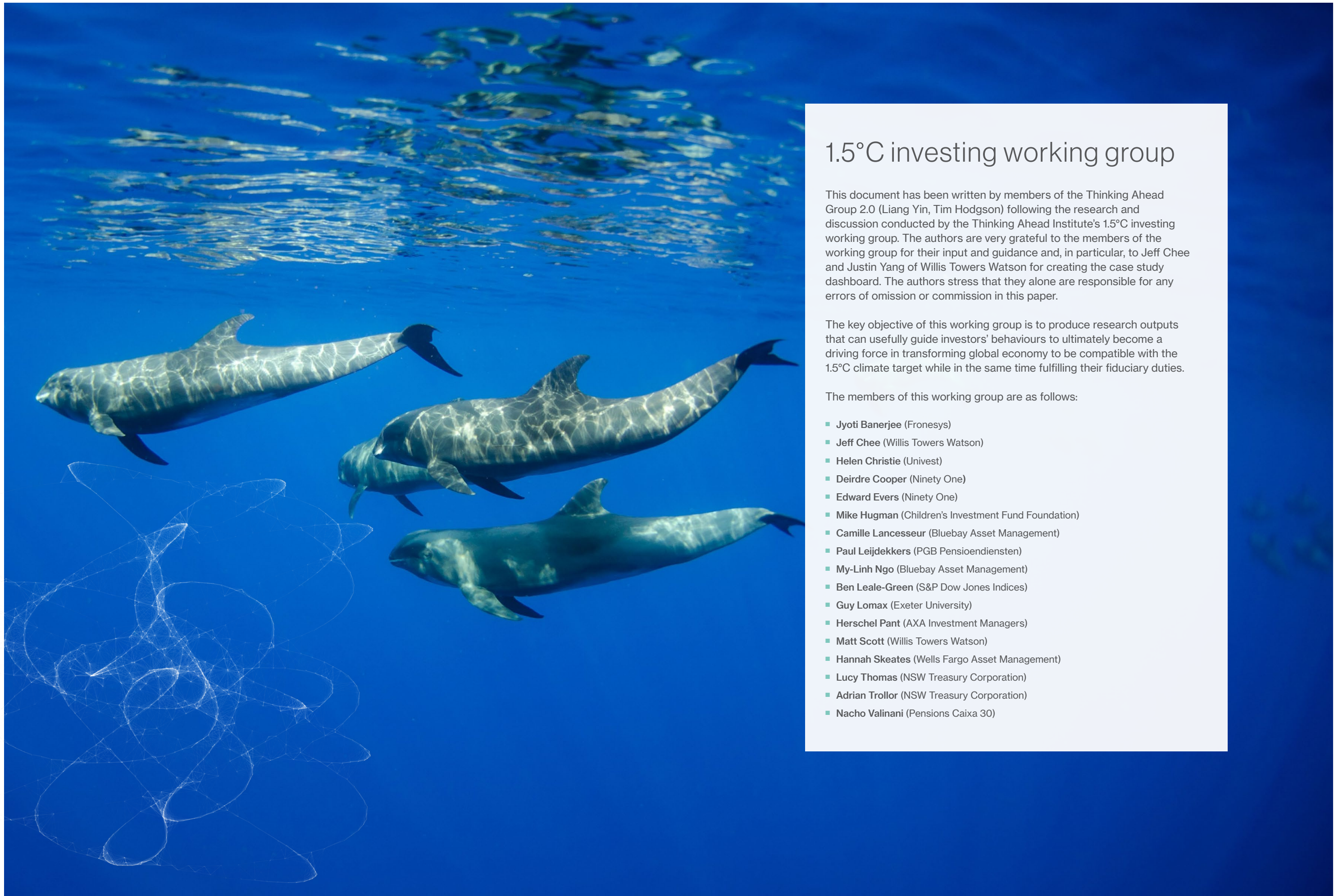


Thinking Ahead Institute

Climate dashboard reporting

How is your portfolio impacting the planet?





1.5°C investing working group

This document has been written by members of the Thinking Ahead Group 2.0 (Liang Yin, Tim Hodgson) following the research and discussion conducted by the Thinking Ahead Institute's 1.5°C investing working group. The authors are very grateful to the members of the working group for their input and guidance and, in particular, to Jeff Chee and Justin Yang of Willis Towers Watson for creating the case study dashboard. The authors stress that they alone are responsible for any errors of omission or commission in this paper.

The key objective of this working group is to produce research outputs that can usefully guide investors' behaviours to ultimately become a driving force in transforming global economy to be compatible with the 1.5°C climate target while in the same time fulfilling their fiduciary duties.

The members of this working group are as follows:

- Jyoti Banerjee (Fronesys)
- Jeff Chee (Willis Towers Watson)
- Helen Christie (Univest)
- Deirdre Cooper (Ninety One)
- Edward Evers (Ninety One)
- Mike Hugman (Children's Investment Fund Foundation)
- Camille Lancesseur (Bluebay Asset Management)
- Paul Leijdekkers (PGB Pensioendiensten)
- My-Linh Ngo (Bluebay Asset Management)
- Ben Leale-Green (S&P Dow Jones Indices)
- Guy Lomax (Exeter University)
- Herschel Pant (AXA Investment Managers)
- Matt Scott (Willis Towers Watson)
- Hannah Skeates (Wells Fargo Asset Management)
- Lucy Thomas (NSW Treasury Corporation)
- Adrian Trollor (NSW Treasury Corporation)
- Nacho Valinani (Pensions Caixa 30)

Summary – institutional investors come to grips with climate impact

Many forces, including the 2015 United Nations Paris Agreement, are encouraging investors to integrate climate change risk into decision-making. This coincides with a growing desire / need for both companies and investors to report on their climate impact in a considered and consistent way.

In a previous paper on portfolio temperature rating¹, we discussed various aspects of that metric in the context of climate impact reporting – the intuitive appeal versus the technical, behavioural and compositional drawbacks.

The conclusion of that paper is very clear: when it comes to climate impact reporting, a dashboard comprising multiple measures should always be used because there is no single perfect metric that tells the whole story.

This paper documents the Thinking Ahead Institute's 1.5°C investing working group's views on how such a climate impact dashboard should be constructed. It will cover both the "theory" and "practice". We will start by describing eight guiding principles that the working group believes should ideally apply to all climate impact reports. This is followed by a practical take on those principles – a case study based on a Willis Towers Watson equity portfolio. We believe the principles and the case study complement and enhance each other. However, we note that the case study is only an incomplete first attempt. In future versions we will want to increase the proportion of the portfolio assessed; to add other asset classes; and to include data that we currently are not able to access.

It is also worth stating up front what this paper is not. When it comes to climate reporting, we believe that a helpful distinction should be made between climate risk reporting and climate impact reporting. The former addresses the impact of climate change on investment portfolios while the latter focuses on helping investors understand the impact of their investment portfolios on the wider environment – to what extent are our investment activities contributing to the de-carbonisation of the global economy. While certain metrics (such as emissions) have roles to play in areas of both risk and impact, this paper focuses on the impact dimension.

Further, climate dashboard reporting is complicated by the question of time. Data is available for the past, but impact is about the future for which we can only have projections. If we show data for past emissions, we are inferring that this is material for future impact. At the macro level, climate scientists would suggest this is a reasonable inference, but if we pursue this for individual securities, we must be much more careful in our interpretation and narrative. If we show projections for the future, we must be similarly careful in our interpretation and conclusions.

ESG reporting landscape and where do we fit?

Before that, let's take a brief look at the landscape. There are already numerous organisations offering frameworks and standards for ESG reporting. So where does our contribution fit?

Exhibit 1 gives our take on the ESG reporting landscape. It is worth noting that the schematic is for illustration purpose only and by no means claims to capture all the providers in this space. To navigate a rather complex landscape, we find it mentally convenient to break it down into three components.

Starting from the bottom we have frameworks and standards to guide corporations in their reporting of ESG-related information. There are many influential providers in this space, and that has been a source of complaint. It is therefore worth highlighting two developments that occurred in September 2020. First, five global organisations – CDP, CDSB, GRI, IIRC and SASB – announced a shared vision of what is needed for progress towards comprehensive corporate reporting and the intent to work together to achieve it². Second, the trustees of the IFRS Foundation published a consultation paper to quantify the demand for global sustainability standards, and whether the foundation should play a role in that (as it does for financial reporting).

The company reports become useful inputs for investors to understand their own ESG risk exposures and impact. In practice, though, most investors do not have the resources / capability to directly make use of this raw data. Instead, they use providers such as S&P Global and MSCI that help package the data in a form that is easier to access and digest. That is where the middle group comes in.

At the top of the schematic we have the frameworks and standards that guide how investors – both asset owners and asset managers – report their ESG-related information. Here we make a distinction between ESG risk reporting (to the left) and ESG impact reporting (to the right). The former addresses the impact of ESG factors on investment portfolios – ie risk and return exposures to ESG issues – while the latter focuses on helping investors understand the impact of their investment portfolios on the wider environment and societies. As the schematic shows, we believe this paper contributes to the development of the latter. In fact, our focus is even narrower than that, concerning only the impact of investment portfolios on climate change.

Exhibit 1 – our take on the ESG reporting landscape



Source: Bob Eccles

¹ https://www.thinkingaheadinstitute.org/content/uploads/2020/12/TAI_Climate_change_Temperature_Rating.pdf

² In November 2020 SASB and IIRC announced an intention to merge

Climate impact reporting guiding principles

In the following, we will lay out eight principles, hopefully as a useful guide for investors wanting to report their climate impact. Some of these principles are straightforward and self-explanatory. Others are more nuanced and require more explanation.

1 the purpose of the impact report should be stated clearly

There are many reasons why investors commit resources to measuring and reporting on the climate impact of their portfolios. Some investors do it because they want to proactively report their impact to key stakeholders or address client demand for this information. It can be about better understanding whether there has been sufficient progress towards some pre-agreed goals (eg Paris alignment / net-zero emissions). Or, it could be simply adhering to government regulations to measure and report impact. Whatever the purpose is, the impact report should be explicit about it.

2 the milestones or interim targets should be clearly defined (level and timescale)

Many countries and, increasingly, institutional investors have set net-zero emissions by 2050 as their primary climate goal. This is a critically important goal as it is clear from the science that the amount of carbon dioxide in the atmosphere as a result of human activity largely determines the extent of global warming.

The only issue is that this goal is three decades away, which can potentially lead to a lack of urgency for action. Interim targets are therefore useful – we would argue necessary – for keeping track of the shorter-term progress towards this overarching goal and examples could include a percentage reduction in emissions by [date], a percentage allocation to climate solutions by [date], and/or a temperature rating of [X] degrees celcius by [date].

3 the actions taken to achieve the targets should be documented – investor contribution

4 the metrics / evidence reported should allow a simple assessment of progress, or not, towards targets – company impact

We group these two principles together for a reason: investors often fail to differentiate between the impact their investee companies create and their own impact.

So, what's the difference? Actually, taking one step back, what is impact in the ESG context? Let's start with some definitions which we borrow from a 2019 paper³:

- **Impact:** change in a specific social or environmental parameter that is caused by an activity
- **Company impact:** the change that company activities achieve in social and environmental parameters
- **Investor impact:** the change that investor activities achieve in company behaviours.

Impact here is described as having a key defining characteristic – it implies causality in the sense that the change would not have occurred in the absence of the activity. In reality, the proof of causality can be a very high hurdle. Imagine a company having reduced its carbon emissions over the last year by 10%. We don't even know if this was due to company activity or simply due to a loss in market share. To correct for this we can amend our measurement to show emissions per unit of production. This might show the company's activities reduced its emissions intensity by 15% (direct impact), implying that it actually gained market share given that its total emissions declined by 10%. What about the equity owners of the business? Here, causality is much harder to establish. It would be very hard, if not impossible, to categorically prove that the reduction of emissions would not have occurred in the absence of an investor's activities, even if there is supporting evidence that this investor indeed engaged in activities to influence the company to act in that direction.

To summarise, companies create changes, and therefore positive or negative impact, all the time. Investors, via their ownership, can influence companies over their activities and therefore they can contribute to, but not create, impact. In practice, investors being able to legitimately quantify and claim impact will be the exception rather than the rule. As a result, we believe a more honest and pragmatic approach is for investors to focus on reporting their activities that they believe contribute to the impact while not (over)claiming that they directly create the impact.

Principles 3 and 4 therefore call for a framework that allows investors to report separately their own contributions and the impact their investee companies create. The one from the [Impact Management Project \(IMP\)](#) fits that bill neatly. Exhibit 2 gives an overview of the IMP framework – a more detailed discussion can be found in IMP's [investment impact classification guide](#). In the case study below we adopted the “four strategies” from the IMP framework to describe investor contribution.

Exhibit 2 – impact reporting framework by Impact Management Project

Company impact		Investor contribution
Five classifications	Five dimensions	Four strategies
<div>1. May cause harm</div> <div>2. Does cause harm</div> <div>3. Act to avoid harm: prevents or reduces significant effects on important negative outcomes for people and planet</div> <div>4. Benefit stakeholders: not only acts to avoid harm, but also generates various effects on positive outcomes for people and the planet</div> <div>5. Contribute to solutions: not only acts to avoid harm, but also generates one or more significant effect(s) on positive outcomes for otherwise underserved people and the planet.</div>	<div>1. What outcomes does the effect drive</div> <div>2. Who experiences the outcome</div> <div>3. How much of the outcome occurs?</div> <div>4. Contribution to what would like have happened</div> <div>5. Risk to people and planet that the impact does not occur as expected</div>	<div>1. Signal that impact matters</div> <div>2. Engage actively</div> <div>3. Grow new or undersupplied capital markets</div> <div>4. Provide flexible (ie concessionary) capital</div>

³ “Can sustainable investing save the world? Reviewing the mechanisms of investor impact.”, Kolbel et al, 2019

5 the complexity of the subject requires multiple, complementary metrics to be shown

There is no single metric that can fully capture the multi-dimensional nature of climate impacts. In constructing a climate impact dashboard, we suggest investors consider the following:

- Strike a balance between backward-looking and forward-looking metrics and between absolute and relative measures
- Use as few metrics as possible, but not too few
- Ensure the dashboard is user-friendly as much as possible – design techniques should be used where behavioural issues can be anticipated (eg colour coding as signposts)
- Qualitative metrics can be as valuable as quantitative ones.

When it comes to measurement, there is often a trade-off between validity (capturing elements such as high objectivity and low uncertainty) and materiality (would a change in this metric suggest a significant difference in outcome?). A classic example to illustrate this point is past performance returns: they have very high validity as independent experts would calculate the same value, but very low materiality as they do not predict the future returns and therefore are not decision useful. As a result, a description of each metric's validity and materiality is a valuable addition to the climate impact dashboard as we will illustrate in the case study.

“When it comes to measurement, there is often a trade-off between validity (capturing elements such as high objectivity and low uncertainty) and materiality (would a change in this metric suggest a significant difference in outcome).”

What metrics should be included in the climate impact dashboard? The simple, but somewhat unhelpful, answer is it depends. The selection of specific metrics needs to take into account many factors that are partially covered in previous parts of this paper (eg the purpose; the interim targets; balancing validity and materiality etc). To be more helpful, we suggest that a climate impact dashboard can include the following three categories of metrics. We refer readers to the case study for actual metrics that we were able to select for each category (or were restricted to, given our access to data).

■ Portfolio emissions footprint

These metrics report the amount of greenhouse gas emissions released by the portfolio companies, in absolute terms and/or normalised by some measure (eg \$ invested, volume of production, \$ revenue etc). It is generally accepted that the increase in global average temperature is directly related to the amount of greenhouse gases released into the Earth's atmosphere. Therefore, if the portfolio companies have a much higher emissions footprint than the target or a benchmark, it should alert the investor to investigate and, presumably, take action.

■ Portfolio alignment

The metrics in this category provide information on the level of alignment of portfolio companies against established pathways for a low carbon transition. While a carbon footprint allows an investor to assess metrics on a level relative to a given benchmark, it is backward looking and does not try to estimate the future pathway of its portfolio companies. The purpose of these metrics is to provide an indication to the investor on the likely/projected carbon pathway of portfolio companies relative to a carbon budget consistent with a net-zero transition.

■ Portfolio contribution to climate solutions

It is possible, perhaps likely, that contributing to climate solutions produces harmful emissions (eg the manufacturing of solar panels or wind turbines). This section of the dashboard can therefore bring a different interpretation to the other sections. Climate solutions can be varied – from mitigation to support for net-zero, and from increasing resilience to assisting with adaptation. The metrics in this category should be selected to show investor actions in a true light and to encourage investors to engage actively with their portfolio companies to create solutions and/or grow new or undersupplied capital markets in line with their impact goals.

6 be transparent about any limitations / challenges inherent in what is being reported upon

This principle addresses the challenge that many metrics currently used in climate impact reports have relatively low validity. Portfolio warming potential – aka portfolio temperature rating – is a clear example. Given the forward-looking nature of the metric, the warming potentials for each portfolio company are naturally an estimate. It is an intuitively expressed concept that disguises the compounding of many poorly constrained uncertainties, assumptions and implicit value judgements. While we believe it has its use as part of a holistic dashboard, it needs to be interpreted with care by explicitly acknowledging its limitations. The same principle should apply to all metrics presented in the dashboard.

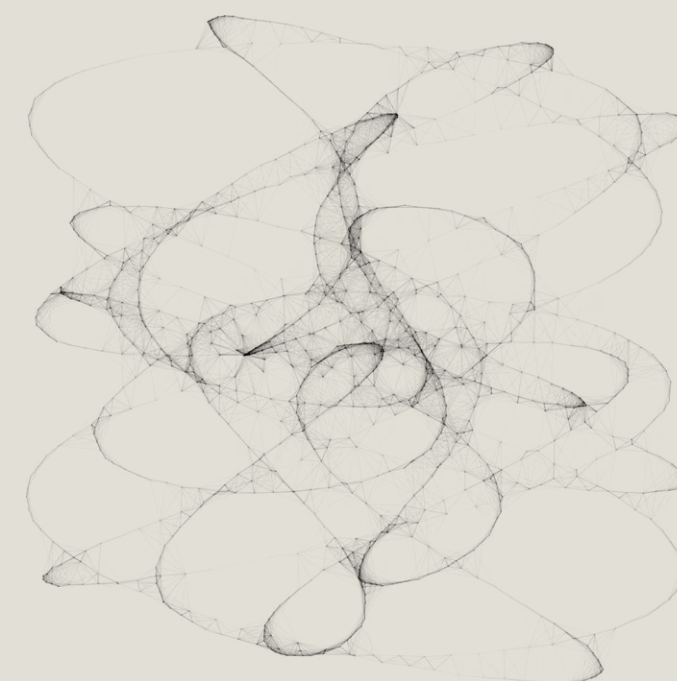
7 the impact dashboard is incomplete without a supporting narrative

Metrics are simply data, which still need to be interpreted and processed before they become something meaningful to the people who receive them. In this regard, narratives provide context and aid interpretation and evaluation of achievements and progress. The rationale is simple: from a behavioural perspective, human brains process narratives and storytelling much better than data. The narrative helps the reader make sense of the metrics, and the metrics allow the reader to challenge the narrative.

“Metrics are simply data, which still need to be interpreted and processed before they become something meaningful to the people who receive them. In this regard, narratives provide context and aid interpretation and evaluation of achievements and progress.”

8 be open to evolving the dashboard over time

This last principle is about adaptability. We should recognise that climate research, thinking and practice, is a fast-moving area which means the best way to measure and report the climate impact of a portfolio in five years' time, or even next year, is likely to be quite different. The need for continuous evolution is clear – even for metrics such as emissions (arguably the most fundamental metrics), they are far from being perfect. Metrics that include scope 3 emissions are evolving but reporting and measurement issues compromise their validity. Then we would like to aggregate the emissions of our portfolio companies, but immediately run into double-counting problems. For more complicated metrics such as portfolio warming potential there are then a multitude of methodological choices each with their own strengths and weaknesses (see the previous working group paper [How warm is your portfolio?](#) for more detail). For investors, that means having a willingness to evolve the dashboard over time to ensure that it remains relevant and appropriate as new data and better techniques become available. A periodic review of the structure and composition of the dashboard is probably a good idea.



Case study

We now move on to the case study, built upon an equity portfolio managed by Willis Towers Watson. We note that this case study is only one possible interpretation of the principles discussed above. It is by no means the only way to interpret them.

In the case study, we provide clear signposting where various principles are applied, apart from principles 6 and 8. Principle 6 – be transparent about the metrics’ limitations – is embedded in the description of each metric’s validity in the last pages of the report. Principle 8 concerns evolving the dashboard over time which is really only relevant when the dashboard is updated next time.

The point of the case study is to bring the principles to life. A second benefit is that it is generally easier to produce a better second version having seen a prototype. This case study isn’t even the version we wanted to produce. We would have preferred to analyse a multi-asset portfolio, preferably with real assets and other alternatives in it. We would also have preferred to explore a range of potential approaches to assessing portfolio warming potential as well as alternative data sources for emissions mitigated. We have a clear path for multiple improvements (principle 8).

Further, the format of the case study (a narrative report and a dashboard) alludes to the governance challenge in this area but does not address it. In writing the executive’s report, we have chosen which elements to discuss and which to leave out. An engaged board should have dozens of “why?” questions relating to the numbers on the dashboard that we simply do not have space to cover here.

Finally, a note of explanation on a comment within the executive’s report to the board (next page). Within the report, the executive talks about decarbonising at 4.5% each year which seems a low, even unambitious, rate. In this particular case, the board has taken the view that the decarbonisation journey could have, and should have, started in 2015 given the Paris agreement. A rate of 4.5% per year over 15 years produces the same halving of emissions as a rate of 7% per year over 10 years. The important interim goal is a halving of emissions by 2030. The rate is driven by the time frame. Anyone starting now will need to decarbonise faster than 7% pa as there is only 9 years left to complete the first halving. And this is before issues of equity are introduced, where the argument is that developed economies should decarbonise at rates of 10% pa or higher, in order to leave more carbon budget for the emerging economies.

Board report | climate impact of [global equity] portfolio

We are pleased to present to you the first edition of [XYZ’s] climate impact report and dashboard. The main aim of this report is to document progress towards XYZ’s objective of net-zero emissions by 2050, thereby playing its part in avoiding a climate catastrophe [principle 1]. Further, it seeks to provide the Investment Board with a better understanding of the impact of its investment decisions on the interim target of “halving emissions by 2030” [principle 2]. The Board set this objective to support and strengthen its commitment to serving the financial interests of its members. The dashboard is laid out in the following tables:

Investor contribution

In order to contribute to its climate objective, the Board has identified that the actions available for it to take as an investor broadly fall into three categories. These are in line with those set out by the Impact Management Project and are: (1) signalling that impact matters, (2) engaging actively and (3) growing new/undersupplied capital markets. This table summarises the efforts of the Board that are directly related to its objective and, where possible, an approximation of the capital that has been dedicated to these efforts [principle 3].

Portfolio impact

These tables contain metrics describing activity at the underlying portfolio companies. Whilst not directly under the Board’s control, portfolio level metrics provide the Board with an understanding of the overall progress towards its climate objective. We believe that these metrics are a useful reference point and are helpful in providing the Board with a sense of the areas of the portfolio which may require action [principles 4 and 5].

Executive’s report [principle 7]

In terms of our contribution, the executive attended our first meeting of the client advisory group for the engagement overlay manager. This was essentially a listening and observing exercise for us, but we would like to discuss with the Board their desires on how active engagement should be on behalf of [XYZ]. We will then look to communicate that in further meetings.

Action: Board to decide on desired level of activism within engagement

As far as the portfolio impact is concerned, it is perhaps best summarised as a ‘good news, bad news’ story. In the carbon footprint table we compare the carbon emissions of the portfolio against a ‘net-zero aligned benchmark’. This benchmark is the MSCI World Index onto which we have forced a 4.5% pa decarbonisation. The Board decided that the Paris agreement showed the need to decarbonise back in 2015 so that has been set as the base year, and the 4.5% annual (assumed) decarbonisation acts to halve the emissions between 2015 and 2030. Relative to this benchmark the portfolio is ‘climate friendly’ with three of the rows coded green, indicating the portfolio companies have lower absolute emissions, lower carbon intensity and the reductions in both are faster than those of the benchmark. The bad news is that halving carbon emissions by 2030 (from 2015 levels) will not be enough to limit temperature rise to +1.5°C. If instead we assume that the 2015 carbon budget was equal to portfolio emissions at that date and then apply a 1.5°C consistent decarbonisation rate of 4.5% pa, the portfolio’s carbon emissions should now be 40% lower than they are. The red cells indicate the portfolio is significantly behind this climate objective.

Action: *Board to decide on whether they are managing relative or absolute carbon risk*

In fact the portfolio, and the likely future emissions of its constituents, is consistent with a global temperature rise somewhere between +3.25°C and +3.5°C. Temperature ratings for portfolios need to be handled with extreme care to avoid misleading messages being given. The important number here is the warming potential shown for the MSCI World index, as that is the warming we are likely to experience, and therefore the climate conditions our portfolio and our beneficiaries will have to navigate. In this context, the numbers shown for the portfolio matter far less (and we could game them by changing portfolio constituents if we wished to). We have chosen to report the warming potential in ¼-degree increments to provide sufficient signal to (hopefully) prompt further action, while recognising the high degree of uncertainty attaching the figure due to the underlying data, assumptions and model. At this level of granularity there is no difference between the warming potential of the portfolio and global equity index.

An examination of selected sectors, whose transformation will be critical to the transition to a low carbon economy, indicates that the companies in the portfolio are as mis-aligned as their sector peers. A deeper dive into the portfolio has highlighted five companies which are the largest contributors to the misalignment of the overall portfolio with a temperature rise of 1.5°C (taking account degree of misalignment at the company level and portfolio weight). These companies should be priorities for specific engagement once the Board develops its engagement policy.

Action: *Board to develop engagement policy and engagement plan for misaligned companies*

Alongside efforts to decarbonise existing emissions, we have the opportunity to be ‘good owners’ of businesses contributing to climate solutions – and, hopefully, over time have the opportunity to provide them with further capital to expand their operations. At this point in time, the metrics show that our portfolio is indistinguishable from the MSCI World Index in this respect.

Action: *Board to set targets for allocations to climate solutions*

Following the dashboard, we have provided more detail for each metric and why they have been selected. We specifically comment on each metric’s materiality (would a change in this metric suggest a significant difference in outcome), and validity (capturing elements such as high objectivity and low uncertainty). As previously discussed with the Board, there is often a trade-off between materiality and validity. The example we discussed was performance returns: they have very high validity as independent experts would calculate the same value, but very low materiality as they do not predict the future returns and therefore are not decision useful. Finally, we would like to reiterate that there is no single metric that can fully capture the multi-dimensional nature of climate risks and impacts, and therefore encourage the Board to consider all the metrics presented in order to assess the impact of the portfolio holistically.

We hope you find this information useful and look forward to discussing this dashboard at the next meeting.



Portfolio impact dashboard

Investor contribution	% portfolio	Supporting metrics	Supporting statements / policies
Signal that impact matters	[X]%	The working group do not believe there is a definitive list of appropriate supporting metrics. However, quantitative metrics that support signaling activity could include public statements on divestment, the number of staff involved in collaborative initiatives, and similar	<div><div></div>Sustainability policy published on website</div> <div><div></div>Carbon reduction target published on website</div> <div><div></div>Thermal coal exclusion applied in listed equity portfolio</div>
+ engage actively	[X]%	Again, quantitative metrics that support active engagement could include items such as investment staff sitting on boards of [X%] of investee companies, letters written to companies requesting strategic action, or resolutions tabled at AGMs	<div><div></div>Overlay manager employed to vote on all stocks in listed equity portfolio</div>
+ grow new / undersupplied capital markets	[X]%	Examples could include [X%] of portfolio providing primary capital, and /or [X] investments totalling [\$Y m] of primary investment in zero/low carbon energy over the last 12m	<div><div></div>Target allocation to climate solutions published</div>

Portfolio carbon footprint	Portfolio			Net-zero-aligned benchmark ¹		
	30/9/2019	30/9/2020	12m change	30/9/2019	30/9/2020	12m change
Total carbon emissions (MtCO ₂ e)	862 ²	770	-11.0%	942	857	-9.0%
1.5 degree-aligned annual carbon budget (MtCO ₂ e) ³	506	483	-4.5%			
Carbon emissions/ US\$m invested	87	83	-6.0%	97	93	-4.2%
Weighted average carbon intensity (tCO ₂ e/ US\$m revenue)	116	93	-19.3%	162	138	-14.8%

¹ Adjusted to be the same size as the actual portfolio at 30/9/2020; base year for determining pathway to net zero = 2015

² Adjusted for exogenous changes in portfolio size (e.g. non-investment cash inflows/outflows)

³ Assumes a target of halving emissions by 2030 compared to 2015 levels for the actual portfolio

Portfolio alignment		Portfolio				MSCI World		
		Key scope	% weight	Alignment metric	1.5°C aligned benchmark ¹	% weight	Alignment metric	1.5°C aligned benchmark ¹
Portfolio warming potential				3.25-3.5°C	<1.5°C		3.25-3.5°C	<1.5°C
Projected key scope weighted average carbon intensity in 2030 allowing for company targets (tCO ₂ e / US\$m revenue)	Cement	1+2	0.5%	3,073	3,044	0.2%	1,694	1,732
	Power generation	1+2	1.5%	526	24	2.0%	2,324	65
	Automobiles	3	1.5%	2,610	230	2.0%	1,274	230
	Mining	3	0.5%	7,340	230	0.7%	5,654	230
	Oil & gas	3	1.4%	5,421	230	2.5%	4,000	230

Largest 5 contributors to portfolio misalignment	% portfolio	Warming potential (incl scope 3)	Scope 1+2 carbon intensity	Scope 3 carbon intensity	GICS sub-industry
Company A	0.6%	8°C	32	2,523	Auto parts & equipment
Company B	0.6%	8°C	13	3,054	Automobile manufacturers
Company C	0.8%	8°C	1,328	753	Industrial gases
Company D	1.2%	6°C	259	796	Semiconductors
Company E	1.0%	6°C	188	781	Semiconductors

¹ Weighted average carbon intensity for portfolio companies in the relevant industry that is consistent with a 1.5°C global mean temperature increase. Scope 1 aligned intensities are based on sector-specific pathways whereas Scope 2 and 3 aligned intensities are calculated using a sector agnostic approach.

Portfolio contribution to climate solutions	Portfolio		MSCI World	Investor portfolio impact targets
	30/9/2020	% contributing to solutions	30/9/2020	
% revenue from low / zero carbon energy	0.7%	0.5%	0.7%	TBC
Renewable energy produced (MWh / US\$m invested)	4.45	2.0%	8.13	TBC
Estimated % revenue aligned to EU Taxonomy	2.8%	4.7%	3.5%	TBC
Estimated greenhouse gas emissions mitigated (tCO ₂ e / US\$m invested)	18.4	WIP	21.3	TBC

Source: MSCI, Willis Towers Watson

Portfolio Metrics in depth

Introduction

In this section, we provide more detail on each portfolio metric within the dashboard by assessing them against the criteria of validity and materiality.

Portfolio carbon footprint

Metric	Materiality	Validity
Total carbon emissions (MtCO ₂ e)	Medium	Medium
1.5 degree-aligned annual carbon budget (MtCO ₂ e)	High	Low
Carbon emissions / US\$m invested	Medium	Medium
Weighted average carbon intensity (tCO ₂ e / US\$m revenue)	Medium	Medium

Total carbon emissions (MtCO₂e) and 1.5 degree-aligned annual carbon budget (MtCO₂e)

The total amount of carbon emitted by the investor’s share of portfolio companies, adjusted for exogenous changes in the portfolio size and the associated 1.5 degree-aligned annual carbon budget which assumes a target of halving emissions by 2030 compared to 2015 levels. The total emissions for the portfolio are assessed against:

- The emissions for the portfolio in the previous year, adjusted for inorganic changes in portfolio size.
- The emissions for the portfolio that would be consistent with the required % reduction in emissions since a base year of 2015, assuming that the allocated carbon budget at 2015 was equal to the actual emissions of the portfolio at that date (“1.5 degree-aligned annual carbon budget”).
- The emissions for the portfolio that would be consistent with the required % reduction in emissions since a base year of 2015, assuming that the remaining carbon budget at 2015 was allocated in line with AUM at that date (the “net zero-aligned benchmark”).

Materiality

The increase in global average temperatures is directly related to the cumulative emissions that are generated by activities that emit carbon and their equivalents, eg burning fossil fuels and agriculture. The “carbon budget” available in order to contain the increase in average global temperatures below a certain level can then be translated into a consistent annual emissions pathway based on the size of the investor’s portfolio. The combination of these metrics should provide a figure which is indicative of whether the emissions resulting from the activities of the portfolio are within the carbon budget that is consistent with a 1.5 degree temperature increase. However, total carbon emissions is a backward-looking measure and makes no allowance for development in technology or plausible carbon emission pathways.

Validity

Company Scope 1 and 2 carbon disclosures are widely disclosed with established accounting and reporting standards. However, the carbon budget and net zero consistent emissions pathway whilst related, still require assumptions such as the total carbon budget available globally and the future technology and sectoral breakdown of the economy. As the total carbon emissions, the carbon budget and a net zero consistent emissions pathway can in principle be apportioned amongst all investors and a comparison of the two can be used as an indication of the alignment of a portfolio with a net zero pathway.

The advantages of absolute metrics are that they are easy to understand, can be linked to the investment portfolio and is directly related to the increase in global warming. However, without adjustments, an absolute metric is difficult to compare through time and against a benchmark. Whilst there is wide consensus on incorporating Scope 1 and 2 emissions, there are still various interpretations on how to treat Scope 3 emissions and avoiding double counting when aggregating to the total portfolio level. Scope 3 emissions are instead considered in the portfolio alignment section of the scorecard as these are highly material for the transition pathway for certain industries. In addition, emissions are reported with a lag, which can mean that a portfolio’s measured emissions include data for different reporting dates across companies in the portfolio.

“The advantages of absolute metrics are that they are easy to understand, can be linked to the investment portfolio and is directly related to the increase in global warming.”

Carbon emissions / US\$m invested

A normalised carbon footprint per US\$m invested which allows for a comparison of the portfolio carbon footprint across portfolios regardless of portfolio size and across time. Given that this metric is directly related to total carbon emissions, it shares a lot of the same characteristics as total carbon emissions on materiality, validity and completeness as described previously. This metric is also directly calculable for a net zero-aligned benchmark which provides a useful measure of ‘performance’ against climate change.

Whilst the metric allows for comparability by normalisation through the US\$m invested, there are several drawbacks, with the biggest one being that it is sensitive to changes in financial markets that may be independent of company activity, such as market capitalisation and currency exchange rates. One method of correcting this is by keeping the ownership metric constant such as through the use of a ‘per share’ adjustment.

Weighted average carbon intensity (tCO₂e / US\$ revenue)

The weighted average carbon intensity provides the portfolio’s exposure to carbon-intensive companies. It is measured by first calculating the carbon intensity for each investee company, which is its total carbon emissions as a portion of its revenue, and then aggregating using portfolio weights. Given that the metric is normalised as a portion of sales, it is readily comparable across portfolios and across time.

“Whilst the metric allows for comparability by normalisation through the US\$m invested, there are several drawbacks, with the biggest one being that it is sensitive to changes in financial markets...”



Materiality

The metric is useful in providing a gauge to the extent to which the portfolio is making efficient use of carbon inputs. This measure is arguably more relevant to financial risk/return considerations and, in particular, exposure to transition risks – as the higher the carbon intensity, the greater a proportion of the revenue generated by portfolio companies that is exposed to these risks. This metric can further be attributed easily into its sector or industry components providing the investor a more targeted approach to engagement with and/or divestment of portfolio companies.

Investors should be aware that although metrics calculated on a claim on sales can be easily calculated, these are imperfect as the metrics will vary due to different pricing policy, strategy, geography, regulation and exchange rates. Sales metrics are also only a proxy of performance and does not represent the physical production of goods where other metrics might be more applicable such as units sold or the amount of electrical power generated. Lastly, the metric is also disconnected from the ownership of the carbon produced.

Validity

Given that this metric relies on the total carbon emissions reported by companies and the robustness of financial accounting, its validity is relatively high. The metric is also not sensitive to changes in the market capitalisation of a company. Whilst these metrics are valid, in the sense that they are accurately calculated, total portfolio metrics remain sensitive to outliers which may skew the numbers. In addition, a reduction in total portfolio carbon intensity can occur even though total carbon emissions are actually rising.

“Whilst these metrics are valid, in the sense that they are accurately calculated, total portfolio metrics remain sensitive to outliers which may skew the numbers.”



Portfolio alignment

Metric	Materiality	Validity
Portfolio warming potential	High	Low
Projected key scope weighted average carbon intensity in 2030 allowing for company targets (tCO ₂ e / US\$m revenue)	Medium	Low
Largest contributors to portfolio misalignment	High	Low

Portfolio warming potential

This metric is a weighted aggregate of all the underlying companies’ portfolio warming potentials. The company level data points are in turn derived from a comparison of a company’s projected future emissions (allowing for stated emission reduction targets) against its allocated portion of the carbon budget consistent with a given global mean temperature increase outcome (e.g. 1.5, 2, 3 degrees).

Materiality

The portfolio warming potential provides an estimate of the total warming that the portfolio is aligned to. Unlike carbon footprint metrics which are backward looking, a portfolio that is not aligned to the 1.5 degrees objective of the investor requires attention as there is an indication that the companies within the investor’s portfolio in aggregate do not intend to be aligned with the investor’s impact goals. As the metric is focused on pathways that result in different levels of increase in global average temperatures, this is directly aligned to the investor’s objectives for impact for reducing the risk of a climate catastrophe at a portfolio level.

Validity

Given the forward-looking nature of the metric, the amount of portfolio warming of each portfolio company and their associated warming potentials are naturally an estimate. Whilst the metric tries to consider the forward path of each company, there are many future uncertainties which make the validity of the metric low. However, we still believe that the metric is useful and that from an investor’s perspective, whilst there is a degree of uncertainty in the generation of this metric, it is most useful when compared against itself over a pre-determined period to track the progress of an investor’s activities with its underlying portfolio companies.

“Whilst the metric tries to consider the forward path of each company, there are many future uncertainties which make the validity of the metric low. However, we still believe that the metric is useful...”



Projected key scope weighted average carbon intensity in 2030 allowing for company targets

The metric measures the projected weighted average carbon intensity in 2030 of portfolio companies that operate within selected sectors that are expected to be material contributors to the transition to a low carbon economy compared to the levels that would be consistent with a 1.5 degree outcome. In doing this we also consider which scope of emissions are most material when describing the transition paths for the industries considered, in particular:

- For air transportation, aluminium, cement, power generation and steel the focus is on Scope 1+2 emissions intensity.
- For automobiles, mining and oil & gas the focus is on Scope 3 emissions intensity and in particular emissions arising from downstream use of outputs from these sectors.

Materiality

As the majority of carbon emissions are attributable to a relatively small proportion of companies, the path of emissions for certain sectors/industries will be highly critical to the transition to a low carbon economy. Whilst fully divesting from these companies is not possible as they continue to provide essential products and services to the rest of the economy (or desirably as divestment means an investor can no longer engage with the company in question), ensuring that the emissions pathway for portfolio companies are aligned with an investor’s impact goals is an important first step.

“As the majority of carbon emissions are attributable to a relatively small proportion of companies, the path of emissions for certain sectors/industries will be highly critical to the transition to a low carbon economy.”

Validity

As with other forecasts, the metric leans on assumptions that are uncertain, based on information available at present. The use of physical units to normalise carbon emissions results in a measure of “carbon efficiency” that removes the uncertainty around purely financial effects such as price factors or market capitalisation. In this context, whilst the metrics are narrowly defined for each sector, the output for the sector is well understood. Nevertheless, these metrics do not attribute carbon ownership to the end investor.



Portfolio contribution to climate solutions

Metric	Materiality	Validity
% revenue from low/zero carbon energy	Medium	High
Renewable energy produced (MWh / US\$m invested)	Medium	High
% revenue aligned to EU Taxonomy	Medium	Low
Greenhouse gas emissions mitigated (tCO ₂ e / US\$m invested)	High	Low

Largest contributors to portfolio misalignment

This table sets out the companies that are the greatest contributors to the warming potential of the portfolio being above the desired level of 1.5 degrees, taking into account both the extent to which a company’s projected carbon emissions exceed the levels that would be consistent with its allocated 1.5 degree carbon budget and the weight of the company in the portfolio. The materiality and validity of this analysis reflects that of the underlying alignment metrics.

% revenue from low / zero carbon energy and renewable energy produced (MWh / US\$m invested)

Significantly increasing renewable energy capacity and decarbonising the energy system is likely to be a critical driver of a global transition to net zero. These metrics attempt to illustrate the contribution of a portfolio to these solutions to achieving a net zero transition.

“As renewable energy is a key pillar in global decarbonisation efforts, this metric provides an indication to an investor of the contribution of its portfolio companies’ contribution to this effort.”

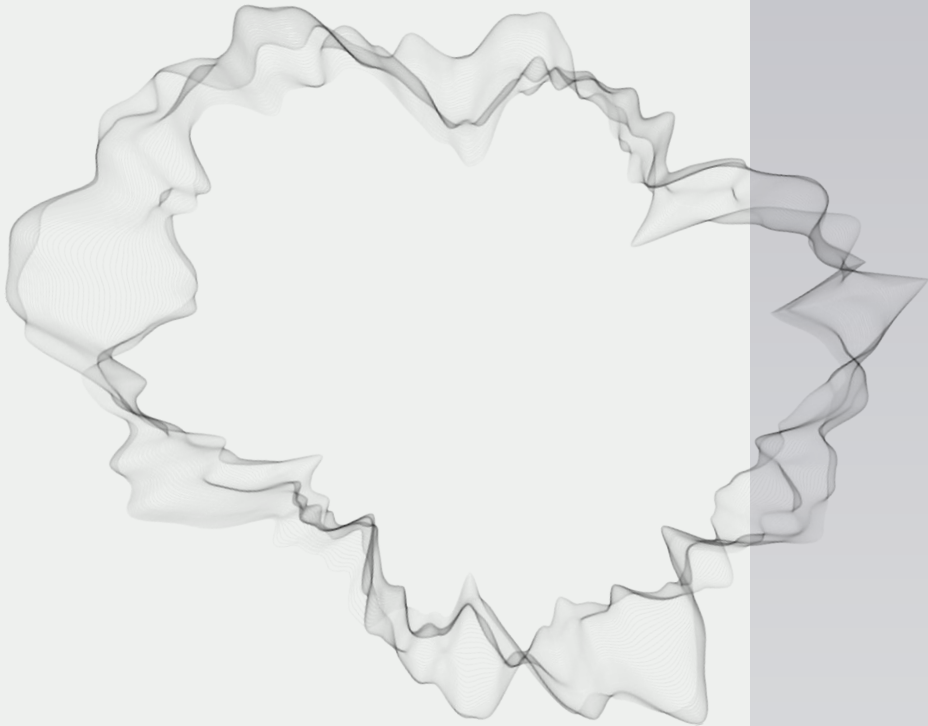
Materiality

As renewable energy is a key pillar in global decarbonisation efforts, this metric provides an indication to an investor of the contribution of its portfolio companies’ contribution to this effort. An investor should be able to set targets to this metric based on its ambitions to contribute to this category of solutions and work towards this target either by increasing allocations to companies that produce renewable energy, engaging with its portfolio companies to invest in solutions that are in line with its targets or provide primary capital (directly or indirectly) to companies creating solutions in this space.

However, metrics solely focused on the amount of renewable energy created can ignore other externalities in the process of the creation of this energy – for example, this metric will fail to capture the amount of carbon released if a forest area is cleared to implement a solar project. Physical production of energy is also not fully fungible as energy generated can only be used where it is connected to the grid – solar energy created at the equator cannot easily be used in Europe. In addition, as mentioned previously, revenue-based metrics calculated on a claim of sales are imperfect due to various other reasons that may also not be directly applicable to the operations of the company, such as pricing policy, strategy and exchange rates.

Validity

The physical quantities, market capitalisation and the revenue-based numbers required for these calculations are easy to calculate and validate with established industry standards. However, it should be reiterated that whilst financial metrics allow for the aggregation of these metrics across the portfolio and allow for comparability, they do introduce uncertainty such as price effects into the metric.



Estimated % revenue aligned to EU Taxonomy

This measure attempts to identify the percentage of revenue generated within the portfolio that is aligned with the EU Sustainable Finance Taxonomy. As there currently is no corporate disclosure of Taxonomy-aligned revenue and expenses, it has been calculated in line with guidance from MSCI published in July 2020 using a possible approach to identify and measure companies’ involvement in sustainable activities based on available data and metrics. One area of the EU Taxonomy that is distinct is its inclusion of a standard for “Do No Significant Harm” and “Minimum Safeguards” – which means that activities should only be considered if they also do no harm to any of the other objectives within the Taxonomy and must not contravene global norms.

Materiality

Assessing alignment with the EU Taxonomy will likely become mandatory for many investors, but more importantly the framework set out by the EU Technical Expert Group is reasonably detailed and encompasses many aspects of alignment with climate change initiatives. Activities captured within this metric spans alternative energy, carbon energy and efficiency, green buildings, sustainable water, pollution prevention and sustainable agriculture. The elements of “Do No Significant Harm” and “Minimum Safeguards” proxies which have been used in the calculation of this metric also provide additional materiality to this metric.

Validity

Given that no corporate disclosure or standard currently exists for Taxonomy-aligned revenue and expenses, validity is limited by the proxies used in order to calculate this metric. This said it should be noted that taxonomies of this type do not cover all potential business activities and need to be regularly updated to reflect changes in economies and markets. In this dashboard, the metrics were calculated in line with guidance from MSCI, which introduces uncertainty in terms of the layers of the metrics used to identify alignment as well as the methodology which could be slightly different from those laid out by the Technical Expert Group.



Greenhouse gas emissions mitigated (tCO₂ / US\$m invested)

Fundamentally, impact in this category is defined as the difference between an outcome that occurs and the outcome that would have occurred if that particular activity was not undertaken. Ultimately, achieving the goal of limiting the increase in global average temperature to 1.5 degrees or less will require future carbon emissions to be significantly reduced relative to baseline which requires investment in climate solutions. This metric therefore considers the annual amount of future greenhouse gases that are projected to not occur as a result of the activities of companies in the portfolio.

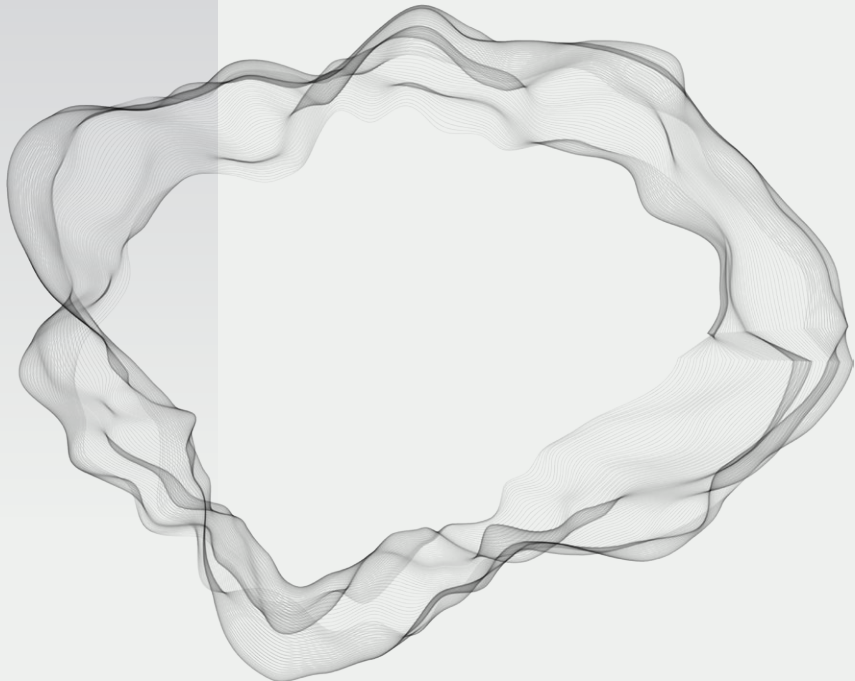
Materiality

In an ideal world, the amount of greenhouse gas emissions mitigated by an investor's portfolio company would be easily measured and compared against a suitable benchmark. The metric is important as any activity that results in significant amounts of greenhouse gas emissions mitigated reduces the risk of climate change and can be considered a climate solution. A climate solution can be one that reduces the carbon intensity of a particular process/activity, substitutes an existing activity for a lower or zero carbon alternative, or removes carbon directly from the atmosphere.

Validity

Given the difficulty of identifying and defining business activities that correspond to a clear reduction/mitigation or sequestration of carbon emissions, the validity of the metric is low. The metric that has been used is derived from MSCI's classification of Technology Opportunities which is based on each company's classification of low-carbon revenues as well as company-specific patent data. Whilst not completely exhaustive, these activities encompass a material subset of business activities, and is consistent with the MSCI Sustainability Impact Metrics methodology.

Due to the approximations involved in the calculation of this metric, there are some situations where it will be difficult to estimate the amount of emissions mitigated. One such instance is if one technology replaces another, does not fall into a similar category but serves a similar purpose – for example, do video calls mitigate emissions by reducing the need for physical meetings? As with previous metrics that were normalised on amount invested, the metric is sensitive to financial uncertainty like market cap and exchange rates.



Future research

So where do we go from here?

The impact dashboard is a valuable building block of a grander vision – a three-dimensional (3-D) investment framework that balances risk, return and impact, which itself is an amalgamation of various elements including total portfolio thinking, long-horizon investing, impact investment strategies, system-level engagement and strategic partnership between asset owners and asset managers.

In all of these areas, thinking and practice have advanced in recent years. However, the successful creation and mass adoption of the 3-D investment framework hinges on integrating them all seamlessly at the organisation and system level.

That promises to be a very interesting and rewarding area for future research.



Limitations of reliance

Limitations of reliance – Thinking Ahead Group 2.0

This document has been written by members of the Thinking Ahead Group 2.0. Their role is to identify and develop new investment thinking and opportunities not naturally covered under mainstream research. They seek to encourage new ways of seeing the investment environment in ways that add value to our clients.

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The Thinking Ahead Institute

About the Thinking Ahead Institute

Mobilising capital for a sustainable future.

Since establishment in 2015, over 60 investment organisations have collaborated to bring this vision to light through designing fit-for-purpose investment strategies; better organisational effectiveness and strengthened stakeholder legitimacy.

Led by Tim Hodgson, Roger Urwin and Marisa Hall, our global not-for-profit research and innovation hub connects our members from around the investment world to harnesses the power of collective thought leadership and bring these ideas to life. Our members influence the research agenda and participate in working groups and events and have access to proprietary tools and a unique research library.

Join the Thinking Ahead Institute

We seek collaboration with like-minded organisations to achieve our vision, so for more information about us please contact:

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About the Thinking Ahead Institute

The Thinking Ahead Institute seeks to bring together the world's major investment organisations to mobilise capital for a sustainable future. Arising out of Willis Towers Watson's Thinking Ahead Group, formed in 2002 by Tim Hodgson and Roger Urwin, the Institute was established in January 2015 as a global not-for-profit group comprising asset owners, investment managers and service providers. Currently it has over 45 members with combined responsibility for over US\$12trn.

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