

Will Evidence-based management shape the future of Corporate Sustainability Reporting?

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The Doughty Centre aims to combine rigorous research and leading-edge practice.

We focus on three things:

- **Knowledge creation:** rigorous and relevant research into how companies can embed responsible business into the way they do business;
- **Knowledge dissemination:** introducing Corporate Responsibility more systemically into existing graduate and executive education (both in relevant open programmes and customised, in-company programmes); and
- **Knowledge application:** working with alumni, corporate partners and others to implement our knowledge and learning.



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Foreword

Professor David Grayson CBE
Director of The Doughty Centre for Corporate Responsibility
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It is increasingly expected that companies will at least aspire to “do no harm” by minimising their negative Social, Environmental & Economic (SEE) impacts. Leading companies, however, now seek to become “net positive” by maximising their positive SEE impacts.

In our Corporate Responsibility Maturity Model, these opportunity-maximisers” recognise that as the performance bar for business is inexorably raised, better management practices are urgently required. Amongst these are more rigorous tools for measuring and reporting performance. Key amongst these is the adoption of evidence or science-based targets.

These will become even more important as the work of initiatives like the Corporate Sustainability Reporting Coalition, the pressure from long-term, stewardship investors (see, for example, the 2016 letter to corporate CEOs from Larry Fink, the head of Blackrock), and the effects of mandatory SEE reporting (e.g. the 2017 EU reporting requirements for the largest companies) take hold.

This DCCR occasional paper explores the current reality and future potential of evidence or science-based reporting. Our thanks to Dr Sara Holmes, a visiting fellow and associate with the Centre and Dr Palie Smart and Professor Steve Evans for pulling this together, and to Charles Jewell who did the original research which has informed the paper.



Barry Sheerman MP
Co-chair of the All-Party
Parliamentary Manufacturing
Group (APMG)

As a policy maker and politician I welcome this report on science-based sustainability targets and evidence-based practice. It is based on a study of a cross-section of Fortune 500 companies, many of which are manufacturers that are using a science base to inform their strategic decisions and manage impacts.

This study shines a helpful light on the necessary huge value companies can gain by adapting true vigour and the evaluation of their drive to achieve a greater level of sustainability.

As co-chair of the All-Party Parliamentary Manufacturing Group (APMG) - a cross-party coalition of parliamentarians and manufacturing industry organisations that work together to develop new industrial policy ideas, this report adds new insights for the policy process.

I believe this is a report that should be read, digested and put into practice by not only every major company but also SME businesses and all those in the manufacturing, agricultural and virtually every other sector!



Professor Andy Neely
Institute of Manufacturing,
Cambridge University

The Institute for Manufacturing at Cambridge University brings together expertise to address the full spectrum of challenges in manufacturing for a better world.

Our Centre for Industrial Sustainability is at the forefront of developing knowledge to accelerate the transition towards a new industrial system that respects planetary constraints.

Its research priorities are supported by the UK Engineering and Physical Sciences Research Council (EPSRC) and entails work in eco-efficiency, sustainable business models and industrial system transformation.

We hope this this vital piece of work will spearhead a stronger evidence-based approach to guiding future industrial policy that addresses global sustainability challenges.

1. Introduction

Corporate sustainability performance reporting is on the rise but there are questions about its rigour and relevance to enhancing corporate competitiveness. Despite this apparent increased transparency in corporate disclosure on firms' non-financial activities, corporate sustainability reports are often viewed with scepticism, not least because they are not required to be audited (Cho, 2015). In most countries, companies can choose what they put in and how they present the information. This lack of governance and standardisation leaves firms open to the charge that such reports are merely "greenwash" (Bowen, 2014). This report investigates the use of science-based targets in the reporting practices of the top performing Fortune 500 companies.

As sustainability reporting matures, and the calls for greater corporate social, environmental and economic stewardship continue, firms are increasingly looking to improve external perceptions of their disclosures. Almost two-thirds of the top 250 global companies now seek external assurance for some, or all, of their reports (KPMG, 2015). Firms are also waking up to the realisation that they need to provide evidence to back up their sustainability claims, and the reports they produce need to contain more than vague statements and platitudes about social and environmental performance.

This Doughty Centre occasional paper, produced in collaboration with EPSRC and IFM Cambridge University, shows how businesses are beginning to incorporate scientific evidence into decision making on setting social, environmental and economic performance targets through their corporate responsibility reports. By doing so, firms can not only improve the quality and authenticity of their sustainability actions and subsequent reporting, but also enhance their reputations for monitoring social

and environmental performance. The paper focusses especially on the reporting of environmental impacts. In benchmarking their progress on key environmental areas, such as reducing carbon emissions and water use against externally verified scientific goals, stakeholders gain more confidence in firms' overall performance as corporations begin to embed a science-based approach to setting sustainability targets. We see this as a shift that resembles a more evidence-based practice approach to management decision making and ultimately to improving organisational performance.

Evidence-based practice (EBP) has captured the imagination of scholars across a broad range of disciplines and professions including medicine, dentistry, healthcare, education, public policy, social work and information science (Adams et al, 2016); Tranfield et al, 2003). More recently it has transpired in the field of management and calls for certain principles to be upheld during management decision-making as illustrated in Briner et al. (2009;19), who specifically suggest that "Evidence-based management is about making decisions through the conscientious, explicit, and judicious use of four sources of information: practitioner expertise and judgment, evidence from the local context, a critical evaluation of the best available research evidence, and the perspectives of those people who might be affected by the decision".

Evidence-based management (EBMgt) affords managers the opportunity to incorporate the scientific literature in a manner that reflects this diversity of forms of evidence (Adams et al. 2016). In doing so, it can assist their decision-making processes on the basis of critically appraised evidence from multiple sources.

2. Trends in sustainability reporting

It would be difficult to find a business today that did not publicly acknowledge its obligation to operate in a way which did not adversely impact the needs of its current and future stakeholders. As such, much focus has been given to how firms can align their business interests with social and environmental needs.

“Sustainable development is the ability to meet the needs of the present without compromising the ability of future generations to meet their own needs”

World Commission on Environment and Development 1987

To help maximise both business and societal benefits commentators have argued that this is served through integrating a firm's sustainability and financial reports (Hughen et al, 2014). This integrated reporting can help raise awareness of how a firm can deliver financially while also pursuing successful sustainability strategies. The purpose of an integrated report is “for companies to explain to providers of financial capital their ability to create value in the near, medium and long term” (Paul Druckman, CEO, International Integrated Reporting Council, IIRC). As such, it also aims at moving away from the short-termism of capital markets. Partly driven by regulation in various countries, the number of firms incorporating corporate responsibility (CR) information into their annual reports has jumped markedly in the last five years. According to KPMG's most recent survey of global corporate reporting, back in 2011, just 20 percent of N100 companies included CR information in their annual reports; now the rate is almost triple that, at 56 percent (KPMG 2015).

Ever mindful of the charge that CR or sustainability reports are merely ‘greenwash’, large corporations

are increasingly turning to third-parties to provide assurance of the claims they make in such reports with 63% of the world's top 250 firms publishing independently verified reports, up from 30% a decade ago (KPMG, 2015). While such external assurance potentially gives stakeholders a greater degree of confidence in the information produced by corporations, there is also pressure on these firms to improve the content of the information they publish.

To this end, a growing number of firms are using guidelines produced by the Global Reporting Initiative (GRI), which seek to provide a means of standardising sustainability reporting as well as increasing stakeholder confidence. A 2015 survey by the World Business Council for Sustainable Development, an international corporate responsibility coalition (Grayson & Nelson 2013) of reporting among its members found that 88% followed GRI guidelines.

It is clear that the breadth and depth of environmental disclosure has increased significantly in the last decade. But there is new pressure for companies to go further as non-profit organisations are now using public data on, for example, corporate carbon emissions to publish tables of the leaders and laggards. The next challenge then for firms is not whether they make disclosures about how they are improving their environmental performance, but the materiality of the yardstick they are using to measure that improvement (Smart et al., 2017 Forthcoming).

Why do firms produce sustainability reports?

- To gain trust on the social, environmental and economic impacts (SEE) of their activities inside and outside the business
- To allow stakeholders access to SEE information
- To give disclosure about SEE performance
- To build a dialogue with stakeholders over their SEE impacts

¹ Climate Counts.org; Center for Sustainable Organizations

3. “No brag, just facts”:

adding reporting rigour by drawing on science

The call for managers to base business decisions on the best available evidence, rather than gut feel alone, has grown considerably in recent years. This represents a marked shift in approach, requiring managers to demand evidence for, and examine the logic of their arguments, and to make decisions that incorporate robustly gathered facts and data.

“No brag, just facts” – a motto credited to CEO of DaVita, a large US operator of kidney dialysis centres that has developed a set of measurable monthly metrics on the quality of its care which drive decision making in the company

An evidence-based approach is gaining traction in sustainability reporting through the adoption of externally developed, science-based targets. For firms this means setting sustainability goals in line with wider scientific objectives that outline what is necessary to mitigate harmful effects on the Earth, which, in the majority of cases, focuses on alleviating the effects of climate change and other global challenges. For example, using external evidence to formulate goals is particularly applicable to carbon dioxide and greenhouse gas emissions targets.

Sustainability-oriented innovation (Adams et al. 2015) is pushing firms to set targets that respect climate science and their own goals which often take an incremental approach and may be based on what companies feel is achievable and/or affordable. Aware that the vast majority of firms lack expertise in this area, the Science Based Targets Initiative was created in 2014 to develop a methodology, which helps companies, set scientific goals.

By September 2016, 179 firms had signed up, pledging to find ways to reduce their emissions to meet science-based global warming targets. This shift, from looking to external measures, rather than creating internal ones,

is in line with business thinking advocated as part of “the Big Pivot” (Winston, 2014): changing corporate mind-sets to prioritise environmental, economic and social challenges and opportunities and treating them as central to business success or failure, rather than as philanthropy or niche issues.

Although the focus on firms adopting externally developed science-based targets is relatively new, commentators have been keen to stress the benefits of such a move. Setting (usually ambitious) science-based targets can spur innovation on a far greater scale than traditional company-developed incremental goals. In addition, early adopters will be well placed for future industry or government regulation and gain reputational benefits. With the move to science-based targets being such a recent trend, such claims are still largely anecdotal. To begin to address the paucity of research in this developing area, we examined the sustainability reports of the top 75 firms listed in the Fortune Global 500 list to see how they are incorporating science into their sustainability reports and what, if any, effect this had on their perceived reputation and competitive positioning.

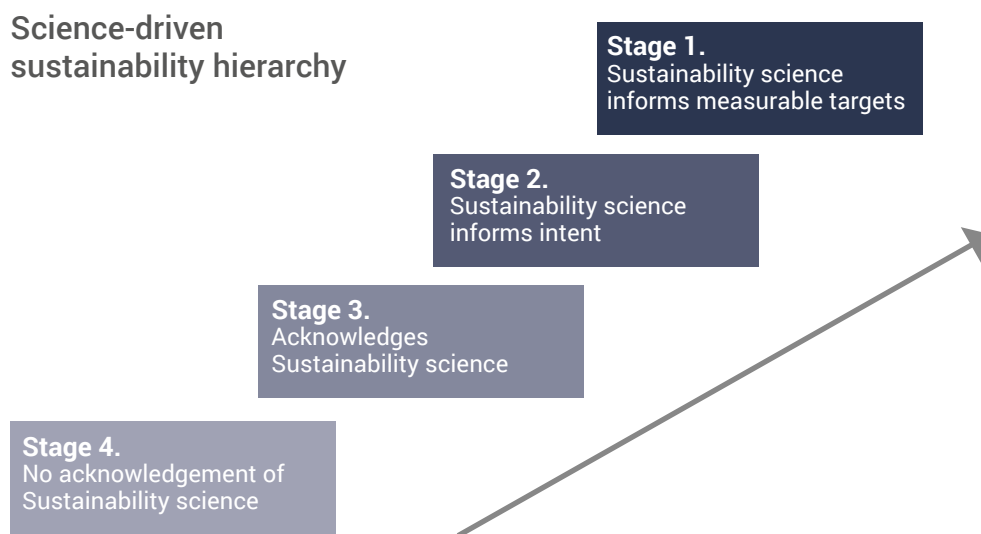
Sources of science based sustainability targets:

- Inter-governmental Panel on Climate Change (IPCC) Fifth Assessment Report 2014 – synthesis of climate change data and predictions to assist policy makers with aim of keeping global warming within two degrees.
- United Nations (UN) Global Compact – Charter setting out 10 principles of environmental and social responsible business for corporations to follow
- UN Environmental Program Emissions Gap Report 2015 – sets out 17 sustainability goals to be met by 2030
- ‘Action 2020’ from the World Business Council for Sustainable Development (WBCSD) - provides corporations with a framework for action to deliver against the environment goals outlined in the WBCSD ‘Vision 2050’ report
- UN Sustainable Development goals set in 2015 - lists 17 goals to be met by 2030 to tackle global climate change, poverty and inequality

4. Current state of play:

how firms are using science in their reports

To find out how firms are currently using science-based evidence in their reports, we studied the 2015 sustainability reports of the top 75 companies in the Fortune Global 500 list. We developed a “science-driven sustainability hierarchy” to assess how thoroughly firms applied scientific evidence to the analysis of their environmental performance and how integral that science is to each firm’s sustainability strategy as a whole.

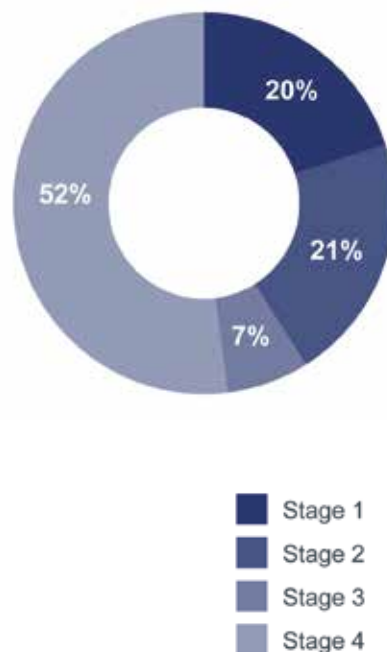


The ‘hierarchy’ comprised four stages against which we evaluated each firm’s publicly reported sustainability commentary. Firms, which did not make any acknowledgement of sustainability science in their reports, were deemed to be at Stage 4; while those which made mention of scientific thinking, but did not incorporate this science into their commentary on the firm’s environmental initiatives, were placed at Stage 3. Firms discussing their sustainability performance and aims with reference to scientific data, but which fell short of setting measurable targets against this data, were considered to be at Stage 2 in our hierarchy. Finally, those firms explicitly setting and reporting against measurable targets driven by sustainability science were deemed to be at Stage 1.

Having analysed the reports we found that more than half the firms in our study (52%) were at Stage 4, making no reference to sustainability science in their reports. Very few firms (7%) were found to be at Stage 3, where there is acknowledgement of sustainability science, but this is not related to firm performance. The number of firms at Level 2, where firms use sustainability science to inform their performance, was 21% very similar to those at Stage 1 (using science to assist development of measureable sustainability targets) which comprised 20% of the firms in our study.

How firms in our survey use science data

Of those firms referencing scientific data, the overwhelming area was data relating to climate change; indeed, only one company made reference to an area of sustainability science other than climate change, choosing instead to focus only on resource stress, a topic referred to by four other firms, including water and water-stress. Finally, two firms in our survey mentioned how developments in enabling technology could contribute to science-based environmental goals.



| Science reference area | Number of reports |
|---|---------------------------|
| Climate change | 35 (29 at Stages 1 and 2) |
| Resource stress (water and non-sustainable fuels) | 5 |
| Use of enabling technology to drive environmental goals | 2 |

At a more granular level, we studied the findings of our research to see if there were any definable trends in how science was incorporated into reports of different industry sectors. Most strikingly perhaps, of the 10 automotive manufacturers in our survey, seven were at Stage 1. There was a distinct split amongst the energy companies in our survey: of the 24 energy firms represented, 11 were found to be at Stage 2 or higher, while a further 11 were still at Stage 4. As a sector, financial services also showed a marked difference, with four of the 14 companies at Stage 2 and the remaining 11 at Stage 4.

By contrast, the performance of firms in the retail and electronics sectors was more varied, with each sector having at least one firm at each stage of the “hierarchy”.



Stage 1 firms by industry



Stage 2 firms by industry



Stage 3 firms by industry



Stage 4 firms by industry



Although our results should be treated with caution given the small sample (75 firms), they do provide an interesting snapshot of the varied industry responses to incorporating scientific evidence into firm-level sustainability targets and reports. It is perhaps not surprising that a high proportion of firms found at Stages 1 and 2 were from the automotive and energy sectors, both of which face public pressure to address climate concerns given the nature of their businesses. Whilst energy firms cannot implement meaningful emissions reductions targets, those companies measuring their performance against climate-science

goals are doing so through their development of carbon sequestration research and development, such as carbon capture and storage. Similarly, it can be argued that financial services firms face far less public pressure over the environmental aspects of sustainability issues (although they clearly face major pressure over their ethical and economic impacts), and so do not feel the need to measure their performance against science sustainability targets, which would explain why the majority of financial services companies are still at Stage 4 on our 'hierarchy'.

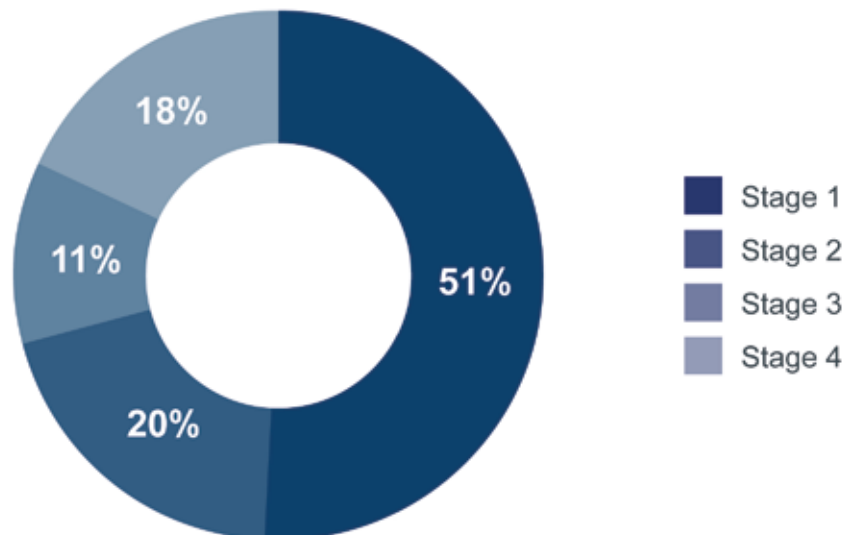
5. The benefits of adopting a science-based approach

As we noted earlier, corporate sustainability reports are becoming the norm and firms seeking to demonstrate their leadership in this area are having to find new ways to convince a public ever on the lookout for "greenwash". We wanted to see if there was any relationship between firms incorporating science-based targets into their reports and their appearance on corporate sustainability indices. We examined seven leading sustainability lists and indices which identify corporate "sustainability leaders".

| Index | Description |
|--|---|
| 2014 CDP Climate Performance Leadership index (CDPLI) | Produces annual list of the companies deemed to be doing the most to tackle climate change |
| 2015 UN Global Compact 100 (UNGC100) | A stock index composed of a representative group of UN Global Compact firms selected based on implementation of the 10 principles of responsible business |
| 2014 Interbrand Best Global Green Brands (IBGGB) | The top 50 brands ranked on the strength of their sustainability initiatives and on how the public perceives those efforts |
| 2014 Corporate Knights Global 100 (CKG100) | Companies scored against a maximum of 12 industry-specific environmental KPIs relating to their industry |
| 2015 Fortune Change the World (FCTW) | As ranked by Fortune magazine, 51 companies that have made a sizeable impact on major global environmental or social problems as part of their competitive strategy |
| 2015 Newsweek Top Green Companies (NG) | As ranked by Newsweek magazine and based on eight indicators used to assess and measure the environmental performance of the world's largest publicly traded companies |
| 2014 Global CSR RepTrak 100 (RepTrak) | Annual ranking by the Reputation Institute which highlights the companies that have the best reputations for corporate social responsibility among the general public in 15 countries |

We cross-referenced the appearance of firms in our survey with their presence on the seven indices to see whether science-based sustainability approaches were the domain of “sustainability leaders”


Percentage of firm appearances across all lists and indices



What is clear from this comparison is that firms setting science-based sustainability targets (those at Stage 1 in our sustainability hierarchy) are considered to perform better in sustainability terms than the firms at Stage 4. Perhaps more surprisingly this comparison found no significant difference between firms merely referencing the science (Stage 3) and taking, or intending to take, action based on that science which is not a measurable target (Stage 2).

Once again, there is the caveat that this is a small sample, but nevertheless, it is in line with what we would intuitively expect: firms regarded as “sustainability leaders” can demonstrate the

robustness of their sustainability targets and strategy by utilising scientific knowledge; while those firms less focused on sustainability issues, and therefore not appearing on the various indices, will not incorporate science-based targets into their strategic plans. It seems to us there is a widening chasm in sustainability approaches where those firms that prioritise it are adopting actionable intent based on science, whilst many companies for whom sustainability has never been a priority are now falling even further behind.



“Having effective action-plans to tackle environmental issues are increasingly reflected in perceptions of a firm’s future profitability.”

Benefits of science-based reporting:

- Use of external targets can standardise reporting, promoting greater transparency and increasing confidence for stakeholders.
- Inclusion of external measures also increases the positive perception of firms' sustainability strategies
- Using external science data can build a common ecological dialogue with stakeholders
- Attention to sustainability can drive innovation and future-proof business activity against any future legislation

Managerial checklist for a science-based sustainability strategy:

- Shift focus: start by asking what change is needed rather than what is achievable
- Think evidence: ensure the sustainability strategies can be measurable
- Evaluate current strategy: does it deliver against external targets?
- Be bold: accept that embracing sustainability targets may mean big changes

Sustainability reporting is the means by which firms can demonstrate the effectiveness of their sustainability strategies to a wide range of stakeholders. Having effective action-plans to tackle environmental issues are increasingly reflected in perceptions of a firm's future profitability. They also mitigate the risk to the business of further legislation or policy changes to tackle climate change as well as potentially driving innovation and opening up new market opportunities.

"Climate, environmental and resource considerations can have significant implications for current and future business operations. In this context, businesses could benefit significantly from available scientific and technical research outputs. However, they are often not in a form that are readily accessible to many businesses. There is a need for people with the necessary skills and experience to translate the science and technical developments into practical applications that can inform business practices. This could provide businesses with real competitive advantage and greater resilience. This report is an initial step in helping businesses identify the actions they can take to become more sustainable in the face of climate, environmental and resource challenges"

Professor Paul Leinster CBE

Cranfield University,
Chief Executive of the Environment Agency from 2008 to 2015



6. Where next for science-based sustainability reporting?

From our study, it is apparent that companies are utilising science-data in a near uniform way: the overwhelming majority of the science cited was related to carbon reduction targets to mitigate climate change (Lettice, et al, 2009).

Furthermore, there was a clear under-representation of the social science that might inform corporate social impact goals and this provides scope and opportunity for future advancements. It is likely that reporting against science-based sustainability targets may become the norm in coming years, just as having reports independently verified and utilising standardised reporting procedures have become increasingly prevalent as a means of increasing stakeholder confidence. (The news from the Science Based Targets Initiative, that firms are currently signing up at the rate of two a week, would suggest that adoption of science-based emissions targets is a fast growing trend).

A note on methodology

The research was conducted in Q3 2015. Its main aim was to explore how widely global firms are using a science-based approach in determining and evaluating their sustainability strategy. To do this we chose to examine the publicly available sustainability reports of firms on the Fortune Global 500 (2015) index.

For time and resource reasons, the research was limited to the top 75 firms in the index. Any business non-financial report in which sustainability or corporate (social) responsibility activity was included was examined.

In some instances, firms practised integrated reporting and the relevant sections of these reports were included. In addition, some companies publish online sustainability reports and these were also included. To facilitate analysis we developed a 4-category

Reporting in this way can also be seen as a proxy for taking the scientific evidence seriously and allowing it to impact management practice inside firms. We see this emergence as part of a wider trend in Evidence-based Management (EBMgt) – the recognition that multiple sources of evidence are required, ensuring thorough decisions-making on complex issues.

Pioneering firms seeking to maintain their status as sustainability leaders could look to harnessing other branches of science and social science, for example, relating to water and other resource stress, public policy, human geography, to differentiate themselves from their competitors.

The adoption of the Sustainable Development Goals (2015) and their use by leading companies to frame their sustainability strategies and aspirations (UNGC/ Accenture 2016) should accelerate this (Industrial Evolution, 2015).

framework to assist data categorisation intended to capture the stage at which external science targets were embedded into a firms reported sustainability activity.

The data from the 75 firms in our study was evaluated against this framework. A secondary aim of the study was to explore whether or not the inclusion of science-based data into sustainability activity enhanced the perception of a firm's effectiveness in this area. To evaluate this we cross-referenced the companies' positioning in our four-category framework, with their appearance on seven corporate sustainability and responsibility indices. We chose a broad sample to minimise bias as each index is compiled in a different way and has a subtly different focus. The research can be classified as a partially integrated mixed methods research study as it utilised both quantitative methods (frequency analysis) and qualitative approaches (interpretation of report data).

About the authors



Dr Palie Smart is a Reader in Corporate Responsibility at Cranfield School of Management. Her current research is focussed on the business benefits of corporate responsibility, funding strategies for climate change research projects, and the role of innovation in delivering responsible business models for sustained value creation.



Dr Sara Holmes is a Visiting Fellow of the Doughty Centre for Corporate Responsibility. Her main research interests are in how companies can innovate through adopting responsible business practices.



Professor Steve Evans spent 12 years in industry, rising to become Engineering Systems Manager at Martin-Baker Engineering, the world leading manufacturer of ejection seats. His industrial experience led to an emphasis on improving engineering performance and provided an excellent grounding for tackling complex, real-life problems. Steve has over 20 years of academic experience, which includes working collaboratively with leading industrial and academic institutions from around the globe and supervising over 120 PhD and MSc students at Cranfield. He has led, or co-led, the first UK EPSRC research projects in the fields of concurrent engineering, co-development and eco-design and is the Director of the new EPSRC Centre for Innovative Manufacturing in Industrial Sustainability. He is also the director of the Centre for Industrial Sustainability at the IfM (University of Cambridge).

The authors gratefully acknowledge the research undertaken by former Cranfield School of Management student, Charles Jewell, for his 2015 MSc thesis. This Occasional Paper synthesises the findings of his research project.

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- "Engaging Business in the Community - not a quick fix" by Geoffrey Bush, David Grayson and Amanda Jordan with Jane Nelson. With the Smith Institute (2008)
- "A new mind-set for Corporate Sustainability" - a white paper on sustainability as a driver of commercial innovation, produced in partnership with academics from MIT, Beijing, Singapore and IESE in association with BT and CISCO (2008)
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