed efficiently in line with existing or updated target manager weights. Changes to manager weights can also be notified with a single communication to the EPI manager. The EPI trading process aligns with the inflow and outflow activities for a fund, helping enhance efficiency gains on trading.

Manager hiring and firing decisions (including transitions) can be facilitated rapidly in a single custody account. Transitions, timelines, procedural steps, and costs associated with changing strategies or managers can be greatly reduced. The key advantage with an EPI structure, is that all portfolio changes can be implemented within the main portfolio. With aggregate exposures simplified into a single custody



...EPI portfolio in global equities may reduce turnover by up to 35%.



Manager hiring
and firing can be
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single custody
account.

² Russell Investments data as of 30 September 2023. Figures are annualized and reflect global equity portfolio track record. Enhanced Implementation inception for the portfolio 11 June 2014.

account, maintaining and adjusting exposures, such as using FX or futures, become much simpler to control.

From a customization perspective, aggregate exposures can be adjusted quickly and easily in line with client preferences, for example incorporating ESG characteristics or aligning to a strategic factor preferred positioning. Responsible investment and ESG is increasingly important for investors, and it is possible to efficiently express views or implement policy decisions directly within the EPI portfolio. In most cases, this can be done with no additional changes from the investment managers; all changes can be applied at the centralized EPI portfolio level. ESG implementation may be used for stock and sector level exclusions, or to incorporate an ESG tilt at total portfolio level.

3. The potential for lower management fees

By moving active equity management to an advisory model, investment managers deliver their portfolios to the EPI manager for centralized implementation. This means that the manager is not responsible for trading, risk, compliance, or operational aspects of their allocation. The only requirement from the manager is the model portfolio provision.

These reduced requirements at manager level, make it possible to negotiate lower management fees when using an EPI structure. Through reduced turnover and ease of setup provided to investment managers, issues around AUM and/or capacity constraints may also be reduced.

Incorporating EPI to an Equity Portfolio

As explained, there are potential reductions in operational burden when using an EPI approach to implement a multi-manager equities portfolio. Applying EPI to the total portfolio can help reduce operational burden, with all underlying managers using the framework to seek to enhance efficiency gains and cost reductions. In some cases, due to the investment strategy or portfolio structure, it may make sense to use an EPI framework for a discrete portion of a total portfolio.

The EPI process relies on periodic model portfolios from managers, and the centralized implementation of these portfolios could lead to benefits from lower turnover and trading volumes. Certain investment strategies, which tend to be noncore in the context of a total portfolio and therefore are usually held at a relatively low weight, are not suited to implementation via EPI. Example strategies include:

- Portfolios which use shorting. These portfolios typically benefit from being directly managed by the investment manager, as the operational requirements for this kind of strategy are more specialized and have additional compliance and reporting obligations.
- Portfolios which utilize higher frequency trading as part of their investment strategy. These strategies are usually quantitative rather than fundamental stock selection. The EPI framework balances (small) delays in trading from manager portfolios against reduced trading volumes. Strategies that significantly alter positioning over the course of days, and have relatively high turnover, usually do not benefit from the EPI approach.

When managing a total portfolio, it is important to be pragmatic about limitations of any implementation strategy, and this is the same for the EPI framework. As noted above, certain portfolio types that do not lend themselves to seamless integration of an EPI approach. In the context of a total portfolio however, this may not be an issue. As an example, to build a multi-manager portfolio with five managers, one of

which was an active extension strategy incorporating short selling, the EPI approach could be applied to the other four strategies while the portfolio with short positions is effectively ringfenced. This would still allow for potential reductions in the operational burden for the managers on the EPI platform while helping enhance the efficiency of the total portfolio in a pragmatic way.

Case Studies: Transition management and Decarbonization

The potential benefits of adopting an EPI approach to multi-manager equity portfolios can be seen in the case studies below, using both transition management and ESG lenses.

Case study 1: Transition Management

From a total portfolio perspective, the decision to terminate an existing manager and hire a new manager is a material event. The ability to implement these changes quickly and efficiently can benefit the overall portfolio by helping reduce opportunity costs and operational burden.

For example, a generic global equity portfolio illustrates the efficiency gains in manager transition. Once a new manager is found and contracting is complete, the only requirement from the new manager is to provide a model portfolio for use in the EPI composite target portfolio. Rebalancing then takes place to the updated target, including the new manager (and removing the terminated manager strategy) as normal. This streamlines the manager transition process, helping the portfolio to complete the implementation within days.

In contrast, a traditional transition event in a multi-manager portfolio uses independent separate account implementation, which has numerous steps including:

- **1.** Hiring a dedicated transition manager to manage the event.
- 2. Terminating the manager settlement of outstanding trades and transfer of legacy assets into a transition account that must settle before trading to the new manager portfolio can begin.
- **3.** Once trading is complete to the new manager strategy in the transition account and all trades have settled, the assets are then transferred to the new manager portfolio.

The traditional transition approach introduces additional operational complexity, and lengthens the time taken to move from legacy to target exposures within the total portfolio. Within an EPI approach, investors could benefit from more nimble decision-making and efficient operations. The difference in these approaches is illustrated below.

EPI Transition

| Legacy Trade Settlement |
| Transfer to TM Account Settlement |
| Legacy to Target Trading |
| Transition Management |
| Transfer to New Account Settlement |
| Transfer to New Account Settlement

Exhibit 3: Investment manager change in traditional model vs EPI structure

Source: Russell Investments. Historical returns for illustration only and not indicative of future performance. Timing of transition events are estimates only based on standard industry practice and are subject to change based on portfolio requirements.

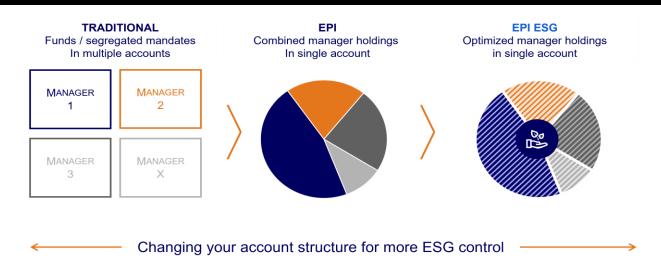
Number of Days

Case study 2: Decarbonization Overlay

As regulatory requirements have evolved with respect to climate change and carbon emissions, asset owners and investment managers have had to act accordingly. A large UK-based asset owner (Wales Pension Plan, "WPP") required a portfolio strategy that would complement active management while solving for: a regulatory requirement to reduce portfolio carbon exposure; heightened stakeholder focus on decarbonization; and Net Zero commitments.

By adopting an EPI approach to implementation, WPP was able to significantly streamline ESG integration while maintaining insights from existing underlying managers in the portfolio. The flexibility of an EPI structure enabled WPP to implement a decarbonization overlay while preserving the existing manager structure. This approach allowed the portfolio to achieve a 25% reduction in both carbon footprint and fossil fuel reserves relative to the portfolio benchmark while maintaining a <50bps tracking error relative to the underlying investment portfolio. The portfolio also excludes companies that rely on coal to generate revenues. Since adopting the EPI structure WPP was able to implement a decarbonization initiative across its global equity assets using a single guideline update, with no transition of funds or securities. The EPI structure has delivered WPP greater total portfolio control of ESG-related exposures, and improved operational efficiency.

Exhibit 4: Transition from traditional model to use of ESG Overlay within EPI structure



Source: Russell Investments, for illustrative purposes. Demonstration of ESG Overlay with EPI structure used for Wales Pension Plan since 2020. The case study is for illustrative purposes and is no guarantee of future performance. Results will vary and is based on individual circumstances and factors

The future of portfolio design

As portfolios have become more sophisticated, implementation methods have had to evolve to manage both operational burden and costs. Traditional multi-manager portfolios have advanced significantly from an investment perspective, however standard implementation structures still have inefficiencies.

By using a model portfolio-based framework rather than independent separate mandates (or a fund-of-funds structure) to implement multi-manager equity portfolios, asset owners and investment managers can reduce operational burden, seeks to enhance efficiency gains, and reduce costs of the total portfolio.

The Enhanced Portfolio Implementation (EPI) platform has been designed to streamline implementation, while maintaining insights from underlying managers in a portfolio. By adopting an EPI approach, investors could preserve alpha, reduce implementation costs, increase portfolio control, efficiency, flexibility, and customization, and potentially lower management fees.

An EPI structure can be applied to the total portfolio in full or be partially applied depending on the needs and underlying strategies. Whether applied in full or not, the potential reduction in operational burden can be significant across a multimanager investment program.

QUESTIONS?



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