

Sustainability Scholarship 2017/18

The Business Case for Organisations in the UK construction industry to set Science- Based Targets

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ABSTRACT

Science-based targets (SBT's) are a relatively new phenomenon that involve setting greenhouse gas emission reduction targets in line with climate science, in order to future-proof growth and reduce the impact of dangerous climate change. Led by the Science-Based Target Initiative (SBTi), companies in the UK construction industry setting a SBT will send a clear message to policy makers that businesses are committed to playing their part in decarbonising the economy. The report identifies a list of key drivers that form a strong business case for organisations looking to set and adhere to a SBT. The top drivers are; reputation, reducing the organisations impacts and cost savings. Alongside these drivers, there are a number of challenges and opportunities explored that will help prepare any organisation that may look to set a SBT. The challenges vary from; the complex SBT methodology, the achievability of the targets, capital expenditure needed upfront and changing mind-sets/internal behaviour. On the other hand, organisations can use the long list of opportunities that present themselves. These include; showing leadership in the industry, cost savings, having a long-term vision, future-proofing the business, carbon savings, talent attraction/retention and getting ahead of legislation. Overall, it is clear that there is a significant gap in research around the business case for setting SBT's. Future research could carry on the aim and methodology of this paper to enable a greater sample of organisations to take part and provide an ever-growing business case.



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LIST OF ABBREVIATIONS AND DEFINITIONS

BBP	Building Better Partnerships
CCA	Climate Change Act (2008)
CCC	Committee on Climate Change
CDP	Carbon Disclosure Project
CO²	Carbon Dioxide Emissions
COP21	2015 United Nations Climate Change Conference (Paris)
COP22	2016 United Nations Climate Change Conference (Marrakech)
COP23	2017 United Nations Climate Change Conference (Bonn)
C40	C40 Cities Climate Leadership Group
FTSE 100	Financial Times Stock Exchange 100 Index
GHG	Greenhouse Gas
ICR	Infrastructure Carbon Review
IEMA	Institute of Environmental Management and Assessment
SBT	Science-Based Target
SBTi	Science-Based Target Initiative
Scope 1 & 2 Emissions	Direct emissions sources (e.g. fuel used in company vehicles and purchased electricity)
Scope 3 Emissions	All indirect emissions due to the activities of an organisation.
UKGBC	UK Green Building Council
UNGC	United Nations Global Compact
UNFCCC	United Nations Framework Convention on Climate Change
WRI	World Resources Institute
WWF	World Wide Fund for Nature

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1. INTRODUCTION

“We called for strong ambition, for remarkable partnerships, for mobilisation of finance, and for implementation of national climate plans. Paris delivered. Now the job becomes our shared responsibility.”

(Jim Yong Kim, World Bank Group President, 2015)

Science-based targets (SBT's) are a relatively new phenomenon that involve setting greenhouse gas emission reduction targets in line with climate science, in order to future-proof growth and reduce the impact of dangerous climate change. Simply put, the targets involve allocating a proportion of the required global emissions reduction targets to an organisation in a transparent way.

The transition to a low-carbon economy is underway and accelerating worldwide. The Paris Agreement in 2015 was a hallmark occasion in international consensus on climate change, where 195 countries agreed to limit global warming to no more than 2°C. Every industry across the globe will have to transform and leading businesses already recognise the opportunity and urgency to take action. As of January 2018, 336 organisations globally are taking science-based target climate action and 87 have approved science-based targets.

The UK built environment contributes around 40% of the UK's total carbon footprint and is one of the key industries that needs to make dramatic carbon reductions (UKGBC 2017). The UK construction industry will require radical change and a transformation in traditional practices to meet the wider carbon targets set at a global and UK level. Science-based targets are a method of doing so and are rapidly growing within the industry. Only a handful of organisations have set a science-based target at present, but the awareness of setting these targets is now increasing.

As the awareness of SBT's is rapidly growing within the UK construction industry, there is an opportunity to provide organisations with a persuasive business case of why they should set a SBT. The business case will help accelerate the pace of change and

create momentum within the UK construction industry to rapidly reduce carbon emissions.

1.1 Aim

The research paper aims to provide an influential case of key drivers for large organisations in the UK construction industry, to set and adhere to, science-based targets.

1.2 Objectives

The objectives below are set to achieve the overall aim:

1. Outline how global climate change agreements and UK climate targets relate to science-based targets.
2. Provide detail into the role of the science-based targets initiative and campaigning groups that are driving science-based targets across the UK.
3. Identify large organisations key business drivers for setting science-based targets.
4. Analyse the challenges and opportunities large organisations will face when looking to set science-based targets.
5. Investigate how consultants, NGO's and campaigners are influencing large organisations to set science based targets.

1.3 Methodology

This beginning of this paper is based on extensive research into global climate agreements and UK climate targets set at present. Additionally, these are then filtered down into the targets set at an industry level and campaigners working in the field to promote carbon reduction. The theory behind these types of targets are explored in a section discussing self-regulatory targets versus their effectiveness to legislation.

The backbone of the research is based on a series of detailed interviews that were undertaken in the summer of 2017 with ten large organisations in the UK construction industry. These organisations represent a variety of sectors within the industry and are

all at different stages on their journey to setting a SBT. The research is mainly qualitative and is structured in the same way the interviews were undertaken. The research highlights the key drivers for organisations to set SBT's and also discusses the challenges and opportunities around the process of setting them.

Lastly, the research discusses the perspectives from third parties working in this arena, including NGO's and consultants. The section delves into their perception of the industry and how it needs to accelerate change, whilst gathering their views on the business drivers, challenges and opportunities to setting a SBT.



2. LITERATURE REVIEW

This chapter will provide the background and context to science-based targets (SBT's) on the global and national scale, whilst looking at the prevalence of these targets in the UK construction industry. Firstly, the chapter will explore where SBT's are placed on the global scale in relation to wider climate targets and agreements, such as the COP21 Paris Agreement. The targets will then be placed at the UK level and what they mean for the UK construction industry. The latter half of the review will focus on the discussion between 'self-regulatory' targets and legislation. SBT's are fundamentally self-set targets and driven from organisations, but there is an argument that they may or may not be as effective as binding legislation to reduce carbon.

2.1 What are Science-Based Targets?

Science-based targets are a relatively new concept. But, the commitment and drive to reduce carbon emissions is not a new notion in the fight to combat climate change. The term 'science-based' has been adopted since the Paris Agreement was signed in 2015, legally binding countries to reduce their carbon emissions and prevent the catastrophic effects of climate change.

The definition of a science-based target is below;

“Targets adopted by companies to reduce greenhouse gas (GHG) emissions are considered “science-based” if they are in line with the level of decarbonisation required to keep global temperature increase below 2 degrees Celsius compared to pre- industrial temperatures, as described in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change” (Science Based Target Initiative, 2017)

SBT's are able to provide companies with a clear pathway to future-proof growth by specifying how much and how quickly they need to reduce their greenhouse gas emissions.

2.2 Global Climate Agreements

To put science-based targets into the global picture of reducing carbon emissions, the existing global climate targets and agreements will be explored.

2.2.1 *The Rio Convention 1992*

The international political response to climate change began in 1992 at the Rio Earth Summit. The 'Rio Convention' was created at the summit and included the adoption of the UN Framework Convention on Climate Change (UNFCCC). The purpose of the convention, with an audience of global leaders, was to set out a framework for action aimed at stabilising atmospheric concentrations of greenhouse gases to avoid "dangerous anthropogenic interference with the climate system" (Sustainable Innovation Forum, 2015). The UNFCCC entered into force in March 1994, with a universal membership of 197 parties.

However, the UNFCCC lacked a real vision of how signatories would implement their goals and nations were not sure what it would take to prevent anthropogenic damage. Thus, the Conference of Parties (COP) was created. The parties would meet annually in an effort "to promote the effective implementation of the Convention" (Telesetsky, 1999).

2.2.2 *The Kyoto Protocol*

The protocol was adopted in December 1997 at the third conference of parties (COP3). The protocol is an international agreement linking to the UNFCCC which commits the 197 parties by setting internationally binding emission reduction targets. Developed countries were recognised as those 'principally responsible' for the high levels of GHG emissions in the atmosphere. The protocol placed a burden of responsibility on developed nations to reduce their carbon emissions and entered into force in February 2005 (UNFCCC 2017).

2.2.3 Annual Conference of Parties (COP)

The objective of the annual Conference of Parties (COP) is to review the Convention's implementation. More recently, there has been significant talk and press commentary on COP21 in 2015, also known as the Paris Climate Conference, where for the first time all parties will aim to achieve a legally binding and universal agreement on climate, with the aim of keeping global warming below 2°C.

2.2.4 COP21

The Paris Agreement in 2015 saw 195 of the world's Governments commit to preventing dangerous climate change. This definitively signalled an acceleration in the transition to a low carbon economy and a signal to business leaders to “set bold examples on how to turn responsibility for climate change into economic action for investment and innovation” (Umbach, 2015).

A first of its kind, the European Commission (2017) states that the Paris Agreement is “a bridge between today's policies and climate-neutrality before the end of the century”. The agreement also recognised the role of non-party stakeholders in addressing climate change. These include; cities, society, local authorities and the private sector (European Commission, 2017).

McInerney and Johannsdottir (2016) argue that there were two resounding themes resulting from COP21 discussions. Firstly, fossil fuel subsidies must end and secondly, a higher carbon price is needed to incentivise investment in a low carbon economy. Moreover, regulatory bodies need to implement more stringent disclosure and reporting requirements so climate risk “is properly understood by investors”. For the private sector to head towards a low carbon market, financial institutions also have a role in de-risking investments and policy makers also need to create consistent and stable policies, to give investors' confidence.

2.2.5 COP22

COP22 took place in Marrakech, Morocco, providing a platform for cross-sector stakeholders to build a more sustainable future. The talks at the conference focused on bringing the Paris Agreement into reality. The UK Government supported key initiatives that include improving national carbon reduction strategies, advancing innovation in clean energy and scaling up ambitious climate finance from public and private sources (Department of BEIS, 2016).

2.2.6 The global carbon budget

A carbon budget is “the maximum amount of carbon that can be released into the atmosphere while keeping a reasonable chance of staying below a given temperature rise” (Carbon Brief, 2016). Data from the Global Carbon Project, analysed by Carbon Brief (2016), suggests that in 2015, worldwide CO² emissions from fossil fuel burning, cement production and land use change were 39.7bn tonnes, slightly lower than the 40.3bn tonnes in 2014. Even though there might be a slight reduction, this is not nearly enough to prevent dangerous climate change. Therefore, more needs to be done to reduce carbon emissions, especially those in large emitting industries.

2.3 UK Climate Targets and Agreements

Under the global climate agreements there are several UK specific targets that are to be achieved. This section will explore these targets and what they mean for the UK and sub-sectors, such as cities and relevant industries.

2.3.1 Climate Change Act 2008

The Committee on Climate Change’s (CCC) report in 2008 on ‘building a low-carbon economy’ was used to advise the formation of the Climate Change Act. The Act commits the UK government to reducing greenhouse gas emissions by at least 80% of 1990 levels, by 2050. This includes reducing emissions from the devolved administrations (Scotland, Wales and Northern Ireland), which currently account for

around 20% of the UK's emissions.

The success of setting the Act is under deliberation. Lockwood (2013) agrees that the adoption of the Act is a landmark commitment in combating climate change, but whilst there is a legal lock-in there is no guarantee of a political lock-in. The Act works on the assumption that political leaders are concerned about climate change, but if they are not then the political underpinning of the Act is compromised. With recent political conflicts and the upcoming BREXIT negotiations, the Act is argued to be “insufficient to withstand destabilisation” (Lockwood, 2013).

2.3.2 UK Carbon Budgets

The Climate Change Act (2008) requires the UK government to set legally binding carbon budgets. A carbon budget is a cap on the amount of greenhouse gas emitted in the UK over a five-year period which runs until 2032. The budgets restrict the amount of greenhouse gas the UK can legally emit in a five-year period, and currently the country is in the second carbon budget period (2013-2017), moving into the third budget (2018-2022).

The budgets are “designed to reflect a cost-effective way of achieving the UK's long-term climate objectives” (Committee on Climate Change, 2017). Under this system, every tonne of carbon emitted between now and 2050 will count. If emissions rise in one sector, the UK will have to achieve corresponding reductions in another.

2.3.3 Climate change risks to the UK

The targets set at a UK level are methods of legally reducing carbon emissions, due to the negative effects climate change will have on the country. Some of these effects are already being observed and are occurring in real time.

The Arup ‘Deadline 2020’ Report (2016) states that with the agreement coming in force in November 2016 in the UK, the focus is now shifting to the collective action of

cities. Recent C40 Cities Climate Leadership Group (C40) research shows that “based on current trends of consumption and infrastructure development, within five years the world will have ‘locked in’ sufficient future emissions to exceed 2 degrees” (Arup 2016). At least one third of these emissions will be determined by cities, which makes them pivotal actors in carbon reduction.

C40 cities are currently reported to be experiencing a range of serious hazards as a result of climate change and are deemed to become more frequent. The potential impacts on people, infrastructure, environments and local and national economies would be profound and damaging (C40 & Arup, 2015). In monetary terms, climate change related disasters have been estimated to put at risk 1.3 billion people by 2050 and \$158 trillion of assets – double the total annual output of the global economy (GFDRR, 2016).

2.4 Global Campaigns

Within the global context of carbon reduction, there are a number of global campaigns dedicated to changing traditional business practices and drive forward a low carbon economy.

2.4.1 *We Mean Business*

We Mean Business is a global coalition of organisations working with the world’s most influential businesses. The purpose of the coalition is to influence businesses to take action on climate change. The coalition works by mobilising businesses to set ambitious targets and hundreds have already decided to set science-based targets and targets, committing a transition to 100% renewable power (We Mean Business, 2014).

The coalition launched in September 2014 at the same time top business leaders and investors were voicing their concerns in Climate Week, on the growing evidence on threat to profits and increased risks resulting from climate change (Climate Group,

2014). The timely launch of the coalition also reiterated the importance of businesses as key initiators and implementers of change to achieve the UK and global climate targets. Additionally, corporate leadership is identified as a vital necessity to aid progressive action and drive change within organisations needed to catalyse further corporate climate action.

2.4.2 Science-Based Target Initiative

The Science-Based Target initiative is a collaboration between the Carbon Disclosure Project (CDP), World Resources Institute (WRI), the World-Wide Fund for Nature (WWF) and the United Nations Global Compact (UNGC), and continues to be one of the We Mean Business coalition commitments.

The initiative was developed shortly after the Paris Agreement was signed in 2015 and aims to support companies to set emission reduction targets in line with what science says is necessary to keep global warming below the dangerous threshold of 2 degrees. This will send a clear message to policy makers that industries are committed to playing their part in decarbonising the economy. Targets have typically been set freely by organisations, but SBT's focus on 'top down' targets and not a predefined and achievable goal (O'Connell, 2016).

The aim of the initiative is for science-based target setting to become standard business practice and corporations will place a major role in closing the emissions gap. To date, research into the success and application of these targets is limited. This is due to how new the movement is in industry and therefore leaves a wide gap for this research to begin to identify how businesses make the case to set SBT's and what challenges and opportunities they will face.

2.4.3 SBT's examples in industry

Business leaders are facing a problem in balancing near-term problems with a longer-term strategy, in which climate change features as a long-term issue. The targets

needed to reduce emissions are long-term and ambitious, requiring leaders and businesses to make radical changes in order to meet them (CDP 2015).

There is an opportunity to learn from other industries that have set SBT's across the world. Many high profile leading businesses have set SBT's, for example; Sony, Landsec, Pfizer, Kellogg's, P&G, Dell and Coca Cola. Already it can be seen the notion of setting SBT's is not industry specific, but a call to all businesses with a large impact, to change their target setting practices. For example, Dell the third largest PC vendor in the world set a target that was made at the highest levels to set a goal for the whole company, which addressed the full implications of what they make and sell to their customers.

The momentum to look at climate change as a long-term risk is growing. CDP data discloses that no fewer than 81% of the world's largest 500 companies reported in 2014 as having emission reduction strategies or energy specific targets (CDP 2015). Yet, these targets may not be quite as impactful as they seem, as they may not cover a meaningful percentage of the organisations emissions or they are not long-term, ambitious targets. Most targets are set in response to existing regulations or based on future projections/investments.

2.5 Carbon Targets in the UK Construction Industry

The UK construction industry is vital to the wider economy and holds considerable growth opportunities, with the global construction market forecast to grow by over 70% by 2025 (HM Government, 2013). Alongside this growth, the industry must manage and reduce its carbon emissions that currently contribute around 40% of the UK's total carbon footprint (UKGBC, 2017).

Despite annual variations, the carbon footprint of the built environment has reduced since 1990, with insulation instalment and decarbonisation of the grid contributing to the downward trend. Additionally, 80% of buildings that will exist in 2050 have already been built today, so a priority for the industry is to decarbonise the existing building

stock (UKGBC, 2017). Government policies aimed at improving the efficiency have reduced and a gap is left for the industry to take the lead in reducing carbon emissions, in order to meet the UK climate targets.

2.5.1 Construction 2025

'Construction 2025' is a joint strategy which sets out how the government and industry will work together to put Britain at the forefront of global construction over the coming years. Within the strategy, the partnership "jointly aspires to achieve a 50% reduction in greenhouse gas emissions in the built environment" (HM Government 2013), which will be challenging in an industry with a high degree of fragmentation relative to other sectors, which also impacts of levels of collaboration, innovation and ability to access foreign markets.

2.5.2 Infrastructure Carbon Review (ICR) 2013

The ICR (2013) was published by the UK Treasury to "make carbon reduction part of the DNA of infrastructure in the UK" (HM Treasury 2013). Additionally, it supports Construction 2025 and addresses the aspirations set out in the strategy. In order to reach the right audience, the report is aimed at business leaders involved in design, construction, operation and maintenance of economic infrastructure assets across communications, energy, transport, waste and water.

The ICR makes recommendations for organisations and identifies "embedding carbon reduction as a core organisational value" (HM Treasury 2013, p.19) as a method of effective leadership to drive carbon reduction. Additionally, sharing carbon knowledge effectively is recommended to achieve internal alignment and consistency. Key messages for stakeholders should be identified, as climate change and moral obligations may work for some, whereas resource efficiency and cost savings work for others. These recommendations will be reviewed throughout the research to see if the businesses interviewed are implementing them, in regards to setting SBT's.

2.5.3 FTSE 100 Carbon Reporting

Within the FTSE 100 Group, there is a growing evidence base that climate issues are now common place with 70 companies now setting carbon reduction targets. However, many of these targets do not push companies to meet the global reduction targets. SBT setting is growing on the agenda and BT (British Telecom) became the first FTSE 100 company to commit to a SBT (Carbon Clear 2016). In 2016, a further five companies set SBT's with a further six also committing to setting a target in the next two years.

Carbon Clear recommends companies to set SBT's even if there is a reputational risk with failing to reach them. However, the industry body would advocate it is better to miss an ambitious target, than over achieve a non-ambitious target. The setting of an ambitious target "does not stop companies from reaching them, it means they are more likely to achieve them or even exceed them" (Carbon Clear 2016:11).

2.6 Self-Regulatory Targets vs. Legislation

Science-based targets are ambitious carbon reduction targets that are set voluntarily by any organisation. They are not dictated by legislation, which can be the primary driver of reducing carbon, but by the ambition and determination of individual businesses. The discussion around setting self-regulatory targets vs. legislation has been well researched and contains varying arguments for why either may be more effective than the other.

Self-regulation is described as "the normative orders of private governments (such as corporations, schools, hospitals) and the normative orders of professional communities and business networks" (Huyse and Parmentier 1990: 259). Social self-regulation is where firms or their associations, in their undertaking of business activities, ensure that unacceptable consequences to the environment, the workforce or consumers and clients are avoided (Gunningham and Rees, 1997).

2.6.1 The benefits of self-regulation

Many argue that voluntary standards have a significant positive influence on the behaviour of companies. They are also more flexible and easier to implement than traditional industry regulation. According to Haufler (2013), all sides view industry self-regulation as a potential new source of global governance. That includes mechanisms to reach collective decisions about transnational problems with or without government participation. Private sector self-regulation appears to balance the interest of business and society, without expanding government intervention in the economy.

Gunningham and Rees (1997) argue that there is growing evidence of a range of circumstances where self-regulation (either alone, or in conjunction with other policy instruments) can be an effective and efficient means of social control. This is due to the continued use of prescriptive regulation that can be problematic and counter-productive for many organisations.

The benefits of self-regulation are identified as; speed, flexibility, sensitivity to market circumstances and lower costs. There is also potential for utilising peer pressure across industries and for successfully internalising responsibility for compliance, which is key to driving success (Gunningham and Rees, 1997).

2.6.2 The benefits of legislation

On the other hand, legislation can prove to be an effective way of businesses adhering to targets. Haufler (2013) claims that industry self-regulation may be one way to raise standards, but because those standards are voluntary and unenforceable, they lack credibility.

Self-regulation is counter-argued as it fails to fulfil its theoretical promise, commonly serving the industry rather than the public interest. The method can be seen as a cynical attempt to give the appearance of regulation, whilst serving interested parties at the expense of the public (Gunningham and Rees, 1997). Additionally, Braithwaite

(1993) asserts that self-regulation is frequently an attempt to deceive the public into believing in the responsibility of an irresponsible industry. Occasionally it is a strategy to give the government an excuse for not doing its job.

2.6.3 The balance of self-regulation and legislation

The discussion above proves a case for effective self-regulation, but also the strength of binding legislation. The effectiveness of either varies among industries, but there may be a balance that can be achieved. Regulation to industry carries opportunities but is also highly risky. In some industries (e.g. tobacco), self-regulation has been an abject failure, but in others (e.g. forestry and marine fisheries), it has been more successful (Sharma, Teret and Brownell, 2010).

Sinclair (1997) states that much of the debate has been characterised by two mutually exclusive options: strict command and control or pure self-regulation. There are a wider range of options falling between the two, where several 'regulatory variables' can be used to fine-tune regulatory options to suit specific circumstances on environmental issues. The argument concludes that in the majority of cases, a combination of self-regulation (e.g. science-based targets) and legislation will provide the ideal regulatory outcome.

2.7 Conclusion

The discursive chapter has set the scene for the context of science-based targets and their rapid growth and importance in the UK construction industry. It is clear from the literature review that there is significant gap in research around the business case for setting SBT's. This report will begin to fill the gap and delve into the detail of why large organisations may look to set SBT's and whether the approach of a self-set target makes good business sense in the absence of stringent legislation.

3. RESEARCH METHODOLOGY

The research for this report focusses on large organisations in the UK construction industry. For the purpose of the research, a large organisation is classed as having over 250 employees. As identified in the literature review, there is little research or evidence looking into the business case for why large organisations in the UK construction industry, should set and adhere to, science-based carbon reduction targets.

3.1 Objectives

From the five research objectives for this report, there are three that are specific to the research stage. These are to:

1. Identify large organisations key business drivers for setting science-based targets.
2. Analyse the challenges and opportunities large organisations will face when looking to set science-based targets.
3. Investigate how consultants, NGO's and campaigners are influencing large organisations to set science based targets.

These objectives will be met through the methodology set out below and will contribute to the overall aim of developing a strong business case.

3.2 Methodology

In order to achieve these objectives, ten large organisations were identified within the UK construction industry and were interviewed in relation to carbon reduction and setting science-based targets (Appendix 1). The questions were categorised into six focus areas to delve into their current practices and business drivers. These focus areas are;

1. Organisational approach to carbon reduction;
2. Why science-based targets;

3. Your journey to setting science-based targets;
4. Business drivers;
5. Challenges and;
6. Opportunities

The large organisations identified were from a range of sectors within the UK construction industry. These comprised of; developers, contractors and clients. These included; Berkeley Group and Landsec who are willing to be associated with their responses to the questionnaires.

Additionally, viewpoints were gathered from a range of NGO's and consultants that work in the UK construction industry and are involved with or campaign for more organisations to set SBT's (Appendix 2). The interviewees included the Carbon Trust and BBP (Building Better Partnerships).

For each interview undertaken, the answers were aggregated and analysed to reveal the most common responses amongst organisations and the reasoning behind each answer. For the analysis within this report, the responses will be critically compared and individual accounts of the organisations will pull together the business case for setting science-based targets.

4. ANALYSIS OF LARGE ORGANISATIONS IN THE UK CONSTRUCTION INDUSTRY

This chapter will analyse the responses from the ten large organisations interviewed in the UK construction industry. The analysis and discussion will follow the six focus areas included in the questionnaire with the organisations and provide a detailed insight into how and why organisations are looking at science-based targets.

4.1 Organisational approach to carbon reduction

The first section of the interview focussed on how the organisation currently approaches carbon reduction. The purpose of this was to provide a picture of how advanced carbon management practices are, how high on the agenda carbon currently is and what the biggest drivers are for reducing carbon. The overall picture will demonstrate those ‘front runners’ in driving carbon reduction and those that are just starting their journey.

4.1.1 Carbon management

From the organisations interviewed, 80% are currently reporting carbon publicly. Examples of this can be demonstrated through Landsec setting their own carbon target, which is publicly reported against regularly. Additionally, the annual sustainability report is published externally and internally, carbon is reported quarterly to the energy reporting group and sustainability committee. Berkeley Group also include carbon in their annual report and focus on the performance improvement (%) of the organisation as well as the absolute emissions.

40% of the organisations report carbon annually and monthly. 90% report carbon up to board level, demonstrating that carbon is high on the agenda for those at the top and CEO level. For example, Berkeley Group provide six-monthly progress reports to the most senior level and focus on the performance of the organisation (such as an %

increase or decrease in carbon).

4.1.2 Importance of carbon reduction

Overall, 60% of organisations interviewed say that carbon is 'very high' on the agenda for their organisation. This includes organisations from across all sectors; developers, contractors and clients. The other 40% of organisations vary on their importance of carbon. A contractor states that carbon is not high on their agenda at present and the others vary between reasonably high and high.

4.1.3 Drivers for carbon reduction

The biggest driver for carbon reduction internally for organisations is the subsequent cost reduction. Although, from the results there is a wide range of drivers, cost reduction is the biggest driver for most. Reputation and leadership were very close as the top driver and future-proofing the business was also a top internal driver.

The reasoning behind these three drivers are key for large organisations, as reducing costs is good for the business, as is having a good reputation in the UK construction industry. Some can demonstrate leadership by driving carbon reductions and set a good example to the rest of the industry. Future-proofing is key for large organisations in risk management and ensuring their business is adaptable to future demands, such as decarbonisation.

The other key internal drivers include; changing employee's mind-sets, ethics and morals, business progression and focussing on carbon due to investors growing interest. All the internal drivers listed are important and are key to making the business case to other organisations that should be reducing carbon.

On the other hand, the top external driver is led by reputation in the industry. 70% of organisations interviewed identified reputation as their top externally driven reason for reducing carbon. Many organisations recognised reputation as a key factor in

attracting new business and being seen as a responsible business to their investors and the wider industry. Additionally, external benchmarking is also a key driver for reducing carbon. These benchmarks are industry-wide or at a national level that can spur organisations into reducing carbon as they will be ‘marked’ against their peers and competitors.

For example, the CDP climate change questionnaire (2017) where companies will disclose their data, includes a question on science based targets. Companies that do set these targets will receive a higher score, therefore helping to reward those that are setting SBT’s and creating a growing critical mass of businesses setting these targets. Additionally, investors may benchmark businesses against each other, for setting SBT’s or not, to determine future investment decisions.

The external drivers identified are all business dependent. For example, contractors are recipient to the pressure of a client’s agenda and therefore making carbon reductions. Developers see the reductions as a platform for innovation and making business changes. The anticipation of future energy prices growing and potential carbon legislation is also driving significant carbon reductions.

Overall, the internal and external drivers for organisations are different, but equally as compelling reasons for reducing carbon. Internally, there is a focus on cost reduction, reputation, leadership and future-proofing their business. Externally, reputation is the key driver for reducing carbon but competition, innovation and future legislation also play a part in the case for reducing carbon.

4.2 Why science-based targets?

The second section of the interview delved into why organisations are currently or might be looking to set science-based targets. The purpose of this section is to gain an understanding of where the organisations are in their journey to setting SBT’s and how they came to hear of their relevance in the UK construction industry. Additionally,

one question considers how they have or intend to present the case for setting SBT's in their business.

4.2.1 Current SBT status

From the organisations interviewed, 90% are currently looking at setting SBT's or have set a SBT. The other 10% are not currently looking to set a SBT. One contractor agrees with the setting of SBT's but at present, they already have existing challenging targets for the business to reduce carbon emissions. Moreover, the majority of their carbon emissions are from fuel use and the technology and science for using less fuel is not as advanced at present. The organisation would rather adapt and improve their own methods of construction to reduce emissions than relying on offsetting as a method.

4.2.2 Origin of SBT's

The majority of organisations originally heard of SBT's from industry events in the UK construction industry. These include events run by industry bodies such as; UKGBC, CDP, Ecobuild and IEMA (Institute of Environmental Management and Assessment). The press and media have also had an influence on these organisations and increased their awareness of the topic. Additionally, the media attention around COP21 in Paris and the signing of the agreement aligns with awareness of SBT's. The conference is the backbone to the SBT Initiative and therefore has led to the increased awareness on the purpose of SBT's.

The CDP climate change disclosure questionnaire also includes a question asking organisations if they have set a science-based target. For the majority of these large organisations, they will disclose their carbon data to CDP and see that SBT's are rising rapidly on the global agenda. Over one fifth of global emissions are now managed through CDP and over 800 investors are now requesting data from organisations through the CDP climate change programme. These investors represent up to \$100tn in value (CDP, 2017).

The results from this question on hearing about SBT's shows that the movement in setting SBT's is growing nationally, but not industry specific. Although, there is a growing light on the UK construction industry as one of the largest emitters of carbon to make rapid changes and commit to reducing carbon in line with the 2 degrees scenario.

4.2.3 Presenting the business case

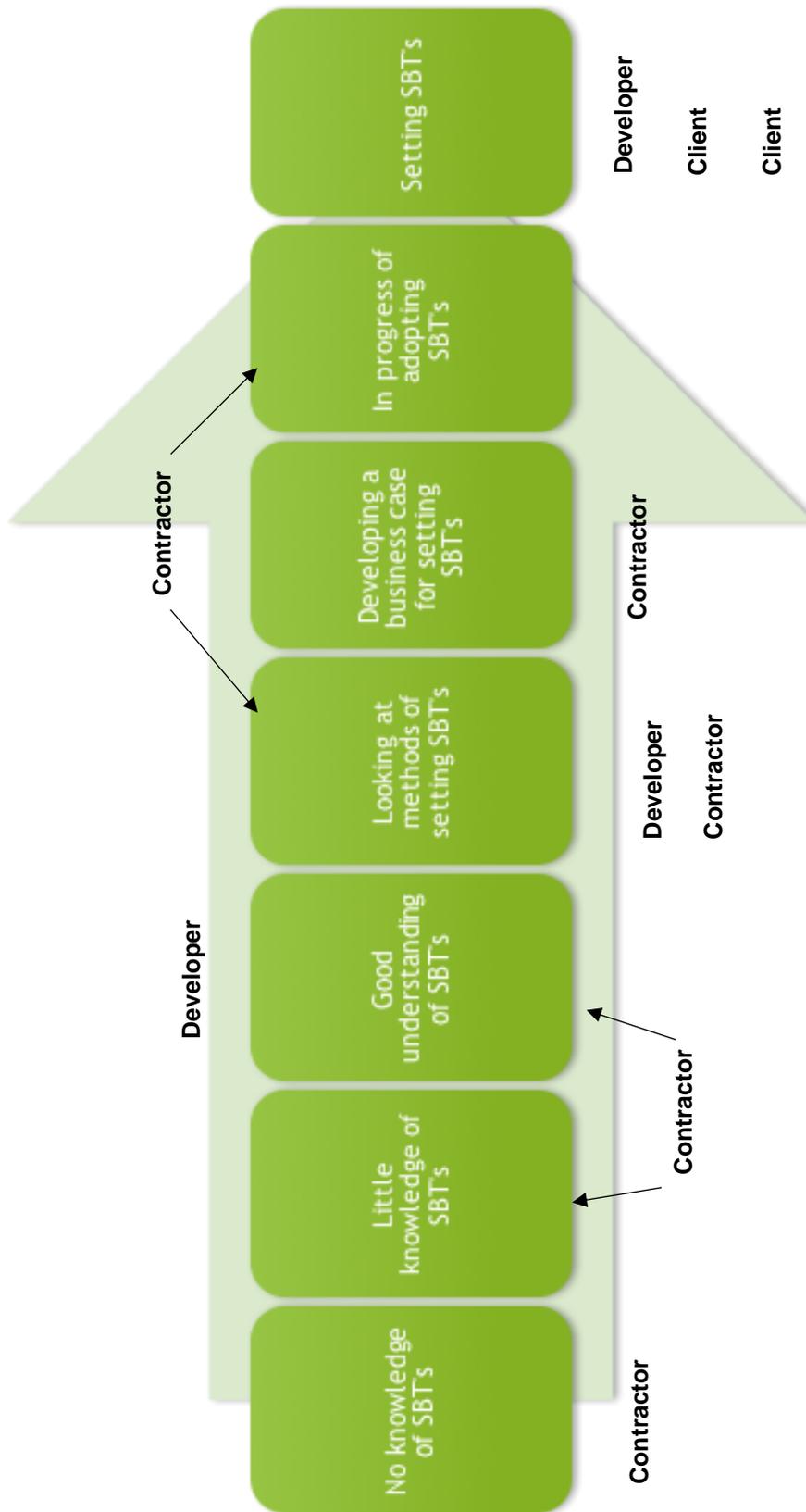
From the organisations interviewed, most (40%) are currently building their business case for setting SBT's in their organisation. Around 30% have already made their business case and presented it to their Chief Executive and Board, including Landsec. Several organisations, from all three sectors represented, are working on a feasibility study and looking at the accuracy of their data to build the solidarity of their existing data. This is to ensure the accuracy and reliability of data before setting such an ambitious target which will require detailed measurements. For example, Berkeley Group are looking at how their business case could be presented and the need for a pitch that won't be too technical, so all staff can understand and buy-into the target methodology.

4.3 Journey to setting SBT's

This section of the questionnaire aimed to gain a visual understanding of where the 10 large organisations are on their journey to setting SBT's. The results are plotted on flow chart and each organisation is labelled as per their sector.

Figure 1 demonstrates that the organisations interviewed are all at a different stage of their journey to setting SBT's. Even though, in section 4.2.1, 90% of the organisations said they are looking at science-based targets, this question revealed exactly where they are in the process.

Figure 1: Diagram showing progress of large organisations in setting SBT's



Overall, three large organisations have set science-based targets from the ten interviewed. It is clear to see that each organisations journey is business dependent, as there is no set way for one sector or the other. The process is well-understood to be complicated and requires looking at data accuracy before setting a target, which can also make it a long process. Also, the process defined above does not suit all organisations, as one contractor is looking at the methods of setting a SBT having already made the business case first.

On the other hand, one developer and contractor are at the earlier stage of looking at the methodology and data to help set out the business case for setting a SBT. Additionally, one contractor and developer are improving their understanding of SBT's and the process behind setting a target. Finally, one organisation (a contractor) has no knowledge of SBT's and is at the very start of their journey.

4.4 Business Drivers

The fourth section of the interview researched into the business drivers behind the organisations setting science-based targets. The areas these questions considered include; the reasons for looking at SBT's, the top business drivers for each organisation and if these drivers are recognised at the highest level (e.g. CEO level). Overall, this section aims to provide the detail in assisting other organisations with building a business case to set a SBT, by learning from other organisations lessons learnt and key drivers, that can be shared across the UK construction industry.

4.4.1 Reasons for looking at SBT's

The first question considers the reasons behind the large organisations committing to look at and potentially set a SBT. The top reason, with over 50% of respondents answering the same, is centred on setting 'meaningful targets'. Some organisations delved into this further by explaining that setting a reduction target has to be meaningful and impactful to actually make a tangible difference to the industry. If not, it won't be challenging and this can be seen in industry, as carbon is now high on the

agenda. Other contractors link SBT's to the effects of COP21 and doing their 'fair share' towards limiting climate change, which is also a risk to their business practices.

As this question was open-ended there are a wide range of reasons for setting SBT's, which are all business specific and dependent. Other reasons for looking at SBT's include; being driven by investors, empowering the business, predicting future legislation, cost savings, efficiency, leadership and the targets being a requirement of the client. All of these reasons are common amongst the clients, contractors and developers in the industry.

On the other hand, these reasons are not parallel to the drivers recognised earlier in the analysis. The top external driver by the organisations was focussed on reputation and internal drivers on cost reductions. This may be due to the interviewees being representatives of the sustainability teams within the organisations, that may have different reasons for looking at SBT's than the main drivers for the organisation (e.g. setting a meaningful target vs. reputation in the industry).

4.4.2 Top business drivers

Secondly, the interview asked the representatives what are the top 3 business drivers (also selling points) for setting SBT's in their organisation. The top driver recognised was reputation. This parallels with 4.1.3 which also recognises reputation in the UK construction industry as a driver for carbon reduction in general. Reputation is also crossed with credibility, as organisations targets will be seen as more credible and ascertain by setting a SBT, that has gone through a rigorous methodology and is a challenging target overall.

Other drivers followed closely behind reputation include; cost savings, reducing the organisations impact and strengthening the overall sustainability strategy. These four drivers could be summarised as the key selling points for any organisation in the UK construction industry to use in order to develop a strong business case for setting SBT's.

4.4.3 Drivers at the CEO Level

Lastly, the organisations were asked if the business drivers identified in 4.4.1 and 4.4.2 were recognised at the highest level, meaning the level of a CEO in an organisation. 60% responded that the drivers are recognised at this level, with 30% saying that at present, they are not recognised at this level (10% stated the drivers are not applicable at this stage). The organisations where the drivers are not recognised at the highest level, are those that are early on in their journey to setting SBTs, currently focussing on drawing together the business case to present to the CEO/Board.

4.5 Challenges

This section of the interview focussed on an open discussion around the challenges the organisations have faced or could face in their pursuit of setting a science-based target. The representatives from the sustainability teams of these organisations were well equipped to discuss the challenges as they would be a key player in the journey to set SBT's in their organisation, ranging from technical to business orientated challenges.

The biggest challenge identified by the organisations interviewed (from all three sectors) with over 60%, is the complex methodology and data that sits behind setting a SBT. For example, Landsec who have already successfully set a SBT, recognise that the methodology used to set their target is highly complex and requires expert assistance, as well as being able to communicate the methodology internally in way that is understandable to the majority. Those that are looking to set a SBT should therefore be prepared for complexity and be able to understand and communicate the approach taken to different groups of staff and investors.

Additionally, there are three challenges equally as important as they were recognised by the majority of organisations. These include; achievability of the targets, as many organisations are unsure how achievable the target will be once it is set. This is a risk to the business, but also a necessary risk to have a meaningful and calculated target,

to reduce the impact of the organisation. Capital expenditure and investment is also a great challenge, as with such a long-term challenging target, investment in technology, new construction methods or consultants will be required. Another key challenge is the change in mind-sets and behaviour needed to accompany the setting of SBT so the whole organisation buys into the target and its purpose for it to be achieved. This challenge is less tangible and requires drive from the top level to begin a change in processes and tradition, throughout the whole organisation.

Alongside these challenges, there are a number of other challenges that are more business specific but relevant to the construction industries sectors. These include challenges around; predicting and balancing business growth with carbon reduction, the accuracy of data, getting buy-in and measuring the scope 3 emissions of the organisation in order to set the target.

All challenges recognised are important for all sectors in the UK construction industry and should be recognised at the earliest opportunity to be able to tackle these challenges as they arise. Also, these challenges should be balanced with the large number of opportunities there are in setting a SBT, which could outweigh the challenges for some organisations.

4.6 Opportunities

The final section of the interviews with the large organisations focussed on a continuing discussion around the opportunities organisations have or will find when looking to set a SBT.

The two biggest opportunities for the organisations (over 50%) are leadership and cost savings/efficiency. These opportunities also match the internal and external drivers recognised in 4.1 and are huge opportunities for the organisations to be recognised as a leader in the UK construction industry, whilst reducing the operational costs as a business. One client recognised the importance of leadership, as the rest of the industry will follow those who are showing leadership and will drive the mass of

organisations to set a SBT in the UK construction industry. This won't just be large organisations, but also SME's and those that operate globally.

Additionally, there are three opportunities equally as important as they were recognised by the majority of organisations. These include; having a long-term vision, getting business buy-in and future work winning. Gaining buy-in from the business has been identified as a challenge and opportunity, as it will be difficult to change business practices and mind-sets internally, but the reward of doing so will be a huge opportunity for the organisation.

The other opportunities identified by the ten organisations also include; talent attraction/retention, carbon savings, improved stakeholder relations and getting ahead of legislation as a result of setting a SBT. All of the opportunities identified can counter-argue the challenges identified and provide a strong case for looking to set a SBT in the UK construction industry.

Overall, this chapter aggregates and analyses the responses from the ten large organisations interviewed in the UK construction industry. The six areas of focus have been broken down further to delve into the business drivers for reducing carbon, in order to build a business case for setting SBT's.

5. THE INFLUENCE OF NGO'S AND CONSULTANTS IN SETTING SBT'S

For this chapter, the research explores the responses from three well-known NGO's and consultants (third parties), including the Carbon Trust and BBP, working in the UK construction industry and their views on setting SBT's. Their opinions and views on SBT's will help to build the business case for organisations to set SBT's and the tools and influence they have to promote the new wave of target setting.

5.1 Carbon reduction in the UK construction industry

The start of the interview focussed on how the third parties currently view the status of carbon reduction in the industry. The areas looked at include; the importance of carbon reduction, carbon vs. the wider sustainability agenda and is the industry currently reducing enough carbon?

5.1.1 Importance of carbon reduction

The three third parties unanimously agreed that carbon is high on the agenda for organisations in the UK construction industry. This can already be seen through the leadership of some organisations since the Paris Agreement in 2015. The industry is moving ahead with reducing carbon and it will eventually be translated into policy for the mass to follow. BBP state that the built environment sector has been identified as one of the sectors with the greatest potential for cost effective mitigation measures, that policy is likely to be directed towards the sector and that there is a strong business case for action.

5.1.2 Carbon vs. the wider sustainability agenda

On the sustainability agenda, carbon is seen by the Carbon Trust as the highest environmental issue due to its association with high energy bills and carbon. Additionally, carbon is well recognised in financial terms and is a key factor in reaching

long-term sustainability.

On the other hand, the other third parties also recognise that other areas on the sustainability agenda link with carbon and are equally as important. For example, the growing agenda on health and wellbeing could take precedence over carbon, as there is a battle for space on connecting and competing issues.

5.1.3 Is the industry currently doing enough?

All third parties agree, at present, the UK construction industry is currently not doing enough to reduce carbon to a level to mitigate dangerous climate change impacts. The challenge is huge for the industry, but incremental change is needed in some cases, and dramatic change in others. One way of changing the industry will be if the majority of organisations set targets in line with science to make significant carbon reductions.

5.2 Science-based targets

For this section the third parties were questioned on science-based targets in the UK construction industry and their experience on the growth of these targets to date. The research delves into how their organisations first heard of SBT's, how they have developed and what role they play in encouraging large organisations to set SBT's.

5.2.1 Origin of SBT's

The concept of science-based targets has been in development over the last decade with the Science-Based Target Initiative (SBTi) starting to develop its methodology around 2013. The Carbon Trust has seen a large interest and demand from organisations to set SBT's since COP21. Since 2013, the consultancy has been part of the Technical Advisory Board for the Science-Based Target Initiative and specialises in technical support for setting a SBT.

BBP has also focussed on 'long-term target setting' for a few years, but not specifically SBT setting. The partnership has supported members looking to set long-term targets for the past three to four years and will continue looking at the various methods that can be used.

5.2.2 How have SBT's developed?

In the last one to two years, all third parties have seen an increase in the method of setting SBT's and the theory develop rapidly. The majority of organisations and research is now focussed on long-term target setting and it's link with science, which is now a reality for the UK construction industry. The Carbon Trust informed through the interview that with its technical expertise, has seen a huge demand and interest recently, with the majority of organisations undertaking feasibility studies before starting the official target setting process.

5.2.3 What role does your organisation play?

BBP, the partnership of the UK's leading commercial property owners, leads several working groups on long-term target setting. For example, a workshop was held with Landsec, who have set a SBT, around the methodology of setting a SBT. The role of BBP is to inform their members objectively and remain neutral on the technicality and methodologies behind setting a SBT.

The Carbon Trust plays the role of awareness raising through webinars, breakfast briefings and online reports to spread the message of SBT's across a range of industries. Additionally, the technical advisors work in detail with organisations on the technicalities and calculations for setting a SBT.

5.2.4 Methods of influence

All of the third parties interviewed use similar methods of communication and influence in spreading the message of SBT setting across the UK construction industry. These

include methods such as; newsletters, blogs, case studies, conferences (such as Ecobuild), workshops, social media and writing viewpoints.

5.3 Business drivers

The third section of the interview analysed the key business drivers identified by the third parties. Also, the questions look into the reasons why they think the organisations should look at setting SBT's and how they can get buy-in from their organisation.

5.3.1 Why should large organisations look at SBT's?

The third parties all agreed on the wide range of reasons that large organisations should look at setting SBT's. These include; reputation as there is an expectation for large organisations to be progressing in this area and they also have a responsibility as a business to change. Setting a SBT also demonstrates leadership as SBT's are the new way to set more rigorous and meaningful targets. These targets not only look to the 2050 horizon, but also in five to fifteen years' time and what is the organisations responsibility in the short term.

Managing risk is also a primary reason, as organisations will then be in a better position for any future legislation that will arise as a result of COP21 and the transition to a low carbon economy. Many organisations are not aware of the scale of the climate change agreement and are unsure on what it means for their business.

Thirdly, innovation is a key incentive as strategic organisational plans are looking ten to twenty years ahead and looking at innovation in reducing carbon and business practices will help provide direction.

5.3.2 How to get buy-in?

The third parties interviewed identify that a top-down and bottom-up approach is needed to get the most effective buy-in for SBT's into an organisation. The top-down

approach includes clear leadership and the need for the CEO and Board buy-in to drive the transition to low carbon practices, investment and capital that may be needed to make further reductions. Additionally, the bottom-up approach is equally as important as those responsible for achieving the target need to be part of the process.

5.3.3 Business drivers

The business drivers identified by the third parties are very similar to those identified by the ten interviewed organisations in the industry. These include the primary driver of cost reduction, but also with associated carbon reductions. Additionally, they identify risk management, competitiveness and increased efficiency. The moral imperative is also recognised as a driver which also links to reputation and a more focussed leadership style, as SBT's will become an expectation and investors will question why they are not looking at scientific targets.

5.4 Challenges

Similar to the interviews with the large organisations, the challenges of setting a SBT were also identified from a third party perspective. Specifically, BPP work within the commercial property arena and identify several challenges around; communication of SBT's, the complexity of the methodology and the need for senior management to fully understand the practicalities of setting a SBT and the change that is associated.

The Carbon Trust, with extensive experience in setting SBT's, identifies a challenge around the methodologies that can work for some organisations but not others. Different sectors in the industry will require different methods and also require different levels of buy-in from their organisation. The level of ambition is a challenge for organisations as they will need to be able to tackle the ambitious target. Lastly, scope 3 emissions are a challenge for most organisations to measure, in order to set a SBT. This will be the first hurdle for most when they assess their existing data and the data needed to set a SBT. Scope 3 emissions tracking in particular is difficult, as it relies on the supply chain for the data and not all are ready or up to date with the data

required.

5.5 Opportunities

Lastly, the interview concluded by analysing the opportunities large organisations can have by looking to set a SBT. Some of the broader opportunities include; risk mitigation, collaboration with the supply chain, gaining an advantage over policy makers and potential access to new business markets.

The Carbon Trust identifies four specific opportunities that large organisations may take up and use to form a business case for setting SBT's. Firstly, there is always a way of setting an SBT, due to the range of options available. As the concept and methodologies are quite new and recent, there may not be a suitable method of a specific sector yet. Part of the process is finding the right methodology with organisations. Secondly, the level of ambition is a huge opportunity for any organisation as they will reap the rewards of achieving the target and the associated cost and carbon benefits. Thirdly, setting a SBT is taking a responsible and meaningful approach. Lastly, the public and people working in the industry understand climate change and it can be easy to articulate what the target means compared to a general carbon reduction target.

BBP identify collaboration and knowledge sharing as an opportunity for organisations in the industry. Many organisations (large and small) can learn from those who have set a SBT, such as Landsec, and use their learning for their own process and business case.

Overall, this chapter summarises the responses of three third party NGO's and consultants working in the UK construction industry, and their views on setting SBT's. The insights from these external organisations will help develop the business case for any organisation looking to set a SBT.

6. CONCLUSION

“We have set a course here. The world has come together around an agreement that will empower us to chart a new path for our planet, a smart and responsible path, a sustainable path.”

(John Kerry, US Secretary of State, Paris Climate Agreement 2015)

The aim of this research paper is to provide an influential case of key drivers for large organisations in the UK construction industry, to set and adhere to, science-based targets. With the transition to a low carbon economy already happening, every industry across the world must adapt and transform to reduce its own carbon emissions and limit global warming to no more than 2°C.

As highlighted in the literature review, climate change related disasters have estimated to put 1.3bn people at risk by 2050 and \$158 trillion of assets. With this scale of risk, businesses will have to begin to set self-regulatory targets, such as SBT's, where legislation is lacking. A gap was identified in current research available, that demonstrates the business case for large organisations to set SBT's.

The five objectives set at the start of this report have all been achieved. These are demonstrated below in more detail.

1. The literature review outlines how global climate change agreements and UK climate targets relate to science-based targets.
2. Additionally, there is discussion into the role of the science-based targets initiative and campaigning groups that are driving science-based targets across the UK.
3. The ten interviews within the UK construction industry have identified large organisations key business drivers for setting science-based targets.
4. The analysis also delves into the challenges and opportunities large organisations will face when looking to set science-based targets.
5. Lastly, the report investigates how consultants, NGO's and campaigners are influencing large organisations to set science based targets through a number

of different methods.

The detailed interviews undertaken with large organisations in the UK construction industry demonstrated the key reasons of why they are currently looking at setting SBT's;

- They are being driven by investors;
- They empower the business;
- Getting ahead of future legislation:
- Cost savings;
- Associated efficiencies and;
- Showing leadership in the UK construction industry.

In addition, the interviews with the organisations have helped develop a strong business case, consisting of key drivers, for any organisation to use to set SBT's within their own business. The top three business drivers identified were;

1. Reputation/credibility;
2. Reducing the organisations impact and;
3. Cost savings

Alongside these drivers, there are a number of challenges and opportunities explored that will help prepare any organisation that may look to set a SBT. The challenges vary from; the complex SBT methodology, the achievability of the targets, capital expenditure needed upfront and changing mind-sets/internal behaviour. On the other hand, when making the case to set a SBT, organisations can use the long list of opportunities that present themselves. These include; showing leadership in the industry, cost savings, having a long-term vision, future-proofing the business, carbon savings, talent attraction/retention and getting ahead of legislation.

In conclusion, setting a SBT is a growing phenomenon that is rapidly being adopted worldwide by all industries. The method of setting a target in line with science is a certain way of ensuring your organisation is reducing its impact on the climate and doing so transparently. From only ten organisations, there is already a strong business

case to set a SBT in the UK construction industry and shows it is possible for all sectors. As a large carbon emitting industry, businesses will be under pressure both internally and externally to demonstrate how they will rapidly reduce their carbon emissions meaningfully and credibly to enable a sustainable future for the UK, and more crucially the world.

Secondly, the interview asked the representatives what are the top 3 business drivers (also selling points) for setting SBT's in their organisation. The top driver recognised was reputation. This parallels with 4.1.3 which also recognises reputation in the UK construction industry as a driver for carbon reduction in general. Reputation is also crossed with credibility, as organisations targets will be seen as more credible and ascertain by setting a SBT, that has gone through a rigorous methodology and is a challenging target overall.

Other drivers followed closely behind reputation include; cost savings, reducing the organisations impact and strengthening the overall sustainability strategy. These four drivers could be summarised as the key selling points for any organisation in the UK construction industry to use in order to develop a strong business case for setting SBT's.

Overall, it is clear that there is a significant gap in research around the business case for setting SBT's. This report begins to fill that gap and undertake first hand research into the business drivers for organisations setting these targets. Future research could carry on the aim and methodology of this paper to enable a greater sample of organisations to take part. Additionally, research could focus on certain aspects of the business drivers such as; leadership, reputation, cost savings and the overall impact of reducing carbon emissions through setting science-based targets.

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8. APPENDICES

Appendix 1: Data collection pro forma (for large organisations)

Organisation:

Name:

Role:

Consent to use of data

- All questions are voluntary; you do not have to answer any questions you do not want to.
- Your answers to the questions will be included in the final report that will be publicly available via the CIOB website and magazine from March 2018.
- Your answers will be seen by the representatives of the scholarship panel from the CIOB, WCOC, UCEM and the two other sustainability scholars.
- The interview will proceed on the basis that you are happy for your organisation to be associated with the data provided.
- Where this is not the case, please indicate how the data can be used either;
 - Data is used in an aggregate analysis, identified by sector only; or
 - Data only to be used. Organisation not to be associated the with the data.

1. Organisational approach to carbon reduction

1.1 How is carbon currently managed in your organisation?

1.1.1 Is carbon reported publically?

1.1.2 Is carbon part of regular reporting?

1.1.3 Is carbon reported up to board level?

1.2 How high on the agenda is carbon reduction for your organisation?

1.3 What are the biggest drivers for reducing carbon?

1.3.1 Internal drivers

1.3.2 External drivers

2. Why science-based targets?

2.1 Is your organisation currently looking at setting SBT's?

2.2 (If applicable), how did you come to hear of SBT's and their place in the UK construction industry?

2.3 (If applicable), how did or how will you present the case for setting SBT's in your business?

3. Your journey to setting SBT's

3.1 Where are you on your journey to setting SBT's? Please indicate on the scale below (see diagram on page 28).

4. Business Drivers

4.1 Why are you looking at setting SBT's in your organisation (or why did you look at setting SBT's)?

4.2 What are your top business drivers for setting SBT's?

4.3 Are these drivers recognised at the highest level? (e.g. CEO/ Senior Management)

4.4 (If applicable), does your organisation already recognise the case for setting SBT's?

5. Challenges

5.1 (Have you) or can you foresee any challenges you or your organisation may face when looking to set SBT's?

6. Opportunities

6.1 (Have you) or can you foresee any opportunities you or your organisation may face when setting SBT's?

Appendix 2: Data collection pro forma (for consultants/NGO's)

Organisation:

Name:

Role:

Consent to use of data

- All questions are voluntary; you do not have to answer any questions you do not want to.
 - Your answers to the questions will be included in the final report that will be publicly available via the CIOB website and magazine from March 2018.
 - Your answers will be seen by the representatives of the scholarship panel from the CIOB, WCOC, UCEM and the two other sustainability scholars.
 - The interview will proceed on the basis that you are happy for your organisation to be associated with the data provided.
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1. Carbon reduction in the UK construction industry

1.1 How high on the agenda do you think carbon reduction is for large organisations in the UK construction industry?

1.2 How does carbon reduction compare to other 'sustainability' topics or focus areas?

1.3 Are organisations currently doing enough to reduce carbon in the UK construction industry?

2. Science-based targets

2.1 In your organisation, when did you start to focus on SBT's and where did you hear about them?

2.2 How have you seen them develop from your organisations point of view?

2.3 What role do you play in encouraging large organisations to set SBT's?

2.4 What methods do you use to influence large organisations?

3. Business drivers

3.1 Why should large organisations look at setting SBT's?

3.2 What do you think is the most effective approach to getting internal buy-in (top down or bottom up)?

3.3 What do you think the business drivers are for setting SBT's? (e.g. reputation, cost saving, moral imperative)

4. Challenges

4.1 What challenges do you face when communicating to or influencing large organisations to set SBT's?

5. Opportunities

5.1 What opportunities can you provide for large organisations looking to set SBT's?