

InsideOps | Insights for Asset Management Operations Leaders

# The Exchange Traded Fund Opportunity: Considerations for Success

A large blue chevron graphic pointing to the right, positioned behind the text "High performance. Delivered."

High performance. Delivered.

## Part I: New ETFs Challenge Existing Operations

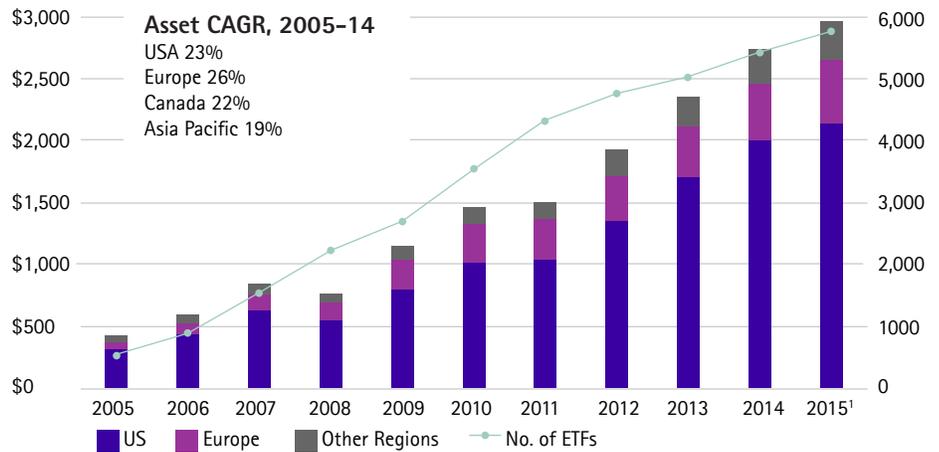
The assets of Exchange Traded Funds (ETFs) have grown tremendously since the launch of the first ETF in 1993. Growing at an equally impressive rate is the complexity of these products. As new indices, asset classes, and products are added, the increase in operational challenges and risks have grown significantly. In particular, the growth of active ETFs, with their dependency on real-time fund accounting data for accurate basket creation, are putting considerable stress on back office procedures and technology.

Today, ETF sponsors launching new products face the challenge of determining whether their back office operations staff and supporting technology is up to the task of servicing these ETFs. Many sponsors look to service providers to perform these functions. However, even the most experienced service providers, with their broad service offerings and extensive domain expertise, have struggled to keep their technology and operating models up to date with the rapid and innovative product launches. Understanding the evolution of the ETF from the service provider perspective will better demonstrate the challenges they now face in meeting the needs of their ETF sponsor clients.

### Service Provider Case Study

ETF growth was initially slow with little more than 500 funds in the first 12 years. Service providers handled this "upstart" financial instrument by retrofitting operational solutions into their mutual fund accounting systems and implementing elaborate Excel macros. One early ETF service provider modified their accounting system for the purpose of using mutual funds as ETF baskets. This approach was adequate in that a mutual fund could hold securities to which they could apply income accruals and prices, both required components of ETF baskets. Furthermore, they used the system to calculate the market value of this "basket" fund which is essential to the daily ETF cash calculation.

### Global ETF Market, USD Billions



<sup>1</sup>Data through the end of October, 2015

Source: Beacon Research based on ETP Landscape, BlackRock, October 2015

This solution worked well for many years, primarily due to the prevalence of rather vanilla, passively managed ETFs where the basket of securities rarely changed, save for rebalances of the underlying index. However, many industry driven factors challenged this model. The primary challenge was simply the growth in their clients' ETF book, as less than one thousand ETFs launched in the first decade grew to just over five thousand by the end of the second decade.

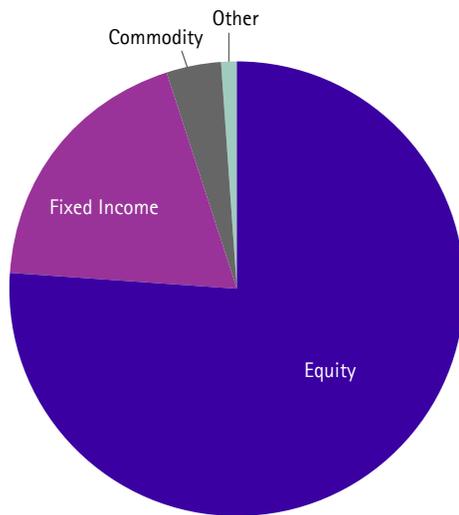
Some of the unorthodox uses of the accounting system, while insignificant at first, were starting to raise concerns around system performance. For instance, an essential component of valuing the ETF basket is incorporating the period-to-date interest accrued on each bond projected out to the basket's settlement date. Rather than calculate this offline, the remedy was to book and cancel thousands of dummy, post-dated bond trades on a daily basis, thereby leveraging the accounting system's ability to calculate interest to any future settle date. As the number of ETFs grew, so too did the number of baskets and therefore the number of dummy bond trades. The strain on the system became noticeable and service providers came to realize that this design was not scalable.

Custom baskets were another area that required significant workaround. While their "mutual fund as a basket" design worked well for the daily standard basket, custom baskets posed new difficulties in that Authorized Participants (AP) could modify the standard basket for one of several reasons, such as:

- Cash in lieu – APs may be restricted from trading in a specific security and therefore must deliver a basket excluding this restricted security, making up for the shortfall with cash
- Basket Settlement Date change – APs may require an extended time to deliver. Extending the settlement date on a bond basket will change the accrued interest thereby impacting the cash component
- Negotiated basket – The ETF sponsor may negotiate a custom basket to be offered daily for a particular AP

The overall implication of these customized situations is that on any particular day, multiple baskets holding variations of the standard basket's holdings may be required on very short notice. Notification of a custom basket requirement often comes the same day they need to be delivered, making it impossible to handle the volume due to the lengthy "mutual fund as a basket" workaround process. Furthermore, the life of a custom basket concludes upon its settlement date. This means the organization is faced with the prospect of creating and abandoning hundreds of "basket funds," generating noise in the system and inevitably impacting system performance.

## ETF product type breakdown



Source: Beacon Research based on ETP Landscape, BlackRock, July 2016

To alleviate this issue, custom basket creation was moved offline to Excel where macros were employed to automate this process to some degree. However, this resulted in high staffing ratios as the work was performed on a basket by basket basis, often repeating the same tasks on the same securities across multiple baskets for the same fund.

## ETF Services 2.0

The evolution of the current ETF service provider technology and operating model has many similarities to that of the mutual fund accounting industry from decades ago. Historically, service provider response has been reactive, building out technology only when compelled by the demands of their clients and the industry. However, attitudes are taking a markedly proactive turn due to the explosive growth of the ETF market.

This growth trend is expected to continue in an exponential fashion as asset managers that currently do not offer ETFs continue to enter the market. Furthermore, the products offered by these new players, as well as the veterans, will continue to increase in complexity as they contemplate adding new complex security types and non-transparent models, thereby demanding even more from service providers.

In response to increased market demands, service providers would need to consider significant investment in technology solutions that address the dynamic requirements of these new ETFs. To some degree, this technology should leverage off of the backbone of existing accounting platforms. However, it should be integrated as an appropriate component of the overall workflow, as opposed to the retrofitted workarounds of the past. A new ETF platform should include:

- Seamless integration with supporting technology (e.g. Fund Accounting Security Master, Corporate Actions and Pricing systems)
- Standard and custom basket creation via upload and extract methods
- Centralized basket functions
- Automated control environment
- Interface with ETF Order Entry

## Conclusion

The evolution of service provider operations has been fast tracked by the significant growth and increased complexity of the ETF marketplace. Offline solutions and workarounds have become unmanageable and the industry is realizing ETFs can no longer be forced into the mutual fund model. Service providers should move quickly to retire these workaround processes and replace them with fully automated solutions. Those service providers with current technology solutions and efficient operating models that effectively support ETF clients and their progressive product creation would likely experience the greatest success as the industry continues to expand.

## Part II: Considerations for Building ETF Basket Processing Technology

### ETF Servicing 2.0 – Technology

When ETFs were first launched, many service providers and asset managers leveraged their existing and well established mutual fund technology and infrastructure for operational support. The extraordinary growth of products and assets, geographical coverage, and increase in complexity of product structures during the past decade has stressed legacy support models and paved the way for new technology solutions.

Not too long ago, one could have argued that a large ETF technology build was a risky endeavor with an uncertain return on investment. However, the tremendous growth and innovation of these products has secured their place as the darlings of asset managers and the next big challenge to those providing operational solutions. For many, the first step in addressing this challenge is realizing that the patchwork solutions built in the early ETF days may not only be insufficient, but often can't be leveraged for future use as these models lack scale when faced with the increasing complexity of ETFs.

The risk of a large ETF technology initiative is no longer about the cost to build, but rather, the costs associated with not moving to a more automated and controlled technology solution. Any operations group that is not considering a more automated solution is tempting reputational and financial loss when the lack of controls in their legacy infrastructure and procedures ultimately fail and costly mistakes are made. Due to the dynamic ETF landscape, requirements of an ETF basket processing platform are still evolving. However, there are fundamental components that should be considered in any build of this kind.

## Considerations for an ETF Basket Processing Technology Build

### Seamless Integration

ETF basket processing requires the support of many of the same functional groups that also support other areas of investment operations. These support teams are often hindered by technology that is geared towards the timing and requirements of a T+1 mutual fund environment when many of the ETFs' needs are T+0. However, many investment operations have built up their middle office support services to address many of the obstacles in simultaneously supporting T+1 and T+0 environments, but ETFs still pose other unique challenges.

### Corporate Actions

ETF requirements are such that to properly account for corporate actions, the ETF basket must be adjusted on its creation date which is typically a day or two prior to the corporate action ex-date. This requirement is not supported by current technology as it is contrary to the standard corporate action process where an event is not posted until ex-date. Modifications in corporate action technology and procedure are often required to meet this essential ETF requirement.

### Security Master and Pricing

In the early days of passive ETFs, the security master and pricing components of basket creation were sourced predominantly from the fund accounting system. However, the more recent active ETF baskets are not limited to the holdings of their underlying fund or index, and therefore, their creation may introduce securities not yet known to the accounting system. As a result, new ETF technology would be best supported through integration with the organization's security reference data hub independent of the accounting system. The same is true of the pricing system which must look to ETF basket holdings and can no longer rely upon fund holdings to provide the daily pricing requirements for ETFs.

### Fund Accounting

While the Net Asset Value (NAV) represents the culmination of a day's work for the fund accountant, this is just the starting point for the ETF process. Therefore, as NAVs are finalized in the accounting system, they must be provided to the ETF system as they are a key input in the calculation of the ETF cash component. Furthermore, most ETF sponsors now demand greater accuracy in the cash calculation by applying projections to the NAV. These projections require access to precise income and expense figures that will impact the underlying fund on the ETF basket settlement date, typically one day into the future. The challenge of this is best illustrated when considering how trade settlements on bonds will alter the fund's accrued income from one day to the next, it is crucial that these changes are communicated to the ETF basket creation/cash calculation process. This is but one example where the variable nature of the underlying fund's income and expense accruals makes accurate cash calculation a challenging task.

### Basket Creation Methods

An ETF system build should be sure to incorporate two basic methods of basket creation, upload and extract.

### Upload Method

Advisors of active ETFs are not constrained in their security selections by an underlying index, but rather are free to pursue investments much like that of an actively managed mutual fund. This means each night's basket may contain securities that were not previously held by the fund. Typically in these situations, the advisors will provide these baskets. Therefore, the system must be prepared to not only receive and upload these basket files, but must also accurately match the securities to their security master using the identifiers provided by the ETF advisor. Matching to the wrong security in this process could have a domino effect of calculating an incorrect basket market value and ultimately an incorrect cash component.

### Extract Method

The basket for passive ETFs is typically a weighted slice of the underlying index or fund's holdings. In many cases these baskets are not provided for upload but instead are systematically extracted from the fund or index holdings. Although the extract weighting formula itself is not necessarily complicated, complexities quickly surface around ancillary requirements such as:

- Ability to include or exclude certain security types or individual securities in the weighting and/or the basket listing itself
- Ability to include trade date positions which are often not available in the fund accounting system

These examples are just a sample of the flexibility required and ultimately the complexity surrounding this process.

### Centralized Basket Functions

One would never build a mutual fund accounting system that required a stock split to be booked multiple times to the same security across many funds. Nor would one ever expect to repeatedly input the same price for the same security for each fund that holds it. The same holds true when building an ETF system. Significant efficiencies are gained from processing transactions once at a centralized level and automating the relevant postings to all baskets in which the security is held. Moreover, developing centralized utilities and tools within the system can provide a means for the existing shared service teams within an organization to incorporate ETF processes into their daily responsibilities.

### Workflow and Control

As with any system, proper workflow and control are essential to helping avoid costly mistakes. Understanding the internal and external dependencies of the process can facilitate the design of effective workflows and controls. For instance, the basket creation process is dependent on the integrity of the underlying fund NAV so a logical control is to halt the basket process in the event that the fund NAV is called into question. Basket pricing is another example of an external dependency where controls are needed to ensure basket securities are priced identically as the securities in the underlying fund. These particular controls may be triggered by the reopening of the fund, the posting of a new transaction to the fund or a change in a price.

There are also many internal dependencies to the basket process. For example, the basket market value cannot be finalized if a corporate action is pending, or cash should not be calculated if the NAV projections are not provided and approved. Implementing hard and/or soft warnings for these and many other situations will ensure efficient workflows as well as the overall accuracy of the basket and cash component.

## Interface with Order Entry

The ETF basket and cash component represent the price Authorized Participants (AP) will pay for the ETF in the primary market. To subscribe into the fund, the AP must deliver the basket of securities and cash. Therefore efficient transmission of the basket to the order entry system is vital to facilitate these AP orders.

Many order entry systems incorporate a web portal allowing APs to view the basket details and enter their orders. However, there are situations that would require an AP to change the basket that was originally created. These situations require that a new basket be created along with an adjusted cash figure. Ideally, these customizations are communicated from order entry to the basket creation system, prompting the automatic creation of this new modified basket. However, even when automated creation is not possible, it is still vital that each custom basket order is accurately translated into a new basket and cash amount and quickly communicated back to the ETF order entry system. To this end, the basket creation system must provide ways for rapid basket copies and modifications to meet these time sensitive demands.

## Conclusion

As ETF products continue to mature and legacy support models become obsolete, service providers should adapt by creating automated solutions designed specifically for ETFs and enhancing their operating model to meet the complex needs of their ETF advisor clients in an efficient and controlled environment. Creating an effective and comprehensive automated solution will greatly assist seamlessly integrating ETF operations with existing functional teams and their technology. Service providers can no longer rely on a patchwork solution to adequately service the rapidly expanding industry.

## Part III: Partnering with an ETF Service Provider

The dramatic growth of ETFs has come with significant operational challenges beyond that of traditional fund accounting operations.

Asset managers that have historically invested in technology and resources to retain back or middle office functions in-house are faced with yet another large technology initiative to support ETFs. Furthermore, the unique operational requirements have created a need to bridge a significant knowledge gap that may not be filled by their current resource capabilities. As such, asset managers that have traditionally kept operations in-house would need to either incorporate costly and time consuming solutions to their ETF strategy or seek the outsourcing partnership that they've consciously avoided in the past.

Asset managers with existing outsource relationships are not necessarily readily equipped to launch ETFs either. They may find their current service provider faces similar obstacles in handling the challenges inherent with ETF processing. These asset managers may be faced with seeking new outsource relationships specific for their ETF book.

Both scenarios above highlight asset managers in need of an outsource solution in order to successfully enter the ETF market. As is typical with outsourcing initiatives, the RFP process is the most effective way to obtain the information required to evaluate service providers and select a partner. However, many firms struggle with this process due to the lack of understanding of the ETF specific components they need to evaluate.

This paper will provide an overview of the criteria by which ETF service providers should be assessed and selected. A firm seeking to launch ETFs should endeavor to understand their own requirements within five key areas and then construct an RFP that will facilitate understanding of the service providers' capabilities in these same areas.

The five areas:

- A La Carte Service Offerings
- Core Operational Capabilities
- Authorized Participant (AP) Services/ Order Management
- Launch Support
- Oversight Flexibility

## A La Carte Service Offerings

Many ETF service providers offer an array of services and it's vital that asset managers not only understand the distinction between them but also how these services complement their specific needs. As a result, it's not uncommon for an asset manager to team with multiple providers due to varied strengths and weaknesses in these services which include:

- Fund Accounting
- Basket Creation
- Fund Administration
- Performance/Attribution
- Order Taking/Management
- Distribution
- Custody
- Transfer Agency

It should be noted that Fund Accounting is typically not separated from basket creation because immediate access to the NAV and its components is paramount to accurate and timely basket creation and delivery. Therefore if basket creation is among the required services (as is usually the case) the service provider will typically assume fund accounting responsibilities as well. Aside from this, one caveat many service providers allow for is an a la carte approach in selecting their offerings. Therefore, depending upon their internal capabilities, asset managers may consider leveraging existing in-house resources for other components. For instance, an asset manager with established teams performing fund administration and performance functions for their traditional mutual funds may feel these are areas in which they provide a particular value that they would like to continue producing in-house. Conversely, pre-existing outsource relationships for some of these functions may be maintained having one service provider handle ETF specific functions while another services other aspects of the underlying fund.

ETF Order Taking is also a standalone function offered by many providers. For some, this is combined with distribution services and set forth as a core product offering.

An asset manager may choose to contract with one company due to a particular capability around core ETF basket creation and another that specializes in order taking and distribution due to its ability to secure an AP market for newly launched ETFs.

Many providers are custodian banks that provide custody and transfer agency services to mutual fund managers and now can offer most of the aforementioned services for ETFs. It's not uncommon to see all operational functions outsourced to one of these "full service" providers allowing the ETF manager to focus on the core competencies of asset management. Alternatively, these custodian banks and transfer agents will provide some of these services separately to fill gaps.

As part of a comprehensive RFP, understanding the level of service required and accurately communicating it will help to verify that service provider responses are meaningful and on target with specific service needs.

## Core Operational Capabilities

The core ETF-specific processes like basket creation and cash calculation can be as challenging and complex as calculating the daily fund NAV. Many service providers have invested multiple years and millions of dollars assembling specialized teams and honing their technology solutions in an effort to become a leading provider of ETF services. However, no individual firm can deliver on every possible requirement of the ETF process. Therefore it is vital to understand how service providers differentiate themselves within the ETF specific functions that are of greatest importance to the asset manager seeking their services.

Identifying these vital ETF functions often requires looking beyond the first ETF offering as many managers ease into the market, initially launching less complex funds. It's important not to limit the service provider assessment to these preliminary requirements but rather to evaluate potential service providers against any future, more complex offerings as well.

Still in their relative infancy, there is a wide spectrum of ETF capability amongst service providers, with offline processing on one end and a comprehensive technology solution on the other. It's vital that asset managers understand, given their current and future ETF requirements, where each service provider under consideration plots on this spectrum. If they are processing certain functions offline

it's important to understand which functions as some are inherently riskier than others. Furthermore, it's vital to understand their track record for meeting past challenges with sound technology solutions as well as their future roadmap for continued development.

This analysis may sound straightforward, however many asset managers struggle in executing it correctly. This could be because the specifics of ETF operations are unfamiliar to them, and it's not apparent how requirements may translate into operational challenges. However, approaching the effort in terms of constructing a fund profile can often simplify the process and highlight potential problem areas for service providers. The table below provides a sample fund attributes that can present challenges to service providers:

Equipped with a full understanding of future launch plans, the RFP should include questions that address ETF attributes likely to create challenges and compel those responding to provide specifics to resolve them. Therefore, a well-crafted RFP may identify less qualified candidates early in the selection process, thus potentially saving

time and money. Those respondents that indicate comprehensive technology solutions should be provided an opportunity to help demonstrate their product in a subsequent phase of the selection process.

Certainly, operational capability is not solely gauged by the service provider's technology. The provider's operation should consist of dedicated resources with experience in all ETF products and their intricacies. ETFs as a whole are still maturing and new directions are challenging asset managers and service providers alike. Therefore, it is of the utmost importance that providers furnish a team that can leverage their expertise to resolve unanticipated operational challenges, instill best practices, and mitigate the risks of new trends.

While ETF trends are still emerging, there are elements that will always be required. A service provider with a comprehensive ETF offering should ensure their ETF operation is fully integrated within the organization receiving the proper support. For example, if the organization is structured with shared service teams providing corporate action, trade support and other such support

Attribute	Challenge to Service Provider
Management Strategy Active or Passive	The ETF industry as a whole has been challenged with the transparency requirements of active ETFs and many are patenting new innovations to overcome this obstacle.
Structure Simple or Complex	Some asset managers are intent on breaking new ground by patenting new ETF structures, (e.g., multiclass, master/feeder ETFs etc.) These innovations present a myriad of operational challenges.
Basket Creation Method Upload or Extract (from fund and/or index holdings)	Baskets extracted from holdings are a greater challenge to the service provider as there can be many nuances to the extract weighting.
Create/ Redeem Type Cash, Basket or Both	ETF baskets are a more complex process than cash creation/redemption, however basket creation capability has become expected of ETF service providers. Some managers may accept either basket or cash creations which can complicate matters when reconciling fund holdings to capital activity.
Custom Basket Volume	The volume of ad hoc custom basket deals can be a significant variable in overall complexity.
Asset Types	Derivatives, commodities and currency forwards will add considerable complexity to the basket creation process.
Domicile	Foreign domiciled funds may present challenges to some service providers lacking established connections to the required exchanges, index agents etc.

functions, then the ETF group should be supported by these teams as well. This demonstrates a commitment to the ETF process across the organization and shows that it is no longer the ad hoc function it may have been years ago.

## Authorized Participant (AP) Services/Order Management

The success of an ETF is dependent on the activity of the AP. Therefore, the importance of providing APs stable, usable technology and customer service cannot be overstated. Typically, service providers offering order taking functions will do so through a web portal application where APs enter orders. The capability of these applications to cater to the customized order conditions that can arise (custom baskets, cash in lieu etc.) can be a significant differentiator for the service provider.

In addition to the technology component, most ETF order taking functions are supported by an AP service team. This team will typically manage:

- AP phone/fax orders
- Account setups
- Monitor trade matching status
- Participate in the collateral management process

Efficient technology and a knowledgeable AP service team are vital in maintaining these all important AP relationships and asset managers should strongly consider the service provider's competence in this area as a significant factor in their fund's success.

## ETF Launch Support

Asset managers venturing into the ETF market for the first time will typically require significant guidance from their service provider partners. Therefore, deep launch experience and an organized launch program are vital qualifications to evaluate. These programs should include the following:

- Dedicated project manager and launch team with deep ETF launch experience
- Proven launch project plans and templates refined by past successes and lessons learned
- Expert guidance in navigating legal and regulatory requirements
- Assistance in establishing essential industry relationships with APs, Exchanges, INAV services etc.
- Operating model design and planning

The launch process requires considerable planning, communication, and diligence. The RFP/Selection process should ensure thorough questioning in this area, as well as requiring service provider candidates to produce specific samples to support their qualifications.

## Flexible Oversight

Proper oversight is critical in the success of any outsource partnership. The underlying principles of designing an oversight model are no different for ETFs than they are for a mutual fund operation. However, from the asset manager's perspective, designing an oversight model is considerably more challenging when the daily processes and functions requiring oversight are unfamiliar, as is often the case with ETFs. Furthermore, service providers will tend towards fitting their clients into a "one-size-fits-all" model since this is most efficient for their internal operations. These models often serve as an adequate starting point; however, managers must ensure they are adapted to fit the downstream implications of their specific strategies and characteristics.

Due to their inexperience with ETFs, asset managers may be ill-equipped to challenge this initial model and risk implementing an oversight model that does not meet their specific needs. This could potentially result in greater risks and inefficiencies. Therefore it is critical that the core principles of oversight design are followed:

- Understand your service provider's capabilities both operationally and technologically, e.g. manual/off-line processes
- Identify high risk functions
- Structure SLAs to monitor and measure KPIs that are meaningful to the asset manager and ensure accountability to agreed upon SLAs

- Communicate changes that impact downstream operations. For instance, changes in investment strategy may result in the addition of new security types to the daily basket, potentially requiring significant adjustments in the service provider's workflows and controls

Each asset manager must ensure these precepts are followed for their specific book of business to ensure the creation of an oversight model that addresses their specific risks and requirements.

## Conclusion

The growing ETF industry has prompted significant changes to middle and back office investment operations. As barriers to ETF entry continue to ease, "insourced" operations teams are finding it near impossible to develop internal skillsets and build adequate technology at the rate in which their front office colleagues are launching these products.

The result is an influx of asset managers, many unfamiliar with ETF operations or with outsourcing altogether seeking partnerships with service providers. These asset managers must implement a thorough and disciplined selection process with full awareness of how to manage the unique ETF components to which they are unaccustomed. For their part, service providers should take a more consultative approach, educating managers to the ETF process yet also keeping that process flexible to adapt to each potential client's requirements.

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