How does a business behave and how do we measure that behaviour – some challenges, approaches and findings

Michelle McGuire, Databuild Research and Solutions Limited

ABSTRACT

As increasingly more campaigns and initiatives seek to change business behaviour with regards to energy and the environment, it is important to understand the effects that they are having. This paper discusses what we mean by ‘behaviour’ in a business context and the challenges in measuring it, by examining a behaviour change project in the United Kingdom. The Waste and Resources Action Programme (WRAP) helps individuals, businesses and local authorities to reduce waste and recycle more, making better use of resources and helping to tackle climate change. On behalf of WRAP, we developed a methodology for measuring business behaviour change amongst the audience groups that WRAP is working with and to provide a baseline of current business behaviour. There were a number of conceptual and methodological challenges in the development of this methodology, including the following:

1. How to define behaviour in a business context?
2. How to ensure that the research captured what businesses are really doing?
3. How to measure behaviour in this area?

In meeting the project challenges, we employed a number of innovative methodological approaches and research techniques that are discussed in this paper. We also highlight some key findings about what businesses are actually doing to address waste and resource efficiency issues and the drivers behind these initiatives.

Introduction

As increasingly more campaigns and initiatives seek to change business behaviour with regards to energy and the environment, it is important to understand the effects that they are having. This paper discusses what we mean by ‘behaviour’ in a business context and the challenges in measuring it by examining a behaviour change project in the United Kingdom. The Waste and Resources Action Programme’s (WRAP) vision is a world without waste, where resources are used sustainably. WRAP works with businesses and individuals to help them reap the benefits of reducing waste, develop sustainable products and use resources in an efficient way. Established as a not-for-profit company in 2000, WRAP is backed by government funding from England, Scotland, Wales and Northern Ireland. The programme’s impact has historically been measured in terms of environmental benefits, e.g., tonnes of carbon saved. However, the 2008-2011 Business Plan marked a shift towards setting explicit goals around changing behaviour, both of individual consumers and of businesses. This required an approach to measuring that behaviour change.

On behalf of WRAP, we developed a methodology for measuring business behaviour change amongst the audience groups that WRAP is working with and to provide a baseline of current business behaviour. There were a number of conceptual and methodological challenges in the project, including the following:

• How to define behaviour in a business context? For example, there were numerous discussions around whether an “organisation” can be said to behave or whether an organisation’s behaviour is made up of the behaviours of its staff.
• How to ensure that the research captured what businesses are really doing with respect to the environment and not what they want us to think they are doing?

• How to measure behaviour in this area? WRAP required a tangible benchmark of behaviour in order to set programme goals; they also required some understanding of what was driving that behaviour in order to influence it.

In meeting the project challenges, we employed a number of innovative methodological approaches and research techniques:

• Sampling business people (in particular roles) rather than organisations, as we understand business behaviour to be undertaken by people in a business not by the organisation.

• Incorporating questions to validate people’s claims about their behaviour.

• Analysis to segment WRAP’s audiences into six groups dependent on their environmental behaviour, allowing WRAP to set a benchmark of behaviour and the means to target particular groups.

In this paper, we draw conclusions in two areas:

• Research techniques to measure business behaviour – these need to capture behaviour at all levels of the business as there are differences between the behaviour of those with strategic responsibility and the behaviour of those with operational responsibility.

• What businesses are actually doing to address waste and resource efficiency issues and the drivers behind these initiatives – reputation, cost and making environmental impacts.

Context

Like a number of programmes encouraging environmental improvements amongst businesses, up to 2008, programme delivery at WRAP was carried out by sector teams. WRAP, therefore, had staff who were responsible for the support delivered to each sector (e.g., retail, agriculture, manufacturing, etc.). Each team targeted messages and services at their own sector. However, there was some degree of overlap among the sectors. For example, whilst the retail team talked to supermarkets to encourage them to use less packaging, the manufacturing team also talked to packaging manufacturers about using less packaging in their supply to supermarkets. This resulted in potential inefficiencies in programme delivery as two different teams were talking to the same supply chain with similar messages. There was also the potential for businesses to be confused in the messages that they were receiving.

In order to resolve some of these issues, in 2008, WRAP started to move away from a sector-based approach to programme delivery to an audience-based approach. The following audiences were defined:

1. The retail supply chain (including businesses in the retail and manufacturing sectors).

2. The construction supply chain (including construction clients, architects and contractors).

3. Recycling and reprocessing.

4. Agriculture and horticulture.

This change in approach essentially involved targeting supply chains rather than individual sectors. For example, the retail and manufacturing sector were combined and were targeted as ‘the retail supply chain’. Therefore, following the example above, the same team would be working with both supermarkets and packaging manufacturers, enabling a joint approach to delivering support to these businesses.
There are different ways in which the programme can measure the success that it has had in influencing businesses in each audience to reduce and recycle more. Tangible outcomes of the programme’s success are the tonnage of waste diverted from landfill, CO₂ emissions equivalent saved, and economic benefits to businesses. However, there may be a time lag between programme activity and realisation of these tangible outcomes. Less tangible, is the ability of the programme to influence activity that may, in the longer term, result in these tangible outcomes – what could be termed environmental ‘behaviour’. As a result, business behaviour change, along with consumer behaviour change makes up one of WRAP’s high level targets for its business plan 2008-11. The aims and objectives of this research were to:

1. Devise an approach to measuring business behaviour change between the start and end of the business plan period (April 2008 and March 2011).
2. Carry out a telephone survey to set a baseline for business behaviour.

There are intentions to repeat the research at the end of the business plan period (2011) to review progress. Therefore, the research has been devised as repeatable. This research was specifically concerned with the behaviour that WRAP is trying to influence amongst the businesses that it is trying to influence. The research is, therefore, not an indication of all environmental behaviour undertaken by all businesses.

**Defining behaviour in a business context**

The starting point for the methodology was a piece of research carried out by WRAP measuring consumer behaviour in the areas in which WRAP is working. This measured the proportion of consumers undertaking the behaviour encouraged by WRAP e.g. recycling or buying peat free compost. However, this approach was not directly transferable to businesses. Businesses are heterogeneous with a more complex decision making structure than consumers. WRAP also has different messages for different businesses – but communicates to all consumers in a similar way. In order to measure business behaviour, it was essential to define, in consultation with WRAP, what is meant by business behaviour? Through consultation with WRAP, behaviour was defined as follows:

- **Firstly, behaviour is undertaken by individuals not organisations.** A business does not behave; it is the individuals within that business who behave. Except in the very smallest businesses, there is a range of individuals responsible for business behaviour; for example, top managers may set strategy, but the action will be determined by departmental, project or site managers who will be influenced by and will interpret that strategy. It is unlikely that one person can answer for the whole organisation. In addition, the business behaviour that WRAP is encouraging depends on sectors and roles within the organisation. As examples, WRAP encourages good waste management practices in the construction sector, but this is not a behaviour that WRAP is specifically encouraging amongst retailers. With regards to roles within the organisation, those with a strategic role in the organisation can do different things in the businesses to change their use of materials and recycle more things and more often than those in procurement. This understanding had the two implications for our research. Firstly, the research was undertaken with individuals rather than businesses and secondly the research sought to test different behaviours according to industry sectors and roles within the organisation. Four relevant roles were identified: (1) **Strategic**, – directors, owners and managers making decisions about the strategic direction of the business; (2) **Design** – individuals with responsibility for designing products or packaging; (3) **Procurement** – individuals making purchasing decision; and (4) **Operations**, – individuals working ‘on the ground’ that make tactical decisions concerning the use of raw materials and the disposal of waste. We worked with the WRAP programme teams to identify the individuals that they are trying to influence within a particular business and to establish the
level within the business where the decision will be made. For example, we interviewed top management about strategic commitments, project and site managers about reducing waste, and procurement managers about increasing recycled content.

- **Behaviour is active and current.** Businesses’ behaviour is active: something that can be done, not an attitude or knowledge of something. It is also currently being taken, not something that was done in the past or an intention to do something now or in the future. The implications are that the behaviours tested in the research were actual actions that individuals could currently be undertaking.

- **Behaviour is can be taken to a greater or lesser extent.** WRAP promotes a range of actions to businesses: these range from major strategic commitments, such as signing up to the Courtauld Commitment¹, to tactical actions, such as making more use of recycled materials. Businesses can implement them partially in an individual site or project or throughout their business. The actions can, therefore, be ambitious, really stretching the business, or be less demanding. Thus, a simple approach of counting actions does not adequately reflect the extent of behaviour change. The approach for this survey took account of the fact that actions could be undertaken to a greater or lesser extent, in whole or in part.

**Defining behaviours**

Behaviours were identified in discussion with the WRAP sector teams. These discussions sought to clarify with each sector team who they were working with over the next business plan and (i.e., whose behaviour were they seeking to influence) and what they were trying to get these people to do (e.g., use materials with recycled content, or re-use materials). With respect to who they were working with over the business plan, we sought to understand the types of businesses that they would be working and the roles of the individuals within those businesses that they would be working with. From these discussions, we short-listed behaviours for each sector. In choosing and refining the appropriate behaviours, we aimed to:

1. Ask respondents about no more than seven or eight behaviours,
2. Keep language simple and understandable, and
3. Focus behaviours so that they measured only one action (e.g., asking about whether respondents set targets for recycling, not whether they set targets for recycling and resource efficiency).

This process required considerable thought and engagement. As discussed, behaviours needed to be related to individuals, active and current, and capable of being undertaken to a greater or lesser extent. In other words, we needed to collect data on measures that are actually being taken as well as the extent to which they are being taken. This was challenging. In developing the behaviours, we often found ourselves describing an increase in awareness or knowledge rather than actual behaviour. Where we settled on actual behaviour (rather than awareness or knowledge behavior), we often found we were talking about a simple ‘yes’ or ‘no’ rather than something scalable. For example, ‘Do you have a strategy?’ in the case of strategy development.

One way of ‘testing’ the behaviour was to preface it with the statement ‘to what extent do you’. ‘Do you’ tests whether it is something that can actually be done (i.e., it is active and current.). ‘To what extent’ tests whether the behaviour can be capable of being done in whole or in part.

¹ The Courtauld Commitment is a voluntary agreement between major retailers and brand owners aimed at improving resource efficiency and reducing the carbon and wider environmental impact of the grocery retail sector.
These behaviours were subject to much discussion between the project team and the programme delivery team at WRAP before they were even piloted. We needed to ensure that the behaviours that were being tested in the research were those that WRAP would be encouraging throughout the business plan. The programme delivery teams at WRAP also found value in articulating and documenting the behaviours.

**Capturing ‘real’ behaviour**

The behaviours were measured through a quantitative telephone interview using a Computer Aided Telephone Interviewing (CATI) system with a sample of the types of businesses that WRAP was intending to work with over the business plan. The same approach was taken to measuring each behaviour; respondents were asked whether they were undertaking a particular behaviour.

In asking respondents about their current behaviour, we are relying on them to tell the truth. Our concern was not that respondents were fundamental liars, but that there may be a tendency amongst some to claim to be doing more than they actually are (this issue is typically referred to as “the social desirability bias” and is a problem associated with self-reporting). As we were listing undeniably good behaviours, respondents may feel obliged to say that they are doing more than they are so as not to ‘look bad’. Therefore, where respondents claimed to be undertaking behaviours, steps were taken to obtain more information on the behaviour. Respondents were asked to provide an example of the behaviour that they claimed to be undertaking. Responses were categorised as:

- Supported – if the respondent could provide a current, relevant example
- Questionable – if the respondent provided an obscure example (these data were then examined by a senior member of the research team to determine whether or not they should be classified as supported)
- Not supported – if a respondent would or could not provide an example of the behaviour or if that they had provided.

This approach worked in two ways. Firstly, it clarified whether respondents had understood what we were asking them. For example, the behaviour that the respondent was discussing may have been different to the one that was being asked about, enabling the researcher to recode correctly. Secondly, it showed where respondents were not actually doing the behaviour yet. When asked for an example, some respondents described a wish or an intent rather than gave an example of the action. In these instances, the behaviour was not supported, and the respondent was not recorded as having undertaken that behaviour. However, the respondent was not challenged on their behaviour and was not told that we thought they weren’t actually undertaking the behaviour.

**Constructing the sample**

The aim of the survey was to establish a baseline from which to measure the change in the behaviour of businesses that would be targeted by WRAP in the 2008-11 business plan. Thus, the sample reflected the businesses that WRAP would be working with over that period, rather than those that WRAP had worked with previously.

WRAP does not have complete databases of the businesses that it targets or has worked with. Therefore, we were required to construct a database of WRAP’s target market in each sector. We worked with the WRAP project teams to identify the profile of their target markets, in order to define the overall business population that WRAP would be trying to influence. The desired sample was then constructed to reflect this population.

We established different independent data sources from which we could obtain suitable databases. These included commercial databases (defining markets by size and industrial classification codes), members of trade associations and subscribers to particular publications. The
sample populations were chosen to ensure that the survey approach could be repeated i.e., the populations followed clear definitions. As a random sample of WRAP’s target audiences, the baseline sample included both users and non-users of WRAP services.

As noted above, the aim of the survey overall was to provide a baseline from which changes in behaviour can be identified at the end of the Business Plan period in 2011. The data needed to be sufficiently accurate for WRAP to be confident that any changes found would be real rather than due to sampling error. Considering the importance of this piece of work and the need for accurate data, the total sample contained 3,400 individuals. With two samples of this size, a difference of more than two percentage points would indicate a real change rather than a change due to sampling error. The sampling approach provided substantial samples in each of the different audiences (i.e., retail supply chain, agriculture and horticulture, etc.), business sectors (e.g., different types of manufacturing organisations, different types of retailers) and roles (i.e., strategic, design, procurement and operations). The sampling approach also ensured that, where possible, comparisons could be made between businesses in England, Scotland, Wales and Northern Ireland.

An example

As an example, we have included the behaviours that were tested with the agriculture and horticulture audience and how that audience was defined. There are two sectors in the agriculture and horticulture audience: arable farmers and crop consultants. The population for the audience was defined in consultation with the programme team for this sector - using both standard industrial classification codes and an existing database used by WRAP (Table 1).

Table 1. Sample for agriculture and horticulture audience

<table>
<thead>
<tr>
<th>Audience</th>
<th>Sector</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>Arable farmers</td>
<td>Top 800 farmers in SIC codes 0112 and 0113 (excluding mushroom growers)</td>
</tr>
<tr>
<td></td>
<td>Crop consultants</td>
<td>Crop consultants on the database developed for WRAP’s compost workshop research.</td>
</tr>
</tbody>
</table>

The targeted respondent was also defined (Table 2).

Table 2. Respondent for agriculture and horticulture audience.

<table>
<thead>
<tr>
<th>Audience</th>
<th>Sector</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>Farmers</td>
<td>Business owner or manager</td>
</tr>
<tr>
<td></td>
<td>Crop consultants</td>
<td>Named respondent from database</td>
</tr>
</tbody>
</table>

The behaviours tested with this audience reflected the behaviours that WRAP was encouraging with the audience (Table 3).
Table 3. Behaviours for agriculture and horticulture audience.

<table>
<thead>
<tr>
<th>Audience</th>
<th>Sector</th>
<th>Behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>Farmers</td>
<td>– Manufacture quality-assured compost to British Standard PAS 100 for use by farmers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Manufacture and sell quality-assured compost manufactured to British Standard PAS 100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Purchase and use quality-assured compost manufactured to British Standard PAS 100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Purchase and use anaerobic digestate</td>
</tr>
<tr>
<td>Crop consultants</td>
<td></td>
<td>– Advise farmers to purchase and use quality-assured compost manufactured to British Standard PAS 100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Advise farmers to purchase and use anaerobic digestate</td>
</tr>
</tbody>
</table>

Measuring behaviour

We developed a metric for measuring business behaviour based on business sector, therefore reflecting the way in which WRAP works. The metric went from doing nothing to always doing everything and was constructed from data on both the frequency and scale of behaviour:

- Frequency was measured with the following question: *Now thinking about this behaviour area, which statement best describes the frequency with which you undertake behaviour in this area:*
  - I do this behaviour every time there is the opportunity to
  - I do this behaviour sometimes
  - I do this behaviour rarely.

- Scale was measured with the following question: *Which statement best describes the extent to which you undertake this behaviour on each occasion:*
  - I do all I reasonably can in this area
  - I do a lot of what I can in this area
  - I do some of what I can in this area
  - I do a little of what I can in this area
  - I do the minimum in this area.

The data were used to calculate a business behaviour metric for each sector. The following process was used to calculate this metric:

1. A score was calculated for each respondent from their responses to the questions on frequency and scale. The responses to questions on the frequency with which a behaviour was undertaken and the scale to which a behaviour was undertaken were assigned a value as shown in Table 4.
Table 4. Scores for calculating business behaviour metric

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Value</th>
<th>Scale</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>All the time</td>
<td>3</td>
<td>All I reasonably can</td>
<td>5</td>
</tr>
<tr>
<td>Sometimes</td>
<td>2</td>
<td>I do a lot of what I can in this area</td>
<td>4</td>
</tr>
<tr>
<td>Rarely</td>
<td>1</td>
<td>I do some of what I can in this area</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I do a little of what I can in this area</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I do the minimum in this area</td>
<td>1</td>
</tr>
</tbody>
</table>

Where the behaviour has been implemented, a score was calculated by multiplying the value of the response for frequency by the value of the response for extent. For example, if someone said that they sometimes took a particular behavior a lot, then they received a score of 8 (=2 x 4).

Where respondents had not implemented the measure they were assigned the following scores:
- Five – if they were planning to implement the behaviour
- Two – if they were aware of the behaviour, but did not currently implement it and were not planning to
- Zero – if they used to undertake the behaviour or had not thought about it.

2. A total behaviour score was calculated for each respondent by summing the scores for each of the behaviours that they could have implemented.

3. Scores were ranked and used to determine six behaviour groups. Respondents were assigned into behaviour groups (one to six) according to their score. Those with the maximum score were assigned into group one, and those with the minimum into group six. The bands for groups two to six were of equal value. The grouping was based on Rogers’ diffusion on innovation groups (Rogers 1995):
   - Group 1: innovator – respondents in this group have had a maximum behaviour score (i.e., they were doing all of the behaviours all of the time)
   - Group 2: early adopter - respondents in this group were doing almost everything, but one or two behaviours were not fully implemented
   - Group 3: early majority - respondents in this group had either implemented half the behaviours in full or were doing most of the behaviours to only some extent
   - Group 4: late majority - respondents in this group were likely to have implemented only one or two of the behaviours
   - Group 5: laggard - respondents in this group were unlikely to have done any of the behaviours, but may have been aware of them or planning to implement them
   - Group 6: uninformed - respondents in this group were doing none of the behaviours encouraged by WRAP.

4. Data were then weighted according to both sector and role. For example, the sample respondents in strategic roles in construction organisations were weighted to the estimated population of respondents in strategic roles in construction organisations.
5. Results were been presented in bar charts illustrating the proportion of the population in each behaviour group. A hypothetical example is provided (Figure 1).

![Bar chart showing the proportion of audience in each behaviour group]

**Figure 1:** Behaviour metric for an example audience (2008) (sample=100; Population = 1,000)

**Gathering insight**

Respondents who had implemented behaviours (either in full or in part) were asked about the drivers for implementing that behaviour (i.e., the reasons why they started to undertake that behaviour). Similarly, respondents who had not undertaken a behaviour were asked the reasons why in order to identify obstacles to undertaking that behaviour. A series of demographic questions were also included in the questionnaire to enable further analysis. These included data on organisation’s size, location and, where appropriate, customer profile. Questions were also asked to determine whether or not respondents had heard of or used the services provided by WRAP. These data allowed us to characterize each of the behaviour groups in each audience (e.g., innovators, early adopters, etc.) and to talk about the obstacles and drivers for behaviour in each of the behaviour groups.

One of the outcomes of these additional questions was the ability to characterize the supply chains that WRAP was working with (Figure 2), to understand to what extent different organisations in the supply chain were a driver or obstacle to business behaviour. This assists WRAP to determine whether different organisations in the supply chain can be used to encourage behaviour.
Assumptions and limitations

There were a number of assumptions and limitations of the methodology. Firstly, as with all surveys, the results rely on the assumption that the sample is representative of the population. Every attempt has been made to ensure that this is the case and, as far as we are aware, there is no significant bias among the respondents. Secondly, the methodology is built on the assumption that the populations used reflect the actual target market for WRAP over the next business plan. In the future, if WRAP targets individuals not covered in the sampling approach used here, it is possible that any behaviour change in this area will not be reflected in any follow-up surveys. Thirdly, in asking respondents about their current behaviour, we are relying on them to tell the truth. Although steps were taken to support their responses on their behaviour, responses were not audited through site visits (“onsite verification”). There is, therefore, a possibility that respondents have over or under claimed their behaviour. Fourthly, where we spoke to respondents in a strategic position and they did not want to engage in the research, it was assumed that they were not undertaking any of the behaviours encouraged by WRAP at this level of responsibility². Lastly, where organisations did not have someone responsible for the design of their products within their business, it was assumed that they were not undertaking any of the behaviours encouraged by WRAP at this level of responsibility. In the majority of cases, this was the situation where product design was undertaken by an external consultancy. Product design consultants were interviewed as a separate sample.

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² This may have excluded higher level people who were simply to busy to take part in the research. This could be detected by checking for non response bias. However, as fewer than thirty respondents were in this group, we do not believe that this has a significant impact on the results.
Results

Business behaviour can be measured

The first finding really relates to the methodology – did it work? Broadly, the methodology was successful, and business behaviour can be measured. Through the project, we developed a practical approach to data collection that was sufficiently objective whilst maintaining sensitivity to the different circumstances of the people whom were interviewed. We also developed an approach that could generate indicators of behaviour, thus making behaviour quantifiable and found that the combination of quantitative and qualitative research (i.e., the hard numbers on with regards to the indicators and the insights in barriers and benefits) made for the strongest evaluation.

We highlight some aspects of the process that enabled the methodology to be developed:

1. **Shared vision.** It was very clear from the beginning of the process what the study was trying to achieve, and both the client and us shared that understanding. This helped in decision-making throughout the project, as decisions could be made in the context of whether or not they helped the project to achieve the vision.

2. **Flexibility in the project approach and planning process.** Research is always a learning process as you don’t really know what you are going to find out before you start – hence, the need for the research. However, with this project, the learning curve was steep. At each step, we learned and discovered information that encouraged us to change and improve the approach. We were given sufficient flexibility to adapt the approach through the process as we learned more.

3. **Full engagement.** The team at WRAP were fully engaged with the research and were committed to a successful outcome. As a result, we were able to engage with a wide range of the programme delivery team at WRAP to inform the methodology, check outcomes and gather insight from the analysis.

How are businesses behaving?

Through the research, we learned about how businesses are behaving and the drivers and obstacles to that behaviour. As the results are confidential, this paper only covers some of the broad themes.

1. Although most groups in the audiences WRAP is working with are doing something, only a minority of groups are implementing the business behaviours that WRAP is encouraging in full.

2. Those in operational and strategic roles are undertaking more of the behaviour encouraged by WRAP than those in procurement and design roles.

3. The key drivers behind those undertaking the behaviours encouraged by WRAP are reputation, cost and making genuine environmental impacts. Most of the behaviour is driven by the potential reputational benefits; if there is a marketing or corporate social responsibility benefit in considering material efficiency and recycling, then this is incorporated. Those with strategic and operational roles are cost driven, recognising the cost benefits of implementing behaviours such as recycling and reducing waste (which reduces landfill tax and the amount of materials used). Individuals with strategic responsibilities are also influenced by their clients or customers’ interests in the environment. Businesses with environmental standards want work to be completed to these standards. Consumers desire to enhance or maintain their reputation through meeting consumers’ expectations in terms of environmental and resource efficient behaviour.

4. The key obstacle to undertaking the behaviours encouraged by WRAP is a perception that there is not an opportunity to implement the behaviour or that it will have a negative impact
on the quality of the product or service. Those with design and procurement responsibilities, in particular, do not feel there is always the opportunity to implement behaviours (for example, in procurement, there is a perception that some of the products that they need to buy cannot be recycled). There are also perceptions about the potential costs of purchasing materials or resources that have an environmental benefit.

5. Behaviour with regards to resource efficiency is not integrated throughout organisations (e.g., people in a strategic role may be implementing a policy to get something done, but this is not being followed through in the organisation). To illustrate, a high percentage of those with strategic responsibility in construction organisations are specifying policies in relation to the efficient use of materials, reuse and recycling. However, a much smaller percentage of those with design responsibilities are specifying the use of materials that can be recycled.

6. From a methodological point of view, the methodology used in this study confirms the approach to sample on a role-by-role basis rather than on an organisational basis, as there is no evidence of an organisational approach.

The results highlighted a number of opportunities for WRAP. Recently, the WRAP strategy has targeted specific audience segments which have the greatest impact on delivery and who can influence the rest of the supply chain. The results helped them to understand how each level in the supply chain works with the next level and if this breaks down at any point. This analysis also allowed us to identify the best place to leverage further behaviour change.

As there appear to be differences between the behaviour of people in different sectors and between the behaviour of people with different responsibilities, it is also appropriate for WRAP to adapt messages for different roles within the audience, to explain the business benefits of the behaviour they are encouraging within the context of their different roles and sectors. As the research looked at the drivers and obstacles to implementing each behaviour, we were able to make recommendations about where there was potential for greater implementation of a behaviour, in which segment of the market this potential existed, and what would be the relevant messages to encourage this behaviour.

Conclusion

Research techniques to measure business behaviour need to capture behaviour at all levels of the business, as there are differences between the behaviour of those with strategic responsibility and those with operational responsibility. Researchers also need to take account of the fact that behaviour is active, current and scalable. However, underlying any attempt to measure behaviour has to be a very firm understanding of what behaviour you are trying to measure.

Individuals in businesses are undertaking behaviour with regards to resource efficiency that is driven by maintaining and improving their reputation, saving costs and making genuine environmental impacts. Whilst most people are doing something, there are opportunities to improve resource efficient behaviour amongst businesses. This research suggests that individuals in businesses will undertake resource efficient behaviour if it is clearly seen as resulting in improving their reputation, saving costs and making genuine environmental impacts.

References