

How Investors Integrate ESG: A Typology of Approaches



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About IRRCi

The Investor Responsibility Research Center Institute is a not-for-profit organization headquartered in New York, NY, that provides thought leadership at the intersection of corporate responsibility and the informational needs of investors. More information is available at www.irrcinstitute.org

About Sustainalytics

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Executive Summary

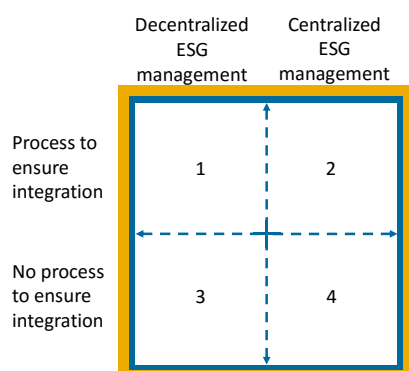
Key insights

- This report develops a **new typology** for classifying the approaches that institutional investors take to integrate environmental, social and governance (ESG) factors into their investment process.
- The typology is based on an **analysis of the investment practices of 70 institutional investors** with total assets under management of USD 19.9tn.
- Approaches to ESG integration are classified along three dimensions: **management** (*who* is integrating ESG), **research** (*what* is being integrated), and **application** (*how* the integration is taking place).
- Within each dimension, we identify **two key differentiators** that capture the essential features of ESG integration practices.
- The typology is used to describe six **prevailing types of ESG integration**: 1) the Believer, 2) the Cautionary, 3) the Statistician, 4) the Discretionary, 5) the Transition-Focused, and 6) the Fundamentalist.
- The report concludes by offering **five high-level observations** about the general state of ESG integration, focusing on industry challenges and opportunities.

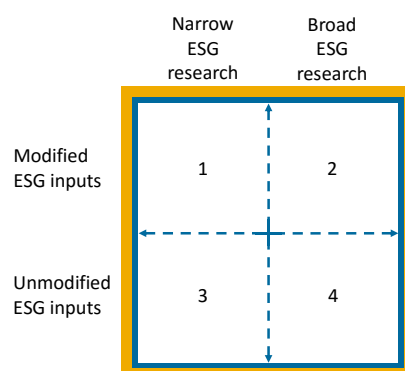
Classifying approaches to ESG integration

Understanding how investors are applying the growing supply of corporate ESG information into their investment decision-making is an increasingly important exercise. While several recent publications have contributed to this research, the market to date has lacked an analytical framework to organize the full diversity of integration techniques. This report aims to help investors navigate the rapidly changing responsible investing landscape by developing a typology that classifies approaches to ESG integration. An overview of the typology is provided below.

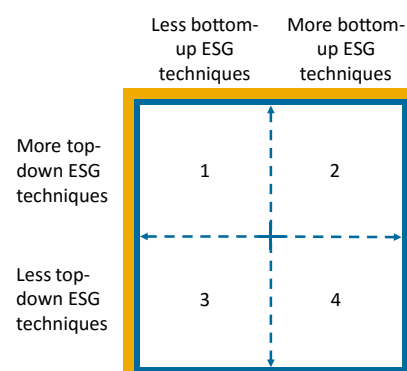
Dimension 1: Management



Dimension 2: Research



Dimension 3: Application

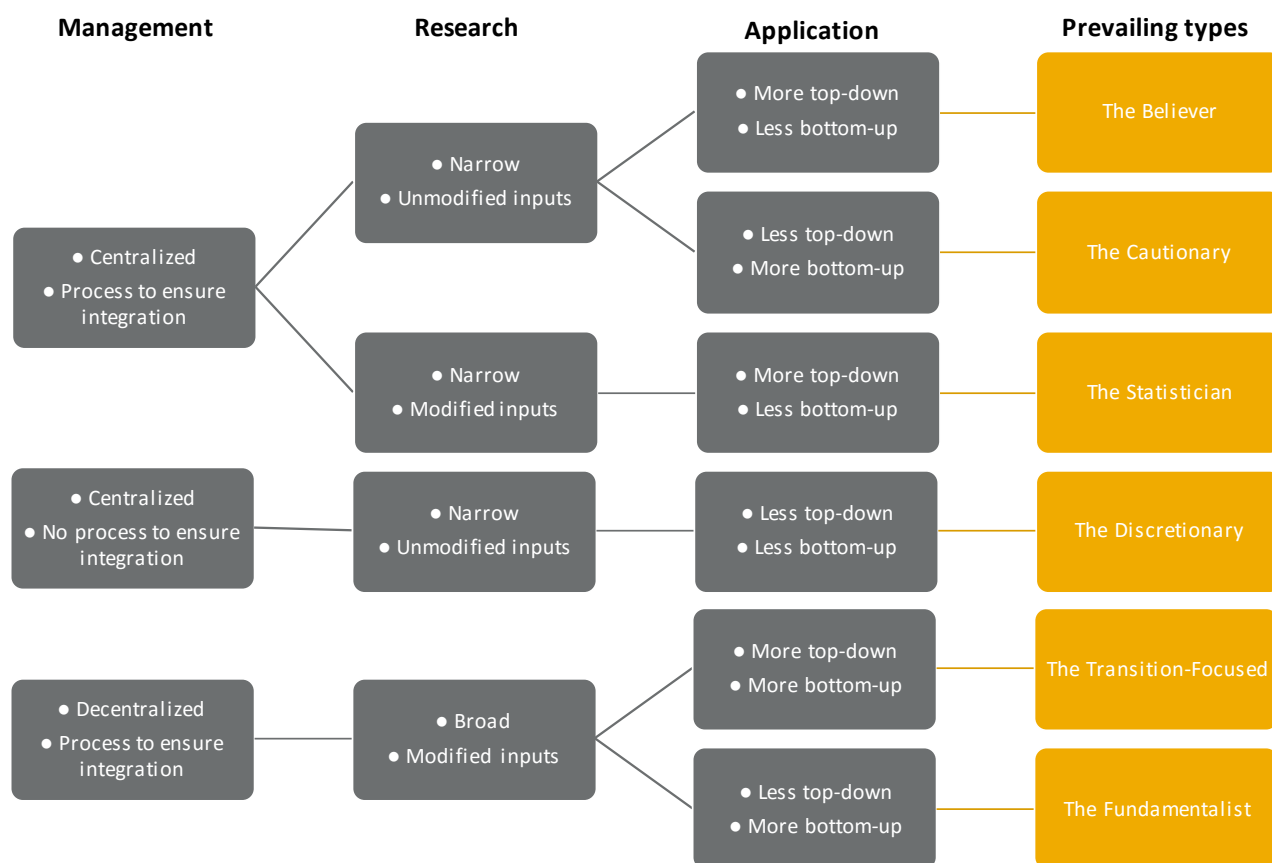


Source: Sustainalytics, IRRCI

Determining prevailing types

Prevailing types of ESG integration were determined based on a number of factors, including observed frequency amongst the dataset of 70 institutional investors and the distinctiveness of the approach. An overview of the six prevailing types and their relationship to the typology is provided below.

Overview of the six prevailing types of ESG integration



Source: Sustainalytics, IRRCI

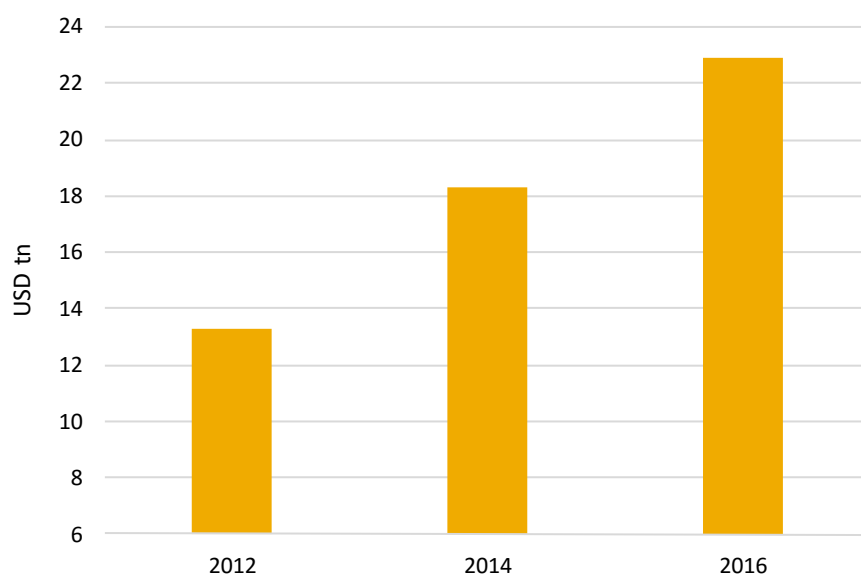
Introduction

The rise of ESG integration

ESG AUM are on the rise

Recent years have seen a surge of investor interest in integrating environmental, social and governance (ESG) information into financial analysis and investment decision-making. Signs of this trend include continued growth in the volume of managed assets that incorporate ESG research, increasingly sophisticated investor tools, more ESG information providers, more ESG information gathering frameworks, more indices incorporating ESG data, and the use of ESG factors across asset classes, including fixed income and alternatives. According to data collected by the Global Sustainable Investment Alliance, ESG investment strategies, broadly defined, currently account for USD 22.9tn in managed assets worldwide, up from USD 13.3tn in 2012.¹

Global ESG assets under management



Source: Sustainalytics, IRRCI, GSIA²

Towards a typology of ESG integration

Classifying approaches to ESG integration

The investment community's growing use of ESG information has 1) raised the importance of understanding how investors are addressing ESG factors in their investment processes and 2) created the need for an overarching framework to organize the increasingly diverse approaches to ESG integration that are being deployed in the market.

The PRI has published several reports exploring integration strategies

The United Nations-supported Principles for Responsible Investment (PRI) has made important contributions to these objectives. In 2016, the PRI published a report that detailed a wide range of ESG integration methods used by public equity investors across four investment strategies.³ That report built on an earlier PRI study that introduced a framework for analysing ESG factors in fundamental equity analysis.⁴

Identifying the essential attributes

While these and other studies provide an inventory of ESG integration techniques, the aim of this report is to create a framework that stakeholders can use to *classify* approaches to ESG integration. The typology that we develop in this report centres on the most essential characteristics of ESG integration and aims to describe and explain, rather than to prescribe or evaluate, different approach types.

Typology

Characteristics organized under three broad headings

The typology is organized around three dimensions of ESG integration: management, research and application. Each dimension features two key differentiators that capture, at a detailed level, the critical elements of different approaches to ESG integration.

- 1) Management (*who* is integrating ESG)
 - a) Degree of centralization of ESG functions
 - b) Process to ensure ESG integration
- 2) Research (*what* is being integrated)
 - a) Scope of research
 - b) The degree of modification of ESG inputs
- 3) Application (*how* the integration is taking place)
 - a) Top-down techniques⁵
 - b) Bottom-up techniques

The three dimensions and six differentiators are described in detail below.

Prevailing types

Six distinctive approaches to ESG integration

Another contribution of this study is the identification of six prevailing types of ESG integration. While the typology yields a theoretical maximum of 64 approach types, not all of these approach types were reflected in our dataset of 70 investors.⁶ Within the subset of observed approaches we characterize the six most distinctive types of ESG integration, ranging from The Believer to The Fundamentalist.

Creating value for stakeholders

Benefits for target audiences

One of the signposts of investors' growing interest in, and use of, ESG information is the increasing complexity and sophistication of ESG integration tools. It is hoped that, by identifying the fundamental characteristics within three different aspects of integration strategies (management, research and application), this typology will help decision-makers in the investment industry, especially those new to ESG, to navigate the increasingly dynamic field of responsible investing.

For asset managers, particularly those looking to create a new integration strategy, this study highlights important components of ESG integration that merit careful review. For asset owners, this report helps characterize the overall state of play of ESG integration and may serve as a useful resource to assess the ESG capabilities of managers. For retail investors, this report may act as an informational guide that can be used in the selection process for investment advisors or products.

Target audiences and the study's key benefits

Stakeholder	Benefit
Asset managers	Identifies the essential characteristics of ESG integration strategies
Asset owners	Supports the assessment of asset managers' ESG capabilities
Retail investors	Informs the selection process for investment advisors or products

Source: Sustainalytics, IRRCI

Defining ESG integration

An investment perspective

The term “ESG integration” generally is understood as the incorporation of environmental, social and governance factors into financial analysis and decision-making for the purposes of enhancing investment performance. The typology that we develop in this report adopts this definition of ESG integration.

Screening can be considered an approach to ESG integration

It should be noted that ESG-based screening, a technique employed by many investors, is classified as ESG integration only if carried out based on an investment case, rather than for the purposes of values alignment or reputational risk management (for the asset owner or asset manager).

Scope and limitations

Activities linked to integration

For many investment managers and asset owners, the term “integration” includes a number of functions that support ESG integration. Most notable among these are active ownership activities, including engagement and proxy voting. While active ownership often plays an important role in informing investment analysis, this report concentrates on the structures, processes and methods involved in integrating ESG factors into portfolio management.

ESG and strategic asset allocation

For some investors, ESG integration also includes the consideration of ESG factors in other components of investment decision-making, such as strategic asset allocation.⁷ While this type of analysis stands out as an innovative application of ESG information, our typology focuses on portfolio mechanics and largely excludes such efforts.

While this typology helps to define and compare different approaches to ESG integration, it does not capture the full complexity of approaches in the market.

A cross-section of the market

The typology is based on an analysis of 70 institutional investors with collective AUM of USD 19.9tn

The typology is informed by an analysis of the practices of 70 institutional investors, and includes desk-based research and semi-structured interviews with 35 investor representatives (Appendix A). The 70 investors that comprise the final dataset have collective assets under management (AUM) of USD 19.9tn. With respect to asset classes, the bulk of the investors reviewed for this report specialize in listed equity and, to a lesser extent, fixed income. While some of these investors have exposure to other asset classes, including hedge funds and private equity, the typology centres on approaches to ESG integration within public equity.

Methodology

A starting analytical framework

An initial framework was developed based on a study of the indicators used in PRI transparency reporting and the authors' background knowledge of industry practices. This framework was used to structure information collected through desk-based research and semi-structured interviews with investors, compiling data under the three dimensions of management, research and application. These headings reflect the desire to understand the mechanics of ESG integration, including organizational features, such as which teams are responsible for integration, as well as the type of research and analysis being integrated.

The use of indicators

Deriving six key differentiators

The initial framework consisted of 18 indicators, which were used to classify specific aspects of ESG integration strategies. Those indicators that contributed most substantially to differentiating among approaches to ESG integration ultimately formed six key differentiators (see Appendix B).

Summary of project structure



Source: Sustainalytics, IRRCI

Desk-based research and investor interviews

The dataset of 70 investors covers a wide range of integration approaches

Desk-based research was carried out on 70 investors (a mix of investment managers and asset owners with internal management) that are signatories to the PRI. Research included public information, PRI transparency reports and corporate publications, as well as semi-structured interviews with representatives from 35 of the 70 investors. The sample was designed to ensure that it included a wide cross-section of the market, capturing a diversity of investor size, geography, position in the market, and experience with ESG integration.

An approach to ESG integration as the unit of analysis

The unit of analysis for this study is the approach that individual portfolio management teams take to integration. While smaller, focused managers may have only one ESG integration approach, some larger investment management firms with different teams have multiple approaches.

A Typology of ESG Integration

Core dimensions and key differentiators

This chapter introduces a typology of approaches to ESG integration. The typology consists of three dimensions, each containing two differentiators.

An overview of the typology

The table below summarizes the structure of the typology. For the management dimension, which looks at *who* is responsible for ESG integration, the key differentiators are the degree to which a firm centralizes ESG responsibilities and implements processes to ensure integration. For the research dimension, which considers *what* is integrated, the key differentiators are the scope of ESG research and the degree to which an investor modifies ESG inputs. Finally, the application dimension is concerned with *how* the integration takes place. The key differentiators under this dimension are the extent to which a team applies top-down and/or bottom-up ESG integration techniques.

A typology of ESG integration

Core dimension	Summary	Shorthand	Key differentiators
Management	A focus on how different functions, ESG-relevant roles and responsibilities are structured within an organization.	Who is integrating ESG?	a) Degree of centralization of ESG functions b) Process to ensure ESG integration
Research	A focus on which types of ESG information and analysis are integrated into the investment process.	What is being integrated?	a) Scope of research b) Modification of ESG inputs
Application	A focus on how and at what point ESG information and analysis are integrated into the investment process.	How is integration is taking place?	a) Top-down techniques b) Bottom-up techniques

Source: Sustainalytics, IRRCI

Matrix analysis

Mapping approaches

In order to compare approaches to ESG integration, the two differentiators for each dimension are presented in a matrix format. This mapping creates four quadrants into which integration approaches may fall.

Dimension 1: Management

The *who* of integration

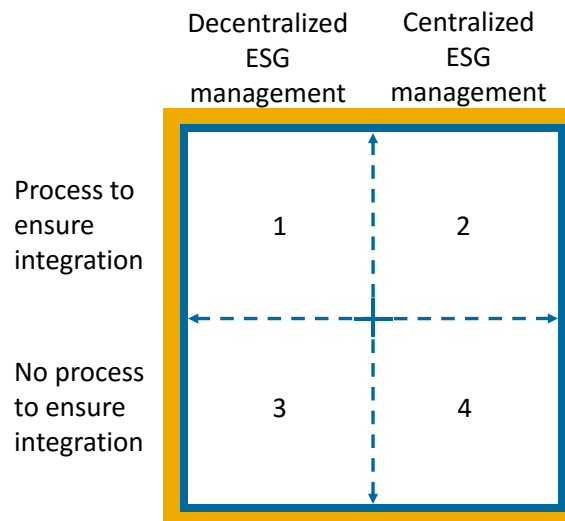
The management dimension of ESG integration focuses on how ESG-related functions, roles and responsibilities are structured and managed. It is the *who* of ESG integration.

Within this dimension, the two key differentiators for distinguishing approaches to ESG integration are:

- a) the degree to which functions and responsibilities related to ESG integration are centralized in an organization, and
- b) the extent to which a firm or investment team has processes in place to ensure integration.

As shown in the matrix below, a given approach to ESG integration can fall into one of four quadrants based on how responsibilities are distributed within an organization and the use of processes to ensure integration.

Matrix analysis of the management dimension



Source: Sustainalytics, IRRCI

a) Degree of centralization

A focus on ESG decision-makers

The degree to which an approach to ESG integration is centralized depends on how ESG functions and responsibilities are distributed within an organization. Centralized approaches involve organizational initiatives and processes carried out by dedicated ESG personnel or teams, whereas in decentralized approaches portfolio managers (PMs) and analysts in portfolio management teams are responsible for carrying out ESG-related functions. Two important attributes of this key differentiator are the structure and role of staff.

Organizational structure

ESG roles and responsibilities

To understand the structure and role of ESG staff within an organization, our analysis considered whether a firm employs ESG specialists and, if so, whether they are embedded in an investment team or operate independently. This differentiator organizes the substantial variation in structures and practices along a continuum from fully centralized to fully decentralized.

In a centralized structure, responsibility for ESG analysis sits with ESG staff

In a fully centralized structure, ESG-related functions and responsibilities (such as carrying out materiality analysis and research at the company, industry, or macro levels) are performed by designated ESG staff separate from the investment teams. They produce analysis that is delivered to PMs, and collaborate with PMs when ESG issues arise. In a less (but still) centralized approach, ESG specialists may be situated within an investment team and work directly with PMs on ESG-related analysis, including the development of a team view (consensus position) on ESG issues.

In a decentralized structure, responsibility for ESG analysis sits with investment teams

In a fully decentralized structure, the responsibility for carrying out any ESG research and analysis lies with individual analysts and PMs. In such a structure, investment staff are responsible for carrying out ESG research, including, for instance, materiality or trend analysis on specific sectors or themes. In some cases, particular individuals within the investment team take on the role of ESG champions and disseminate research and examples of ESG analysis to the broader investment team.

The table below summarizes some examples of centralized and decentralized approaches to managing ESG functions of an organization.

Differentiating ESG management by degree of centralization

Key differentiator	Example	Description
Centralized ESG management structure	Independent ESG specialists	ESG specialists operate independently of investment teams and PMs.
	Embedded ESG specialists	ESG specialists are embedded in the investment team.
	Unified ESG materiality analysis	ESG team conducts materiality analysis for informing investment decisions.
Decentralized ESG management structure	Absence of designated ESG role	PMs may conduct ESG analysis as part of their investment process.
	ESG compartmentalization	ESG teams focus on other elements of ESG strategies, such as active ownership activities.
	PMs as ESG leads	PMs have formal responsibility for ESG integration and research.

Source: Sustainalytics, IRRCI

b) Processes to ensure ESG integration

Ensuring the consideration of ESG factors

The second key differentiator of the management dimension focuses on whether processes are in place to ensure that ESG factors are integrated into investment decision-making in a systematic fashion.

A closer look at oversight processes

Mandatory reporting is a common tool to ensure ESG integration

Processes to ensure ESG integration come in several forms. Such mechanisms commonly involve establishing protocols that require documentation of how ESG factors were considered during the investment process. While mandatory ESG reporting may apply to all investment decisions, some firms choose to apply a more focused approach to particular industries, or to companies that fail to meet specified ESG risk thresholds.

Structured internal dialogue helps to ensure that ESG factors are considered

Some approaches also include structured processes to facilitate the discussion of ESG issues within an investment team or among ESG specialists. An investment team may, for example, include the discussion of ESG risks, opportunities and emerging themes as a regular agenda item for team meetings. Mandatory discussions with ESG specialists may also be triggered if an investment fails to meet predetermined ESG thresholds, such as a minimum percentile ranking within an industry.

Internal committees review and discuss investments outside ESG-defined universe

In some cases, a process is established whereby approval from an internal sustainability committee is required for all investments made outside an investable universe that has been refined based on ESG factors (among others). In such instances, PMs who wish to invest in securities outside this universe must present their case to the committee and demonstrate that ESG risks have been appropriately considered.

Culture can be a critical means to ensure ESG integration

Some firms have an explicit sustainability focus and a culture that emphasizes the importance of considering ESG inputs. Consistent messaging from senior staff and a clear sense that ESG integration is core to the firm's overall value proposition are widely viewed as necessary to build such a culture.

Encouraging vs ensuring

Other approaches *encourage* ESG integration, but stop short of *ensuring* integration. In these cases, ESG resources, including research and training, may be available, but PMs and analysts have discretion about how to apply this information. Such approaches do not typically require that investment teams document whether or how ESG factors influence investment decision-making.

The table below provides examples of approaches that have processes in place to ensure ESG integration and some that do not.

Differentiating ESG management by process to ensure integration

Key differentiator	Example	Description
Process to ensure ESG integration	ESG threshold trigger	An investment falling below a minimum ESG threshold triggers discussion.
	Explicit ESG priorities	Firm leadership identifies ESG factors as critical inputs for teams to consider.
	ESG reporting	Documenting the role of ESG factors in investment decision-making process is required.
	Designated ESG inputs	ESG information required in reports and agendas for regular team meetings.
No process to ensure ESG integration	Optional ESG analysis	ESG integration is optional or implicit in the consideration of overall financial factors.
	Unreported ESG factors	No required ESG reporting.

Source: Sustainalytics, IRRCI

Observations and analysis

The role of team culture

Culture plays an important role

An investment firm's corporate culture plays a significant role in determining the way in which ESG responsibilities are structured. Some investment teams, especially those

"If you don't have the buy-in of the CEO, CIO and Head of Research, it's very hard to carry out ESG integration on a firm-wide basis over the long term, or to have the internal resources allocated to support the integrity of the ESG research integration and investment process."

– Mary Jane McQuillen, Managing Director, PM, Head of ESG Investment, Clearbridge

working in sustainability-focused firms, have embedded ESG integration into their culture and the expectations of portfolio managers. These teams typically share the belief that ESG inputs are important to consider and often integrate ESG information in their financial analysis without centralized management functions influencing their integration

process. Support from C-level executives is widely regarded as critical for building a strong culture of ESG integration.

Strong views on benefits and drawbacks of centralization

Advantages of different management approaches depend on the context of investment teams

Many interviewees expressed strong opinions about the advantages and disadvantages of both centralized and decentralized structures. Those with a more centralized approach often thought of centralization as an important way of motivating

"You have to pick your battles, and sometimes that battle is with a PM."

– Philip Ripman, Senior Analyst, Sustainable Investments, Storebrand

ESG integration and emphasized the subject matter expertise of ESG specialists, while those taking a decentralized approach typically stressed the (investment) decision-making authority of PMs and

analysts. Some proponents of decentralized approaches maintain that overly rigid centralized structures may create resistance among investment teams, particularly if ESG integration processes are viewed as overly prescriptive.

The challenge of blending investment and ESG knowledge

Scarcity of ESG and investment knowledge?

Some interviewees also noted concerns about the difficulty of finding investment

"It's hard to find people who have come to this business with a commitment to ending poverty and deforestation, and who also are lovers of analysing capex."

– Neil Brown, Fund Manager, Alliance Trust

professionals with knowledge of both ESG and finance. This issue can present challenges when ESG personnel are unable to focus on material factors due to a lack of financial knowledge, or when investment professionals overlook relevant ESG issues due to a lack of

ESG education. A lack of multidisciplinary expertise can lead to sub-optimal investment decision-making in centralized structures, where the onus for ESG integration rests with ESG staff, and decentralized structures where PMs and analysts lead ESG efforts.

Keeping track of integration efforts

Are reporting mechanisms reassuring?

Diverging views about the investment case for ESG integration were cited frequently as a barrier to the systematic consideration of ESG factors. Some interviewees maintained that stronger mechanisms for ensuring integration should be adopted across a firm to facilitate integration and ensure consistent treatment of ESG information. Others, however, maintain that such mechanisms are superfluous, arguing that fiduciary duty demands the consideration of all material information, including material ESG factors.

The presence or lack of a mechanism to ensure ESG integration was cited by several interviewees as having an impact on employee recruitment and retention. Individuals with an interest in ESG integration may be drawn to work and stay at firms with formalized processes in place. Alternatively, individuals who do not see the merit in ESG integration may choose to leave firms that have processes to ensure ESG integration are in place.

Linking ESG performance and variable pay

Some firms aim to ensure ESG integration by explicitly tying performance assessments and variable pay to ESG-specific key performance indicators. Proponents of this approach argue that it is helpful to offer investment staff additional incentives to provide quality ESG analysis and decision-making. Additionally, advocates of such incentives argue that the consideration of ESG factors can not be assumed to be captured in the existing process of managers, given that analysts and PMs may not have received adequate education and training related to ESG. However, more

“Incentivizing people to make decisions based on ESG factors shouldn’t be necessary. A good portfolio manager is going to take into account all of the things he or she thinks are material.”

*– Michelle Edkins, Managing Director,
Global Head of BlackRock Investment
Stewardship*

commonly, ESG is considered to be implicitly captured as a component of other performance metrics. For example, this view holds that if material ESG factors are not considered, more general metrics such as quality of research and investment performance may be negatively impacted.

A shift in responsibilities from ESG specialists to investment teams

Trends in the market

Some firms focused on active fundamental strategies are moving to a more decentralized model, shifting responsibilities for ESG analysis from designated ESG specialists to portfolio managers. These firms view this transition as an important step for increasing portfolio managers’ buy-in of ESG integration, leveraging their knowledge of a company’s business model and management, and determining which ESG factors are material for a given security. Some maintain that this transition could increase the flow of information between ESG specialists and PMs, and may involve collaborative training exercises, portfolio monitoring and other joint initiatives. Some interviewees explained that designated ESG staff may effectively be working towards making their current role of facilitating ESG integration dispensable, as ESG integration becomes increasingly embedded in the roles of analysts and PMs.

The *what* of integration

Dimension 2: Research

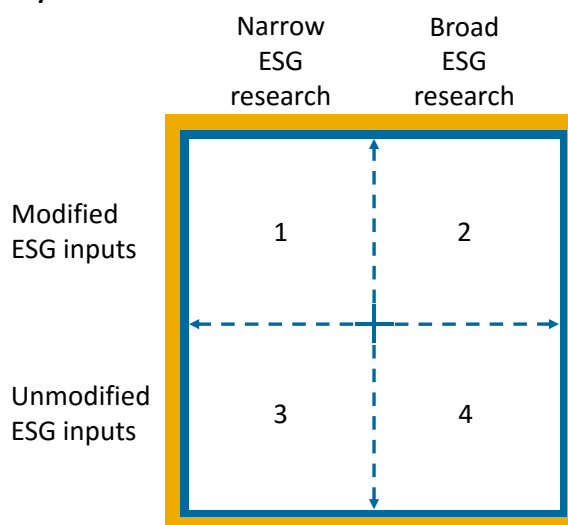
The research dimension focuses on the type of ESG information integrated into the investment process. Examining integration along this dimension involves describing how investment teams conduct ESG research, and the extent to which they modify ESG data to inform investment decisions.

Within this dimension, the two key differentiators for distinguishing approaches to ESG integration are:

- a) the scope of the ESG research and analysis used by an investment team, and
- b) the modification of ESG inputs.

As shown in the matrix below, a given approach to ESG integration can fall into one of four quadrants based on the type of ESG research used and the modification of ESG inputs.

Matrix analysis of the research dimension



Source: Sustainalytics, IRRCI

a) Scope of research

Narrow and broad research

The scope of the ESG research and analysis used by investment managers ranges from narrow to broad. Narrow research focuses only on certain ESG-relevant characteristics of individual companies and securities, whereas broad research focuses not only on issuer-level information but also on ESG-relevant issues and trends at the sector, thematic or macro level that may generate risks and opportunities for companies.

Narrow ESG research focuses on company-level issues

Narrow ESG research

Narrow ESG research focuses on the ESG-relevant characteristics of individual companies and may include a wide range of performance metrics, such as those that assess governance practices, health and safety programmes, water intensity or involvement in controversial events. A narrow research focus may reflect the view that ESG analysis is best utilized to provide insights into idiosyncratic risks and opportunities at the company level.

Broad ESG research focuses on issuer, macro and thematic-level ESG issues

Broad ESG research

Broad ESG research typically includes – but also goes beyond – considering company-level information to investigate potential ESG risks and opportunities associated with macro or thematic perspectives. Examples of this type of research approach include studies of stranded asset risk in the fossil fuel industry, forecasts of water scarcity, and demographic trends related to healthy eating.

Many investors expect the financial impacts of integrating broad ESG research to be realized in the long term (typically five to ten years), while they also acknowledge that exact time-horizons are unknown and ESG themes may increase in relevance in the

“Regardless of whether you label me as ESG or not, good investing involves considering macro trends to inform a view of where the world will be.”

– Bruce M. Kahn, PhD, Portfolio Manager, Sustainable Insight Capital Management

short term as well. Since the effects of many macro ESG issues are uncertain, and the associated regulatory landscape is dynamic, broad ESG factors are especially difficult to quantify, presenting methodological challenges to investment teams.

Broad ESG research may influence the construction of an investment universe, inform analysis of individual companies, or inform general views on a set of related companies, which may in turn influence sector or even individual security allocation.

The table below summarizes several examples of narrow and broad approaches to ESG research.

Differentiating ESG research by scope

Key differentiator	Example	Description
Narrow ESG research	Company specific ESG issues	Research on specific material ESG company policies and practices.
	Company ESG trends	Company environmental risk analysis, such as trends in carbon intensity.
Broad ESG research	ESG sector issues	Evaluation of sector-specific ESG issues, such as data privacy in the tech industry.
	Systemic ESG issues	Study of macro themes, such as climate change, water scarcity and demographic change.
	Regional ESG trends	Review of regional ESG trends, such as changing corporate governance regulations.

Source: Sustainalytics, IRRCI

b) The modification of ESG inputs

Modification allows for the incorporation of in-house views

Approaches to ESG integration also differ based on the extent to which they use modified ESG research inputs. This differentiator accounts for the degree to which investment teams manipulate raw ESG research, whether sourced from an external provider or from internal research. Modification allows investment teams to incorporate in-house views on ESG issue materiality and indicator relevance, among other factors, with company ESG ratings or other research products. At the other end of the spectrum, unmodified inputs refer to ESG research sourced from an external provider and integrated into an investor's investment model without any customization.

Unmodified ESG inputs

A pragmatic way of integrating ESG

Specific examples of unmodified ESG inputs include quantitative ESG scores from an external provider that are integrated, as is, into particular aspects of an investor's investment model. Unmodified ESG inputs can also include qualitative research from an external provider, such as a review of sector-specific ESG risks and opportunities, although in order to be applied from a portfolio decision-making standpoint, such offerings typically need to be quantified.

Unmodified ESG inputs may prohibit the type of data customization that investors are increasingly demanding, but they offer a consistent, pragmatic and time-efficient manner of incorporating ESG perspective into an investor's investment process. Two common signals within the universe of unmodified ESG research include an overall company ESG performance rating, and an assessment of exposure to controversial incidents.

Modified ESG inputs

Using an in-house model to modify third-party ESG data

Modified ESG inputs typically involve the manipulation of externally sourced ESG data and research according to a proprietary in-house methodology. For instance, some investors have a process to incorporate certain elements of external ratings and analysis into an in-house rating system. Other approaches use raw ESG company data to generate an internal company rating. Investment decision-makers may consider the resulting score in isolation, or utilize it as an input in a broader assessment, such as overall management evaluation.

Modified ESG inputs often reflect an investor's ESG materiality analysis – a team's view of which ESG factors are most relevant to consider in different sectors or regions. This internal view may be influenced by existing frameworks, such as the Sustainability

Accounting Standards Board (SASB) Materiality Map.⁸

"We construct proprietary ESG scores based on a company's performance on material topics, accounting for specific sector and country idiosyncrasies."

– Tim Verheyden, PhD, ESG Quant Researcher, Arabesque

Differentiating ESG research by inputs

Key differentiator	Example	Description
Unmodified ESG inputs	Quantitative ESG analysis	Quantitative ESG scores are used as a primary ESG input in the investment process.
	Qualitative ESG analysis	External qualitative analysis is used as a primary ESG input in the investment process.
Modified ESG inputs	Modifying in-house ESG analysis	Third-party ESG inputs added to an in-house model that weights material ESG factors.
	Proprietary ESG weighting scheme	External ESG inputs are combined in a proprietary weight matrix to produce ESG scores.
	ESG ratings analysis	ESG factors are used to inform metrics that assess management quality, etc.

Source: Sustainalytics, IRRCI

Observations and analysis

During the interview process and in the analysis of public disclosures, several insights pertaining to the two key differentiators of the research dimension of ESG integration became apparent.

The growing potential of broad ESG research

Integration within resource constraints

While it is widely understood that assessing ESG risks and opportunities at the company level is an integral element in ESG integration, a growing number of investment teams are recognizing the importance of broad ESG research, especially as the far-reaching economic effects of systemic challenges, such as climate change, become more pronounced. Users of broad ESG research commonly hold that ESG factors provide an important perspective that helps inform their view of where the market is going, given their expectation that long-term ESG trends will shape the economy. Some interviewees cited resource constraints and/or the challenges of quantifying the longer-term, systemic impacts of macro ESG trends as primary reasons for not focusing on broad ESG research.

Modifying ESG inputs for customized analysis

Valuation models typically require modified inputs

While many investors view external ratings as a reasonable starting point for understanding company-level ESG performance, those that integrate ESG inputs in valuation models generally seek the specificity that is offered by modified ESG inputs. Teams that apply a customized view of ESG materiality generally expressed the notion that they are better able to capture value that may be missed by other market participants, including those that apply different ESG integration strategies.

The *how* of integration

Dimension 3: Application

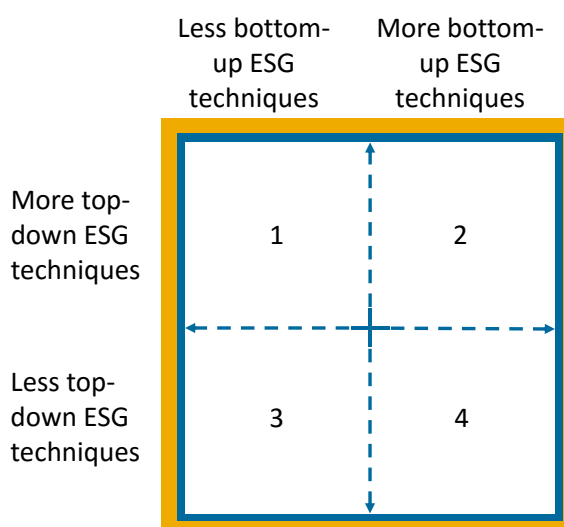
The application dimension focuses on the question of *how* investment teams apply ESG information in their investment processes. Accounting for an integration approach along this dimension involves identifying the entry points for ESG information in the investment process.

Within this dimension, the two key differentiators for distinguishing approaches to ESG integration are:

- a) the use of top-down techniques, and
- b) the use of bottom-up techniques.

As shown in the matrix below, a given approach to ESG integration can fall into one of four quadrants based on how it utilizes both top-down and bottom-up techniques. As implied by this matrix, it is possible for an approach to incorporate both top-down and bottom-up integration techniques.

Matrix analysis of the application dimension



Source: Sustainalytics, IRRCI

a) Top-down integration

For the purposes of this typology, “top-down” integration is the development and execution of an investment thesis based on a general view (as opposed to a view derived from fundamental analysis) of how ESG factors may create investment risks or opportunities.

Using ESG factors to define an investable universe of securities

This type of integration may rely on narrow research (as described in Dimension 2 analysis), such as company-specific ESG scores, to execute the thesis that companies with poor overall ESG performance pose significant risk and should be underweighted or screened out of an investment universe. Another example is building an investment thesis based on gender or ethnic diversity on the board or in senior management.⁹ While some investment managers have long utilized traditional financial metrics to filter a large universe of securities, some managers are using ESG factors in a similar fashion.

“The first step in a value manager’s process is to remove the most expensive stocks from consideration. We do almost the same thing, to avoid the worst performers on material ESG issues because they similarly represent less attractive long-term investment opportunities.”

– Joshua Linder, formerly PM at Calvert

Top-down integration may also be based on broad ESG research, including macro-level analysis, that facilitates positive or negative views on entire industries or markets. The use of broad research in a top-down strategy also includes the view that companies involved in certain activities, such as the extraction of thermal coal, face regulatory and transition risk and should be underweighted or excluded from an investable universe.¹⁰

Integrating into passive and active strategies

Top-down integration techniques can be applied to both active and passive strategies. Integrating ESG factors into passive investments generally involves filtering or tilting (or both) a mainstream benchmark index using rules based on analysis of how certain ESG factors are likely to affect value. Common examples are low-carbon index funds that seek to reduce exposure to carbon risk, while maintaining other risk exposures as close as possible to a standard index.

b) Bottom-up integration

Integrating ESG factors into security-specific analysis

For the purposes of this study, “bottom-up” integration is the integration of ESG factors into security-specific fundamental analysis in the context of security valuation and selection. Investors may apply bottom-up ESG techniques to inform their assessment of a company’s management quality, growth prospects and risk profile.

Varying approaches to bottom-up integration

Some investment teams practice bottom-up integration using ESG data as inputs into their valuation models, resulting, for example, in adjustments to the discount rate or cash flow estimates. This practice is typically carried out using ESG indicators that are deemed to be financially material on a sector-by-sector basis. As such, this approach generally involves the use of different indicators for different industries. However, some managers rely on a single set of overall ESG scores obtained from an external ESG research provider to complement their assessment of risk or management quality.

Bottom-up techniques can use narrow or broad ESG research

Like top-down techniques, bottom-up integration may use narrow or broad ESG research. Bottom-up integration of narrow research considers how company-specific performance indicators may influence a company’s valuation or risk profile, without necessarily taking into consideration ESG-driven sector or macro-level trends that may change the environment within which companies operate.

Stranded carbon assets analysis is an example of bottom-up analysis using broad research

The bottom-up integration of broad research incorporates not only company-specific factors but also analysis of how these may interact with broader ESG-related trends in financially material ways. An example of this approach is risk analysis of stranded carbon assets in the context of valuing the reserves of a company in the oil and gas sector, or scenario analysis around water constraints.¹¹

The table below provides examples of top-down and bottom-up integration.

Differentiating ESG application by entry point

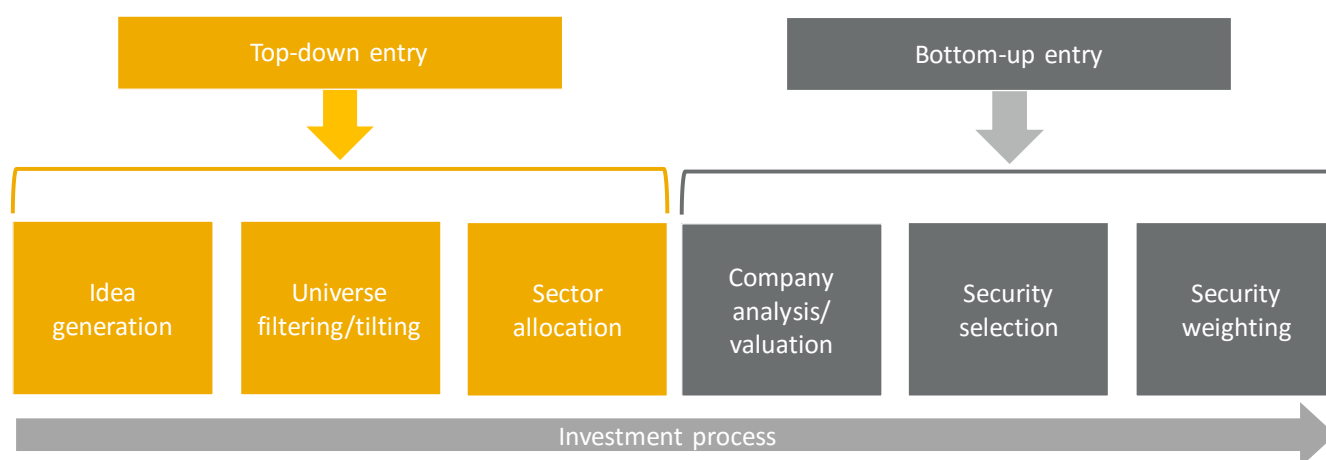
Key differentiator	Example	Description
Top-down techniques	ESG universe screens	Removing companies from an investable universe in order to reduce investment risk.
	Sustainable/ESG index universe	Defining the investable universe based on the constituents of a sustainable/ESG index.
	Thematic ESG investing	Using ESG research to pursue thematic investment opportunities (e.g. healthy eating).
	Sector weighting	Under/over weighting a sector relative to a benchmark based on ESG analysis.
	Passive filtering for ESG factors	Screening or tilting an index based on ESG factors, such as carbon risk.
Bottom-up techniques	Qualitative management analysis	Incorporating ESG into a qualitative assessment of management quality.
	Company growth models	Using ESG factors to assess the economic sustainability of a company's business model.
	Discount rate models	Adjusting the discount rate used in valuation models based on ESG considerations
	Margins and cash flow models	Adjusting forecasted margins or cash flows based in part on ESG factors.

Source: Sustainalytics, IRRCI

Top-down and bottom-up integration

ESG factors can enter at different stages of the investment process. The figure below depicts possible ESG entry points for top-down and bottom-up integration.

Entry points for applying ESG integration techniques



Source: Sustainalytics, IRRCI

Screening with the aim of improving returns

Observations and analysis

While eliminating companies from an investable universe based on ESG factors is a process that is often associated with ethical funds, many investors apply ESG screens to improve returns. Investment teams have developed innovative ways of filtering out companies that underperform on ESG criteria, to reduce their exposure to material financial risks or to identify firms positioned to realize financial value.

“There’s nothing wrong with the moral case, but our Women’s Fund was very deliberately built on a [financial] value proposition, which is that companies that make use of their entire workforce will do better than those that only know how to motivate, train and reward half of their workforce.”

– Julie Gorte, PhD, Senior VP, Sustainable Investing, Pax World Management

Some interviewees that apply screening as a top-down technique observed that the line between the goal of improving returns and the goal of mitigating negative impact is blurred. Several investors indicated that they do not see such goals as being mutually exclusive because certain screens can both have sustainability benefits and lead to better financial performance in the long term.

Different ways to execute an ESG investment thesis

Same theme, different strategies

Investment teams can execute an ESG investment thesis in a variety of ways.

“Unfortunately, the market has arrived at a definition [of ESG] that focuses on how companies operate, and much less on the actual products and services that they provide.”

– Seb Beloe, Head of Research, WHEB Group

Considering the issue of water scarcity, one approach involves holding companies with relatively strong water management policies in water-intensive sectors, while another approach avoids investing in any company operating in a water-intensive industry. Yet another water scarcity ESG thesis may focus on gaining exposure to companies involved

in providing solutions for water scarcity, such as water purification technologies.

Setting tracking error limits can restrict applications of ESG integration

Limiting tracking error as a constraint on integration

A frequently cited constraint regarding ESG integration, especially with respect to the integration of broad research, is the prevalent use of market indices to measure the financial performance of investment portfolios. As with non-ESG focused investing, efforts to minimize tracking error can restrict the ability of investment teams to invest based on a long-term view of how different factors may influence the expected growth of a given sector. Many interviewees said that tracking error limits imposed by asset owners constrain their ability to integrate ESG information. (This observation is similar to the long-time complaint by fundamental managers that tracking error limits mean that investors want active management, but not too much active management.) Others stressed that while ESG integration that involves sector bets may risk short-term underperformance, such an approach may outperform market benchmarks over the long run.

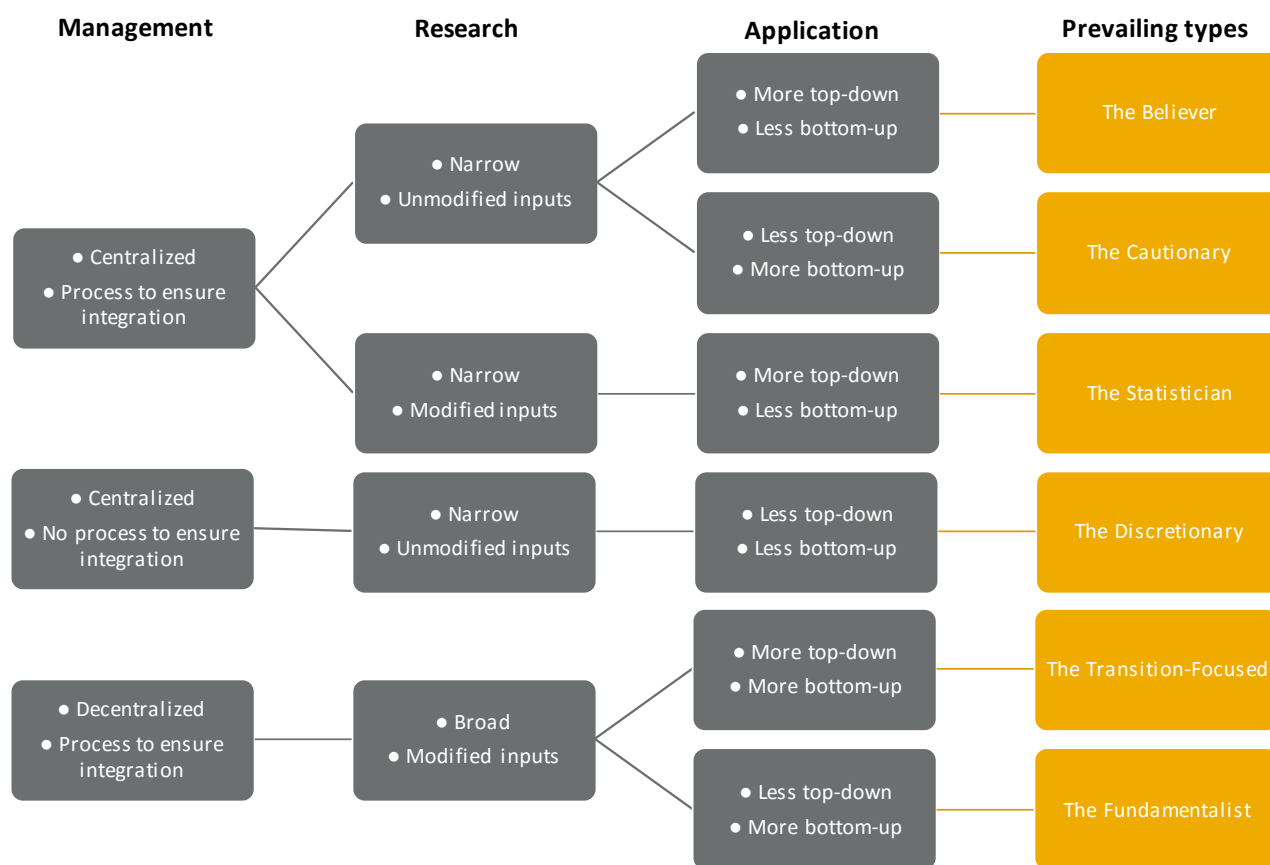
Prevailing types

Six prevailing types of ESG integration approaches

In addition to clarifying the essential characteristics of different approaches to ESG integration, the analysis identified prevailing types of ESG integration. This analysis does not simply recognize the most common approach types observed in the data, although relative frequency was one consideration in the selection process. Additional factors, such as overall distinctiveness, degree of innovation and general market trends, were also taken into account.

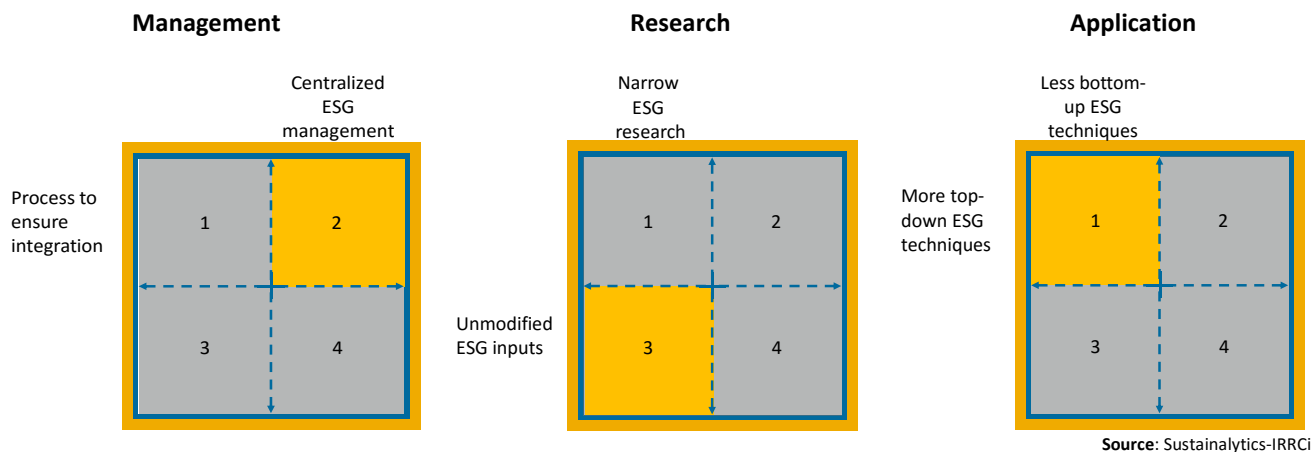
The analysis revealed six prevailing types of ESG integration: (1) the Believer, (2) the Cautionary, (3) the Statistician, (4) the Discretionary, (5) the Transition-Focused and (6) the Fundamentalist. An overview of the prevailing types and their relationship to the typology is provided below.

Overview of the six prevailing types of ESG integration



Source: Sustainalytics, IRRCI

The Believer

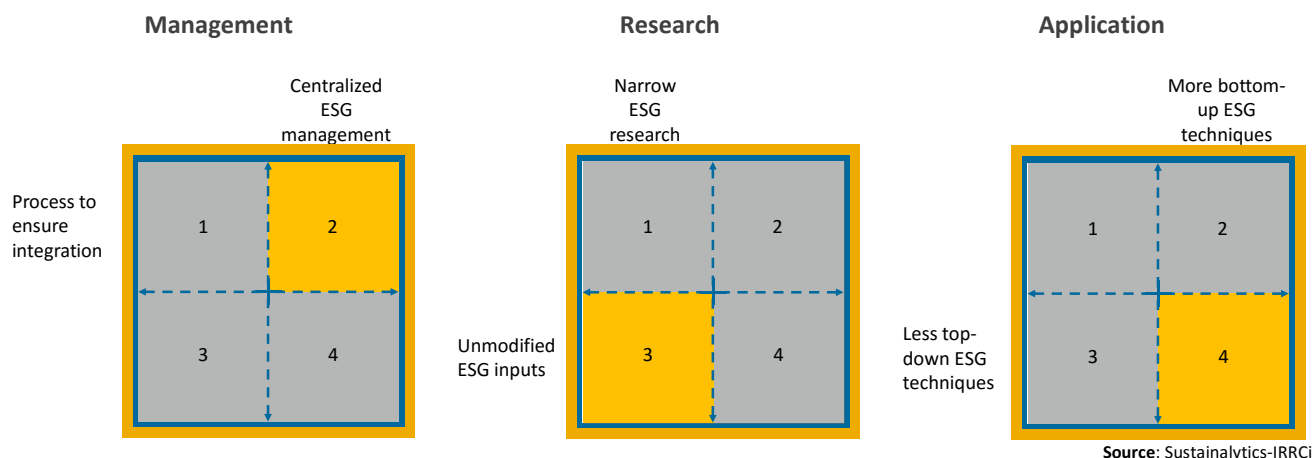


The Believer executes ESG integration in a manner that is clearly structured and consistent throughout an organization. Integral to this approach is a top-down application of general (i.e. not based on security-specific fundamental analysis) assumptions about how certain ESG factors may affect value. It usually focuses on security-level ESG considerations as opposed to macro ESG trends. Key characteristics of this approach, by dimension, are as follows:

- i) There is a centralized ESG management structure involving distinct ESG roles. ESG staff often sit together as a separate team, but they may also serve as ESG analysts on sector- or region-based investment teams. There is a process in place to ensure integration, and PMs have discretion to make decisions within ESG parameters established by the organization.
- ii) Investment teams focus primarily on narrow ESG research, although macro and thematic ESG research may also be considered. Typically, this approach involves the use of unmodified ESG scores.
- iii) While some bottom-up integration may occur at the discretion of individual PMs, the emphasis is on top-down integration techniques in order, for example, to filter investment universes based on ESG performance or risks. Some teams apply “worst-in-class” screens based on aggregate ESG scores with the aim of removing companies with greater ESG-related risks.

This approach may involve, as noted, a limited degree of bottom-up integration, seeking to account for ESG risks and opportunities earlier in the investment process. Indeed, this approach, while asserting that ESG factors are bound to be material in the long term, may reflect skepticism about the ability of PMs to integrate ESG factors into valuation models in the context of bottom-up, fundamental analysis.

The Cautionary

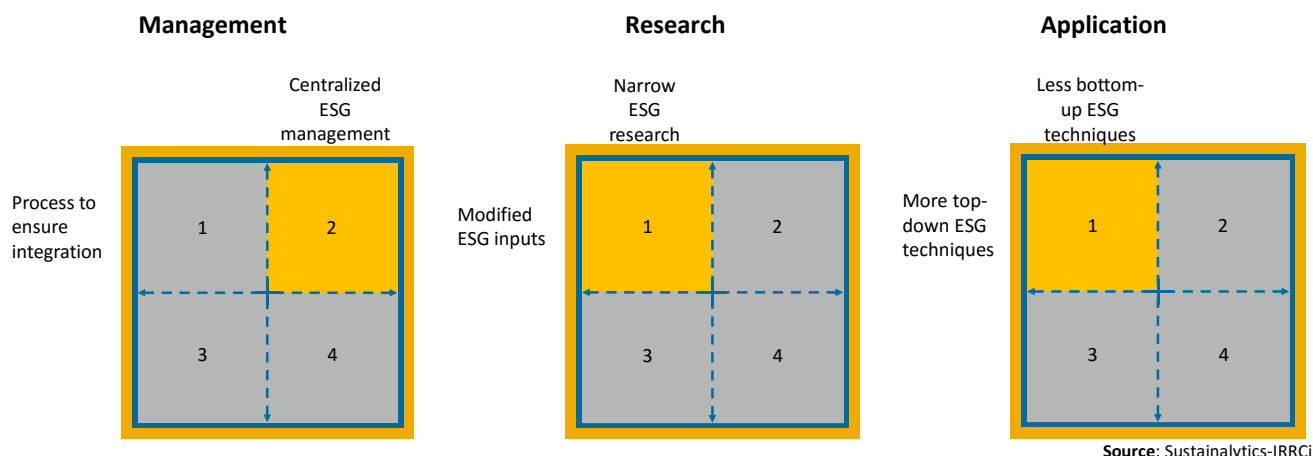


The Cautionary approach seeks to ensure that investment teams consider ESG factors in order to improve risk management, focusing on company-specific research rather than broad ESG trends. Key characteristics of this approach, by dimension, are as follows:

- i) A centralized ESG management structure employs dedicated ESG specialists who deliver ESG research to investment teams and have opportunities for structured and sometimes mandatory dialogue with other analysts and PMs. ESG staff aim, among other goals, to ensure compliance with internal, organization-level policies, as opposed to providing a view on specific companies or thematic ESG issues. An organization may have rules and criteria that determine when ESG risks need to be considered by a PM. For example, the presence of major controversies may trigger such consideration.
- ii) ESG research is usually narrow, with a focus on company-specific downside risks. Teams largely rely on unmodified ESG research from third-party providers for company-level ESG assessments.
- iii) Teams use bottom-up integration techniques, sometimes triggered by organization or team-level rules and criteria as noted above, with the primary goal of managing idiosyncratic risk that may stem from ESG factors, such as involvement in major ESG controversies.

This approach is often carried out within the confines of set parameters such as minimal deviation from a benchmark. While macro ESG issues may influence the creation of specific ESG products, such thematic issues are not systematically considered in ESG integration activities.

The Statistician

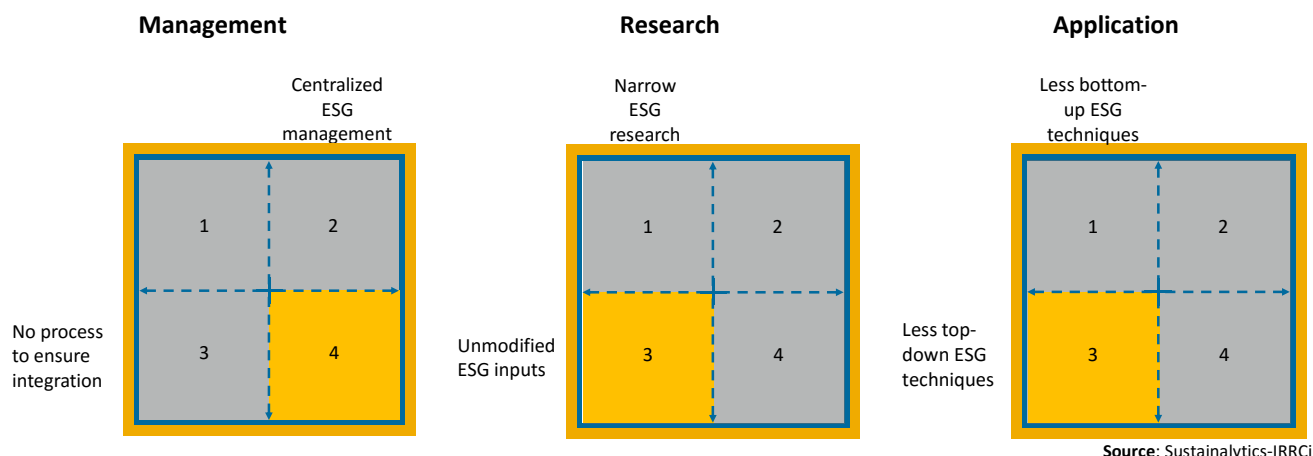


The Statistician uses statistical analysis to identify correlations between historical ESG performance and historical financial performance with the aim of identifying material factors that are likely to generate alpha. This analysis is built into models that are applied to passive or smart beta strategies. Key characteristics of this approach, by dimension, are as follows:

- i) The processes of gathering and analyzing ESG data are typically centralized, and the nature of the process is such that ESG integration is ensured.
- ii) Analysis relies on narrow, historical data and typically does not incorporate a consideration of anticipated future impacts of ESG trends at the macro level. Much effort goes into identifying factors likely to contribute positively to future financial performance, resulting in modified data inputs.
- iii) Integration techniques are rules-based and, therefore, top-down. ESG factors are typically used to adjust the weightings of the constituents of a benchmark, tilting and/or reducing to zero in some cases.

This approach involves an in-depth consideration of how ESG data points relate to price movements, often with a high degree of precision. Teams implementing this approach place an emphasis on the quality, comparability and historical availability of ESG data.

The Discretionary

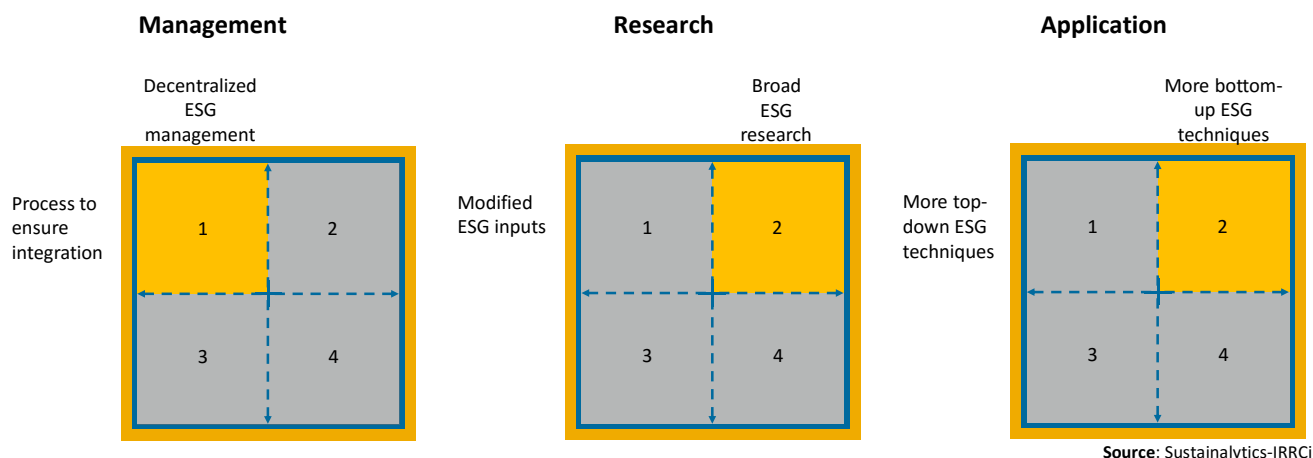


The Discretionary approach considers ESG factors on an optional basis as a supplement to traditional financial analysis, usually with a focus on idiosyncratic risk management. Key characteristics of this approach, by dimension, are as follows:

- i) Dedicated ESG specialists, typically a small team, process ESG research obtained from external providers and make it available to PMs. ESG staff may directly support PMs on an ad-hoc basis, as ESG factors are typically not central to the investment team's culture or its broader value proposition. A process to ensure integration through reporting protocols is typically not present.
- ii) PMs who consider ESG typically use narrow research. Teams usually rely on unmodified ESG scores from external research providers.
- iii) A consideration of ESG may, at the discretion of PMs, influence bottom-up analysis and security selection. It rarely includes top-down integration techniques. When integration occurs, it focuses on security-level considerations and risk management, with little or no emphasis on ESG-related opportunities.

Teams taking this approach usually do not have a team view on how ESG factors may affect value, given the differences in beliefs that PMs and analysts often have on ESG topics.

The Transition-Focused

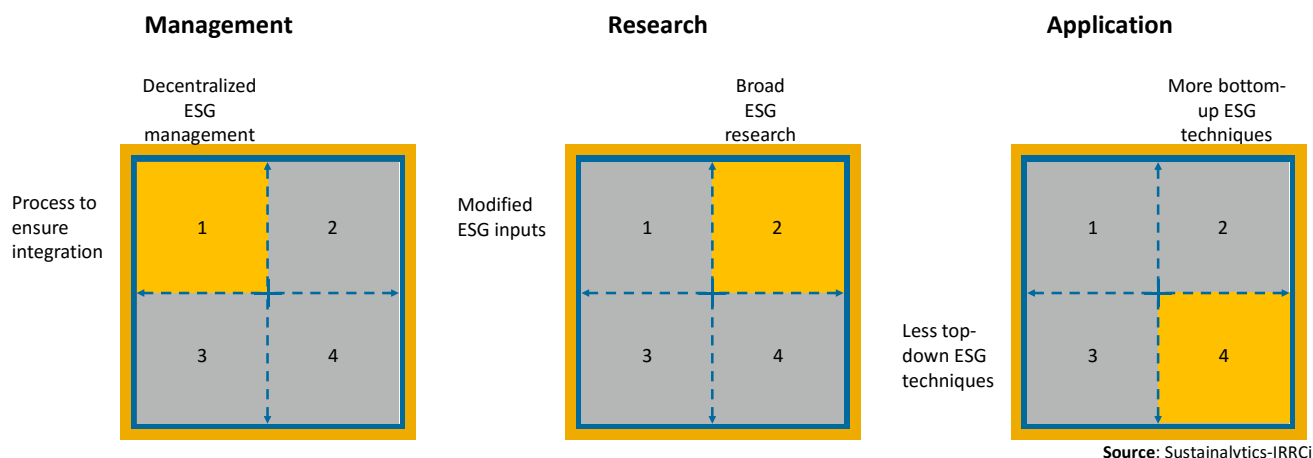


The Transition-Focused approach regards ESG factors as central research inputs, and concentrates to a significant degree on risks and opportunities associated with broad ESG-related economic shifts, ESG thematics and sustainability challenges. Key characteristics of this approach, by dimension, are as follows:

- i) A decentralized ESG management structure may be supported by dedicated specialists, and mechanisms are in place to ensure that teams draw on ESG factors in the investment processes. Analysts and portfolio managers have significant ESG resources at their disposal. Investment teams consider ESG integration to be an important part of their culture and their external value proposition.
- ii) Broad ESG research is essential to understanding and assessing ESG-related risks and opportunities both at the company level and at the industry level. This research is supported by a firm's own in-depth ESG analysis, which is used to modify research from third-party providers.
- iii) Teams combine top-down and bottom-up integration techniques. ESG-related trends and issues, such as climate change, water scarcity and healthy eating, serve as major sources of idea generation. These themes may influence the construction of an investment universe as well as sector weightings. They are also integrated into bottom-up analysis to determine how well positioned a company is to benefit from macro themes.

This approach typically includes a readiness to deviate from sector weightings in mainstream benchmarks, and by the intention to contribute to the transition to a more sustainable economy. Teams typically monitor the ESG performance of their portfolios in a structured and continual manner.

The Fundamentalist



The Fundamentalist aims to integrate ESG factors thoroughly into bottom-up analysis and decision-making by considering company-specific ESG factors as well as macro ESG trends that may affect company's performance over short- and long-term time horizons. Key characteristics of this approach, by dimension, are as follows:

- i) A decentralized ESG management structure places responsibilities for ESG integration with analysts and PMs, who typically regard ESG factors as material and important considerations in the valuation process. Teams do not usually treat ESG research and analysis as distinct from other elements of their financial analysis. Managerial oversight and/or team culture ensure that ESG factors are diligently accounted for when deemed to be material.
- ii) A broad research focus incorporates information about security-specific as well as thematic and macro ESG considerations. Investment teams typically do not view a company's overall ESG score as a reliable measure of ESG risk or opportunity. Instead, they focus on company performance in specific areas based on their ESG materiality analysis, which considers sector exposures as well as the business models of individual companies. They often draw on and combine ESG data from multiple external sources to generate internal scores.
- iii) Teams integrate ESG factors systematically through bottom-up techniques, considering both related risks and opportunities. They often conduct scenario analysis to forecast the possible outcomes of ESG controversies, or improved ESG performance.

Teams taking this approach often view ESG integration as an important component of their fundamental analysis and investment process and are confident about being able to quantify ESG risks and opportunities meaningfully, and to integrate them into traditional analysis and models. They also view ESG integration as warranting significant resource and time investments.

Market observations

Candid commentary about the state of the market

In addition to driving the development of the differentiators and prevailing types discussed above, the research collected for this report yielded a number of high-level findings about the general state of ESG integration in today's investment market. The 35 investor interviews were particularly useful in this respect, as participants often offered candid commentary on a wide range of topics, including concerns about integration practices and industry barriers, as well as opportunities for developing innovative ESG strategies. Five general observations about the ESG landscape distilled from the research are highlighted below.

The extent of integration

PMs do not always use the ESG research that they have access to

The analysis of investors' management of ESG integration (Dimension 1) suggests that there may be less *actual* integration taking place than expected by the market. It became apparent through our interviews that a system to get ESG information into the hands of investment decision-makers is ultimately insufficient to guarantee ESG integration, particularly with regard to bottom-up techniques (i.e. security valuation).

Some of the investors interviewed were candid about the lack of an information trail or reporting system within their organizations to demonstrate how frontline investment decision-makers use ESG research. This might mean that PMs are not fully utilizing the ESG research that they have access to, even at organizations that have publicly expressed support for ESG integration.

It is difficult to determine the actual state of ESG integration

While some organizations may be overstating the degree to which their investment teams are actually using ESG information in portfolio management and decision-making, it is also possible that genuine integration is occurring at organizations that have not publicly embraced ESG (by, for instance, becoming a PRI signatory). Portfolio teams at these firms may consider ESG issues to be material components of their standard investment procedures without regarding them as distinct from other financial factors. The actual state of ESG integration is, therefore, uncertain.

Challenges of meaningful ESG integration

Using ESG in bottom-up, security-specific investment models is particularly challenging

Many interviewees opined that, despite marked improvements in integration tools and the continued groundswell of investor interest in ESG's potential, integrating ESG remains a fundamentally challenging enterprise. Some singled out the practice of integrating ESG information using bottom-up techniques as particularly challenging, due to the difficulties of embedding ESG analysis in investment models and linking to such items as projected cash flows or a company's discount rate. Interviewees stressed that such techniques are resource intensive and typically require modified research and robust sector-by-sector materiality analysis. This consideration has certainly not stopped some asset managers from successfully employing bottom-up techniques (see p. 23 for an overview) but interviewees generally signalled that such efforts are at an early stage.

Improving ESG research

Investor concerns with external research providers

Interviewees indicated that the quality of ESG research, analysis and ratings varies substantially from one resource to another, and many investment teams drawing on external sources have concerns about research reliability, timeliness, transparency and geographic coverage (particularly for emerging markets). Many of these concerns reflect the relatively brief history and limited availability, reliability and comparability of corporate ESG disclosures.

Recent improvements in the timeliness and quality of ESG data

However, many investors with longstanding ESG integration strategies cited a notable increase in the timeliness and quality of ESG data points in recent years, driven in part by an improvement in corporate disclosure.

Finding corroborating evidence

Some firms address questions of data consistency and relevance by looking for corroboration in other data sources. For instance, combining multiple sources of ESG analysis can offer more comprehensive viewpoints on key ESG issues than single sources of research. When working with external providers, maintaining lines of discussion with advisors and analysts can improve the quality and timeliness of integration strategies.

Lifting constraints on ESG innovation

Benchmarks and long-term investing

Some asset manager interviewees stated that some of the parameters established by many asset owners in their investment policies – most notably requirements to cap tracking error and deviations from benchmark sector weights – constrain the extent to which they can incorporate ESG information into investment strategies. Indeed, some hold that such constraints are limiting innovation in the industry. While such constraints may offer volatility protection vis-à-vis a benchmark, they can also make it difficult for asset managers to implement certain approaches to ESG integration, especially those that consider broad research and analysis of macro-level themes.

The relationship between materiality and impact

An investment rationale for impact

Some large investors are paying increasing attention to companies' sustainability impacts and how these impacts may generate systemic risks that can jeopardize economic value. Among those using top-down techniques, some interviewees maintained that there is an investment case for applying certain ESG filters and aligning investments with the broader goal of creating a sustainable economy. Some see the two rationales as complimentary, and the line between the two has become blurred for many. Some asset owners are making investments – often through ESG allocations outside their core investment portfolios – in projects, sustainability funds or green bonds where there is a clear intention to have a positive impact.

This observation is in line with the findings of a recent report by the Investment Integration Project (TIIP), which carried out an extensive survey of the investments that some institutional investors are making with the intention to effect positive change in the health and resilience of the environmental, social and financial systems upon which wealth creation depends.¹²

Conclusion

Reviewing key contributions

Classifying approaches to ESG integration

Making sense of the different ways in which investors are applying ESG information to their investment processes is likely to take on greater importance in the years ahead, as investors explore increasingly innovative ESG integration techniques. It is hoped that the typology put forward in this report contributes to this goal by helping market participants a) identify the essential characteristics of ESG integration and b) organize the approaches to ESG integration that have been deployed in the market to date.

Promoting discussion of prevailing types

The prevailing types analysis stands as a unique characterization of current investor practices in the ESG market. It is hoped that identifying the six prevailing types – the Believer, the Cautionary, the Statistician, the Discretionary, the Transition-Focused and the Fundamentalist – promotes discourse about where certain approaches may fall, and where the industry may be trending.

Market observations convey investor perspectives

The five high-level market observations included at the end of this report offer a snapshot of investor perspectives on the ESG integration landscape. It is hoped that these findings stimulate discussion about the state of the industry and some of the challenges and opportunities associated with ESG integration.

Looking ahead

While the typology assembled in this study can help market participants classify existing approaches to ESG integration, it will be important to revisit this analysis to see if the differentiating features of ESG integration shift over time. Recent innovation in approach types, coupled with increasingly sophisticated investor tools, and more and higher quality corporate ESG information, underscore the importance of this line of research.

Endnotes

- ¹ Global Sustainable Investment Alliance (2017), The 2016 Global Sustainable Investment Review, last accessed (04.03.2017) at: http://www.gsi-alliance.org/wp-content/uploads/2017/03/GSIR_Review2016.F.pdf.
- ² Global Sustainable Investment Review (2017), op. cit.
- ³ UN PRI (2016), A Practical Guide to ESG Integration for Equity Investing, last accessed (17.02.2017) at: https://www.unpri.org/download_report/22600.
- ⁴ UN PRI (2013), Integrated Analysis: How investors are addressing environmental, social and governance factors in fundamental equity valuation, last accessed (17.02.2017) at: https://www.unpri.org/download_report/3950.
- ⁵ We define top-down integration as the development and execution of an investment thesis based on a general view (as opposed to a view derived from fundamental analysis) of how ESG factors may create investment risks or opportunities.
- ⁶ We observed a total of 22 discrete approach types in the dataset.
- ⁷ Röhrbein, Nina (2010), "ESG risk in a portfolio context," Investment & Pensions Europe, last accessed (17.02.2017) at: <https://www.ipe.com/esg-risk-in-a-portfolio-context/34522.fullarticle>.
- ⁸ SASB Materiality Map (2017), last accessed (17.02.2017) at: <https://www.sasb.org/materiality/sasb-materiality-map/>.
- ⁹ Dawson, J. Kersley, R. and Natella, S. (2016), The CS Gender 3000: The Reward for Change, Credit Suisse Research Institute, last accessed (16.01.2016) at: <http://publications.credit-suisse.com/tasks/render/file/index.cfm?fileid=5A7755E1-EFDD-1973-A0B5C54AFF3FB0AE>.
- ¹⁰ This refers to risks associated with a presumed transition to a low-carbon economy. This type of risk has been highlighted, for example, by the work of the Task Force on Climate-related Financial Disclosures (TCFD). TCFD website, last accessed (17.02.2017) at: <https://www.fsb-tcfd.org/>.
- ¹¹ The TCFD considers scenario analysis important. See also: The Investor Group on Climate Change and The Asia Investor Group on Climate Change (2017), The Transparency in Transition a Guide to Investor Disclosure on Climate Change, last accessed (17.02.2017) at: <http://www.igcc.org.au/resources/Pictures/IGCC%20TRANSPARENCY%20in%20TRANSITION%20FINAL.pdf>.
- ¹² Burckart, W., Lydenberg, S., and Ziegler, J. (2016), *Tipping Points 2016: Summary of 50 Asset Owners' and Managers' Approaches to Investing in Global Systems*, The Investment Integration Project and the Investor Responsibility Research Center Institute (IRRCi), last accessed (17.02.2017) at: <http://tiiproject.com/tipping-points-2016/>.

Appendix A: Investors

Interviewed investors

Institutional Investor	Country	Assets under management (USD mn)*	Interviewees
Aberdeen Asset Management	UK	428,792	Fionna Ross, Senior Analyst, Responsible Investing
ACTIAM	Netherlands	571,001	Thierry Oeljee, Senior Engagement Specialist Bas Wetzelaer, ESG Analyst
Addenda Capital	Canada	18,630	Brian Minns, Manager, Sustainable Investing
Alliance Trust	UK	7,232	Neil Brown, SRI Investment Manager
AMF	Sweden	61,847	Christer Jönsson, Head of Global Equities Annelie Götbring, Head of Responsible Investments, Equities
Arabesque Partners	UK	32	Tim Verheyden, PhD, ESG Quant Researcher
Auriel Capital	UK	12	Antti Savilaakso, Partner
BlackRock	US	4,635,000	Michelle Edkins, Managing Director, Global Head of BlackRock Investment Stewardship
Breckinridge Capital Advisors	US	23,305	Rob Fernandez, Vice President
California Public Employees' Retirement System (CalPERS)	US	288,900	Divya Mankikar, Head of ESG Integration
California State Teachers' Retirement System (CalSTRS)	US	192,000	Anne Sheehan, Director of Corporate Governance Brian Rice, Investment Officer
Calvert Investments	US	12,119	Joshua Linder, formerly PM at Calvert
ClearBridge Investments	US	107,500	Mary Jane McQuillen, Managing Director, Portfolio Manager, Head of ESG Investment
Colonial First State Global Asset Management	Australia	142,925	Pablo Berrutti, Head of Responsible Investment, Asia Pacific
Global Alpha Capital Management	Canada	359	Qing Ji, Portfolio Manager
Goldman Sachs Asset Management	US	1,028,665	Maria Elena Drew, Portfolio Manager
Hermes Investment Management	UK	27,700	Louise Dudley, Portfolio Manager Maxime LeFloch, Manager, Responsible Investment
Mackenzie Investments	Canada	46,700	Adam Gofton, Associate Portfolio Manager
Nationale Nederlanden Investment Partners (NNIP)	Netherlands	203,868	Nina Hodzic, formerly Senior Specialist Responsible Investing
Northcape Capital	Australia	9,000	Patrick Russel, Director
Ossiam	France	2,410	Carmine De Franco, Quantitative Analyst Bruno Monnier, Quantitative Analyst
Parametric	US	179,000	Jennifer Sireklove, Director, Investment Strategy
Pax World Investments	US	3,630	Julie Gorte, PhD, Senior VP, Sustainable Investing
PGGM Investments	Netherlands	199,819	Jelena Stamenkova van Rumpt, Advisor Responsible Investment Saskia van den Dool-Gietman, Senior Advisor Responsible Investment
Robeco	Netherlands	292,242	Masja Zandbergen-Albers, Head Analyst, Global Equity
Royal Bank of Canada Global Asset Management (RBC GAM)	Canada	301,000	Benjamin Yeoh, Senior Portfolio Manager
Storebrand	Norway	67,301	Philip Ripman, Senior Analyst, Sustainable Investments
Sustainable Growth Advisors	US	6,014	Patrick Holway, Client Portfolio Manager
Sustainable Insight Capital Management	US	118	Bruce Khan, PhD, Portfolio Manager

Institutional Investor	Country	Assets under management (USD mn)*	Interviewees
Swiss Reinsurance Company (Swiss RE)	Switzerland	117,669	Andreas Spiegel, Head Group Sustainability Risk
TIAA	US	628,541	Sarah Wilson, Director, Responsible Investment Khalid Husain, Director, Environmental, Social and Governance Investing
Vescore	Switzerland	16,000	Eckhard Plinke, PhD, formerly Head of Sustainability Research
Wellington Management	US	969,000	Andrew Morales, Assistant Vice President, ESG Analyst
Wells Fargo Private Bank	US	200,000	Lloyd Kurtz, Senior Portfolio Manager and Head of Social Impact Investing Claire Veuthey, Senior Analyst, Social Impact Investing
WHEB Asset Management	UK	182	Seb Beloe, Head of Sustainability Research

* AUM data based on most recent figures found in PRI Transparency Reports

Non-interviewed investors

Institutional Investor	Country	Assets under management (USD mn)*	Institutional Investor	Country	Assets under management (USD mn)*
Acadian	US	66,835	Generation Investment Management	UK	12,007
Allianz SE	Germany	481,870	Impax Asset Management	UK	4,660
Amalgamated Bank	US	12,759	J.P. Morgan Asset Management	US	1,722,543
AMP Capital	Australia	117,066	Julius Baer Group	Germany	45,443
Amundi Asset Management	France	1,073,883	Legal and General Investment Management (LGIM)	UK	1,115,000
Astra Investimentos	Brazil	150	NEI Investments	Canada	4,489
Australian Ethical	Australia	854	Nissay Asset Management	Japan	71,326
AXA	France	729,827	North Star Asset Management	US	257
BankInvest Group	Denmark	11,117	Northern Trust	US	87,530
Bell Asset Management	Australia	475	ODIN Fund Management	Norway	4,825
Boston Trust & Investment Management	US	6,947	Parnassus Investments	US	15,645
British Columbia Investment Management Corp (BCIMC)	Canada	92,998	PIMCO	US	1,071,912
Capital Group International	US	81,000	Red Mountain	Australia	2,780
Cohen & Steers	US	59,100	Redpoint Investment Management	Australia	2,865
Columbia Threadneedle Investments	UK	143,885	Silk Invest	UK	246
Deutsche Asset Management	Germany	1,303,361	T. Rowe Price	US	763,100
First Reserve Corporation	US	13,850	Vancity Investment Management	Canada	773
Fisher Investments	US	65,437			

* AUM data based on most recent figures found in PRI Transparency Reports

Appendix B: Initial Framework

Dimension 1: Management

1. **Structure of ESG-related roles:** How are ESG-related roles structured in an organization?
2. **ESG training:** Do ESG staff or others participate in a structured training programme?
3. **ESG incentives:** Are key performance indicators and/or variable pay linked explicitly to ESG metrics?
4. **Compliance mechanism:** Is there a process to ensure that ESG issues are being considered?

Dimension 2: Research

5. **Research source:** Is external or internal ESG research and analysis the primary source for investment decisions?
6. **Internal rating system:** Do investment teams apply an internal ESG rating?
7. **Level of research:** Do investment teams have access to and apply sector/macro level research?
8. **Materiality of ESG issues:** Who determines whether an ESG issue is material to an investment decision?
9. **Information management:** How is ESG information stored and disseminated?
10. **ESG momentum:** Is the momentum of ESG performance (improving or deteriorating) considered?
11. **Reporting:** Is the consideration of ESG factors documented?

Dimension 3: Application

12. **Idea generation:** Are ESG factors being considered at the pre-investment stage to generate investment ideas (e.g., healthy eating trends create revenue growth opportunities for certain food companies)?
13. **Screening:** Is the investable universe being constrained based on ESG factors? If so, is the rationale to do so based on ethics/norms, or a belief that the remaining companies are better positioned to perform well financially?
14. **Scoring:** Is there an ESG score (internally generated, or applied by external provider) that is associated with an individual security?
15. **Sector allocation:** Do ESG factors affect the target weightings of sectors within portfolios, or do they keep sector weights in-line with that of mainstream benchmarks?
16. **Valuation:** Are ESG inputs integrated into a valuation model (e.g., this could involve using ESG inputs to adjust revenue estimates, the discount rate used in a financial model)?
17. **Weighting:** Do ESG factors influence the portfolio weighting of securities?
18. **Monitoring:** Is the ESG performance of securities/portfolios monitored on an ongoing basis?

