

The diffusion of environmental behaviours; the role of influential individuals in social networks

Report 1: Key findings

A research report completed for the Department for Environment, Food and Rural Affairs by Brook Lyndhurst.

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1 Introduction

Brook Lyndhurst undertook a research programme on behalf of Defra under the lengthy title “Investigating mavens with regard to environmental behaviours and the linkages between mavens, social norms, identity and trust for mainstream consumers”. Defra’s principal research objectives were three-fold:

- to investigate how the concept of ‘mavens’ is applicable when considering pro-environmental behaviours;
- to identify how mavens operate, their motivations, key attributes, and information sources, as well as whether those around them are conscious of their influence;
- to assess how mavens may fit with our existing understanding of the more familiar factors influencing environmental behaviour change of self-identity, social networks and social norms, as well as the role of trust.

The research programme comprised:

- an extensive literature review, drawing on nearly 500 sources from social psychology, economics, marketing theory and practice, network theory, diffusion theory and environmental behaviour change;
- a compact programme of interviews with marketing professionals with experience of promoting environmental goods and services;
- a series of in-depth interviews with members of the general

public, identified as ‘catalytic individuals’ and recruited using novel techniques.

Running alongside and interwoven with the research was a series of interim reports, brainstorming sessions, steering group discussions and ongoing dialogue between the Brook Lyndhurst research team, our project partners Opinion Leader and Dr Julie Barnett of University of Surrey, and our research managers at Defra.

We have presented our results in two reports. The second report, “Evidence”, presents the full details from all three research strands, together with our overall analysis, conclusions and detailed appendices.

This first report, “Summary”, does not merely present a summary of the evidence report. We were very mindful in planning and then preparing this document of a number of factors:

- several of the issues covered by or raised in our research will be novel for many readers;
- the issues covered by our research are ‘non-linear’ – they are interdependent, and there is no natural starting point for any given analysis or presentation;
- given the length and depth of the evidence report, we judge that few people will have the opportunity to read it in full.

We therefore decided that an innovative approach was called for. Rather than provide a traditional bullet point version of the full report, the summary adopts a narrative style. Our hope is that, for the reader

unfamiliar with, for example, the background theory on diffusion of innovations, and who will not subsequently have the opportunity to read the evidence report, this summary provides an engaging and accessible journey towards the conclusions we derived from the research.

For the reader wishing to understand the references made, or who is looking for more detail, or who wishes to explore the evidence report in more depth, we have presented a series of links and comments in a column alongside the main body of the text.

Our hope is therefore that both types of reader will be able to use this summary report as they wish. Given our overall conclusions – that catalytic individuals, found in social networks throughout the country, have the potential, through the things they say and the things they do, to accelerate the uptake of pro-environmental behaviours – our hope is also that the findings of this summary themselves diffuse widely.

Full statements of method, acknowledgements, references and so forth are provided in the evidence report.

2 Summary

NOTE 1 Particular attention is paid to this area of research in part 1, chapter 4.4 of the 'evidence' report.

NOTE 2 "The Tipping Point: How Little Things can make a Big Difference", Malcolm Gladwell, 2000

NOTE 3 "Triggering Widespread Adoption of Sustainable Behaviour", published as part of "Behaviour Change: A Series of Practical Guides", available at: http://www.defra.gov.uk/science/project_data/DocumentLibrary/SD14006/SD14006_3804_INF.pdf

The term 'market maven' was introduced by the researchers Feick & Price in 1987. In "The Market Maven: A Diffuser of Marketplace Information" they formalised the idea of a maven as:

"an individual who has information about many kinds of products, places to shop, and other facets of markets, and initiates discussions with consumers and responds to requests from consumers for market information."

Feick & Price's work became widely used in marketing literature over the following years, and spawned a variety of further researches,^{NOTE 1} exploring the psychology and characteristics of mavens, their behaviour, their propensity to find certain things interesting, and the extent to which they can be found in different settings.

Much of this research remained within the confines of the marketing literature, and it seems that it was not until the publication of "The Tipping Point" in 2000^{NOTE 2} that the term 'maven' began to develop a wider currency. In "The Tipping Point", Gladwell explained how social trends spread through society like contagions. Instrumental to the spread of these contagions, he argued, are three particular kinds of individual:

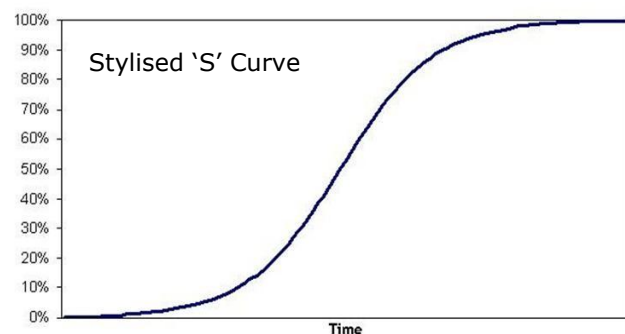
- connectors – individuals with lots of social contacts;
- salesmen – people with persuasive skills; and
- mavens – people with specialist expertise and knowledge.

Gladwell used numerous examples to show how, when these three types of individual interact in a

particular way, social changes sweep through society 'of their own accord'. The book caught the attention of the political, chattering and reading classes. "The Tipping Point" sold more than two million copies in the United States alone, and received enthusiastic endorsement from then President Bill Clinton.

The term 'mavens' thereby entered the lexicon, and began slowly diffusing into the body politic. In 2005, in a 'think piece' commissioned by Defra's Central Analytical Directorate and conducted by Brook Lyndhurst,^{NOTE 3} the term was used in the exploration of a very particular pair of questions: given the typical pattern of uptake of a new product – represented in the S-curve image below – in which the proportion of the population making use of a new product starts off small, accelerates and then reaches saturation - we wondered:

- does such a curve apply to sustainable or 'pro environmental' behaviours?
- if it does, are there things that could be done to ensure that the take up of a new behaviour moves along the S-curve, rather than 'petering out'?



NOTE 4 This material is mainly in chapters 5 and 6 of part 1 of the evidence report, and the interviews in chapter 1 of part 2.

NOTE 5 Social norms receive a chapter in their own right (chapter 2 of part 1) while the characteristics of individuals are covered in chapter 4, part 1, and referred to again in part 2 chapter 2

Since then, Defra's interest in 'behaviour change' as a means of contributing to the UK's broad environmental ambitions continued to develop, through a mix of both research and policy work. As part of that ongoing effort they commissioned Brook Lyndhurst to address some of the questions raised by the 2005 think piece. This summary, and the accompanying evidence report, represent the results from that effort.

Our work has confirmed that there is a wide range of rich and thought-provoking material that is of relevance to the relationship between 'mavens' and Defra's headline pro-environmental behaviours. This material is complex not merely because it is wide ranging, but also because interest in the subject is relatively new. Different researchers are exploring different aspects to the problem and coming up with results that are not always consistent.

It is also the case that several different disciplines are implicated in the 'pro environmental mavens' question, each with differing traditions, working principles and so forth. Our work has drawn from six main areas:

- **Marketing** – at both academic and practitioner level, marketing has been concerned with behaviour change for a very long period of time. Recent decades have seen a great deal of focus on issues such as the role of peer-to-peer marketing, of "word of mouth" marketing and the role of particular types of individual (such as 'opinion leaders') in ensuring the success of new products.

More recently, "social marketing" has emerged as a discipline in its own right and as a means of deploying many standard marketing techniques – including those just referred to – in pursuit of social rather than financial objectives. Many of the lessons from social marketing appear to be of direct relevance to the uptake of environmental behaviours.

NOTE 4

- **Social psychology** – both as a discipline in its own right and as a contributor to much research and analysis in the world of marketing, social psychology has had much to contribute to our understanding of how people operate in social settings, particularly in terms of the role and power of social norms. It has also uncovered much about the (personality) characteristics of the kinds of individual that might play particular roles in the way in which new products, views and behaviours interact with prevailing social norms. **NOTE 5**
- **Diffusion** – is perhaps the most synthetic of the disciplines covered by our research (in that it draws on a variety of more traditional academic disciplines including psychology, economics, sociology, anthropology and epidemiology). 'Diffusion theory' is specifically concerned with "the process by which an innovation is communicated through certain channels over time among the members of a social system". Though dominated by the work of Everett Rogers (whose original 1962 work "Diffusion of Innovations" is now in its

NOTE 6 Diffusion theory emerged as central both to the conduct of our research and to the formulation of our conclusions. It is relatively unfamiliar material for most readers, so it receives extensive coverage in the evidence report. Part 1 chapter 3 of the report provides a detailed summary of the generalities of diffusion theory, as well as highlighting some of the issues and contests emerging from recent research in the field; while the appendices to the evidence report include an extensive extract from Rogers' key text, "Diffusion of Innovations".

NOTE 7 Part 1 chapter 1 is specifically devoted to a discussion of these issues. Although often technical, they provide an important conceptual underpinning to the entire approach, and references recur throughout the main body of the evidence report.

NOTE 8 There is no separate chapter for this material. Instead, it permeates the evidence document as a whole, particularly the chapters on systems, norms and catalytic individuals.

NOTE 9 Part 1, chapter 6 presents a detailed discussion of pro-environmental behaviours, referencing both the general literature on these behaviours and, more especially, the literature that has focused on the behaviours from a 'diffusion' perspective – see sections 6.2 and 6.3, in particular.

fifth edition and whose definition we have just quoted) there is a burgeoning array of researchers and theorists concerned with these phenomena, and a range of competing views on how diffusion works. ^{NOTE 6}

- **Network and systems theory** – emerging from an interaction between sociology, biology and computer science, network and systems theory is concerned with situations in which large numbers of individuals (or 'agents') interact in some sort of environment according to specified rules. A central insight of work in this field is that micro-level interactions between agents give rise to macro-level patterns of behaviour – known as "emergent properties" – that are not reducible to the simple interactions. Such systems are complex, and non-linear. Much attention in this field is given to the development of computer-resident models ("agent based models") in which 'norms' develop from the interaction of agents as emergent properties of the system, and in which new behaviours both emerge from and diffuse through populations. ^{NOTE 7}
- **Economics** – whilst mainstream neo-classical economics has spent many years refining its use of 'rational economic man' as one of its fundamental assumptions, the branch of economics known as 'behavioural economics' has, through work by such ground-breaking figures as Schelling and Kahneman,

been learning lessons from psychology to understand how individuals *actually* behave in response to incentives, better to understand how economic and social changes permeate through economic and social systems over time. ^{NOTE 8}

- **Pro-environmental behaviour change** – finally, we have drawn upon the more recent work in the field of pro-environmental behaviour change (much of which has been funded by Defra) which, whilst relying to a very considerable extent on the foregoing disciplines, has an important character of its own, and provides the basis for Defra's focus on a finite number of 'headline behaviour goals'. ^{NOTE 9}

On the basis of our discussions during the conduct of this research, in particular with the project's Steering Group, our judgment is that few readers will be familiar with all of these disciplines. Most, it would seem, are likely to be familiar with one or two. In reporting on the research, therefore, we have erred on the side of over- rather than under-explanation, with apologies to those who find themselves reading things they take for granted.

There is also a certain 'looping' quality to the material: the same issues crop up in different places, from different angles. We judge that this is a fair reflection of the non-linear nature of the phenomena with which the research is concerned and we hope that, rather than feeling (as it may occasionally do) a little repetitious, it facilitates instead the emergent property known as 'understanding'.

NOTE 10 For example, whether a maven has specialist or generalist knowledge, whether a maven is the same as 'an expert', whether mavens are proactive or reactive, and so on – see part 1 chapter 4.4 for a detailed discussion

NOTE 11 Part 1 chapter 4 pays greatest attention to these issues

NOTE 12 See mainly part 1 chapter 3.4 where the key features of diffusion are discussed.

NOTE 13 A comprehensive exposition of the weaknesses of these approaches (and, indeed, of psychometrics more generally) is provided by Borghans, Duckworth, Heckman and Weel (2008) "The Economics and Psychology of Personality Traits"; while an elaboration of some of the consequences of the difficulties that arise from those weaknesses comes from Offer (2006) "The Challenge of Affluence". See also part 1 chapter 4.11 of the evidence report for a discussion of the relevance of this problem to our study.

NOTE 14 See part 1, chapter 4.6, in particular, for a discussion of this.

NOTE 15 Not only are there profound problems with the use of psychometric approaches to the classification of individuals, but – as we go on to explain below – the literature on diffusion made it clear that different functions can play different roles at different stages in the diffusion of new behaviours. *Con't overleaf*

Our understanding of the term 'maven' evolved considerably during the early part of our research, as it became clear that there are several subtly different interpretations of the word scattered across the literature ^{NOTE 10}. What emerges, in fact, is a constellation of terms - early adopter, opinion leader, product champion, influencer, persuader, connector, learning advocate, change agent - that are *near synonyms* for one another. By and large, researchers specify what *they* mean by a term in any given instance, and proceed on that basis. ^{NOTE 11} Some terms, such as 'opinion leader', are more established and frequently used than others (such as the relatively rare 'boundary spanner') but this does not necessarily mean that their meanings are more stable. As a research team led by Locock put it in 2001, when exploring the role of opinion leaders in a health setting, "the definition of 'opinion leader' remains problematic and has been over-simplified... Opinion leaders sit at different points along a number of axes". They went on to identify at least ten such axes. ^{NOTE 12}

What also becomes clear from the literature is that each of these classifications is based on some set of questions, which may be attitudinal, psychological, behavioural or otherwise. On the basis of individuals' answers to these questions – typically presented in the form of a questionnaire – an aggregate score is produced. Again, typically, individuals with a 'high' score (or a 'low' score) are labelled by the researchers as 'opinion leader' or 'influencer' or 'maven'.

The problem, however, is that the definition of 'high' or 'low' is,

essentially, arbitrary. Researchers may take the top five per cent, or ten per cent, or those that score highly in one part of a questionnaire but low in another. There is no absolute sense of 'opinion leader' or 'maven' – they are just individuals at one end of a particular psychometric spectrum. ^{NOTE 13}

Some researchers have investigated aspects of this problem, and have noted that many of the categories 'correlate': mavens frequently have opinion leader qualities; influencers frequently have maven-like qualities; opinion leaders frequently have influencer-like qualities; and so forth.

Our conclusion – reached relatively early in the course of our research – was that we should be thinking less about particular *categories*, and more about particular *attributes*. ^{NOTE 14} In the context of thinking about the possible role of 'mavens' in accelerating the take up of pro-environmental behaviours, we should be thinking about individuals with 'maven-like attributes' rather than 'mavens' *per se*.

This realisation had an important impact on the conduct of the research, in two key ways.

Firstly, we needed to find a suitable generic term for the kind of individual in whom we were interested. ^{NOTE 15} After much deliberation, and while acknowledging the fact that in so doing we are exposing ourselves to our own critique, we concluded that the most effective term is "catalytic individual". By this we seek to embrace the full range of terms listed earlier, but also capture the 'attributes' approach we judge to be appropriate. A

Note 15 con't: Since our over-arching concern was the diffusion of pro-environmental behaviours, and those behaviours are at different stages of their evolution, to focus narrowly on one function, or (by extension) one type of individual, would be unduly to narrow the scope of our work.

NOTE 16 A brief explanation of the method we adopted is set out in a couple of pages' time; a detailed account is presented in part 2, chapter 2 of the evidence report.

NOTE 17 The various phases of diffusion are set out in chapter 3.2 and 3.3 of part 1; there is particular attention on the issue of timing in 3.4

NOTE 18 Part 1, chapter 2 explains what social norms are and how they are believed to work. Particular attention is given to the role of catalytic individuals with respect to social norms: on the one hand, such individuals significantly help to shape social norms; but, on the other, an individual that ventures too far from established social norms may lose influence, and cease to have a catalytic role.

catalytic individual is a person who, through some set of attributes and characteristics, is able to play a special role in fostering the adoption of new behaviours.

Secondly, we concluded that our original plan for recruiting 'mavens' for interview needed revision. We had originally intended that we would use a psychometric approach, using a questionnaire to recruit members of the general public, as is normal – for example - for focus group work. Not only had we moved away from the notion that 'maven' was the appropriate target; we had also established that a standard questionnaire based approach would identify people in a manner that was, essentially, arbitrary. A novel method for recruiting these individuals would be required. ^{NOTE 16}

This realisation was reinforced by our review of the diffusion literature. A key finding was that different individuals – or, more accurately, different functions - seem to play different roles at different stages of the diffusion process. ^{NOTE 17} When an idea or product or behaviour is very new, for example, individuals with a predilection for gathering and considering information typically play a key role in establishing the technical credibility of the innovation. These individuals (often called 'experts' – and, in our terms, catalytic individuals with higher-than-average maven-like attributes) may tinker or experiment with an innovation for a protracted period of time. They simultaneously build their expertise (a process that is prompted by their personality attributes, since it is just something they like to do) and test the innovation.

There is no guarantee that an innovation will move beyond this stage – a wide variety of factors is implicated in the process (see below). However, in instances where diffusion does occur, trend setters and innovative individuals take up the innovation, learning from the 'experts' and experimenting. At this point, 'opinion leaders' (more accurately, catalytic individuals with higher than average opinion leadership attributes) begin to adopt the new behaviour and 'set the tone' – making the new behaviour acceptable for the majority.

This issue of 'setting the tone' is particularly important. We devote an entire chapter of the evidence report ^{NOTE 18} to a consideration of this under the heading 'social norms'. Social norms are dynamic, emerging from the ceaseless interaction between individuals and the network of which they are a part. When an innovation – a new idea, product or behaviour – becomes 'ordinary', something that everyone does, it comes to comprise a social norm. There are many complexities and subtleties to this process, not all of which are yet understood. For example, there are frequently differences between people's interpretation of what *should* be done and what they *observe* being done. This mismatch can have behavioural consequences: if people see others routinely not behaving in public according to a 'should', it is much more likely that individuals will find it difficult to follow the rule in private.

The key point is that norms serve as some sort of benchmark against which new behaviours - in our case, new pro-environmental behaviours - are evaluated: new behaviours that lie too far from existing norms, or threaten existing norms, face a far greater

NOTE 19 Chapter 3, part 1 of the evidence report, presents an introduction to diffusion theory, highlighting its key features. Of particular note is the discussion of the role played by particular individuals in the diffusion process. (See, in particular, chapter 3.4).

NOTE 20 Included as an appendix to the evidence report.

NOTE 21 These are highlighted in three separate locations in part 1 of the evidence report: in chapter 3 on diffusion; in chapter 5 where we focus on specific lessons from both commercial and social marketing; and in chapter 6 where we focus directly on the pro-environmental behaviours themselves.

NOTE 22 "Diffusion of Innovation in Health Care" M. Cain & R. Mittman (2002) – see part 1, chapters 3.2 and 3.3 of the evidence report for details.

NOTE 23 Chapter 3.5, part 1, highlights some of the problems currently facing diffusion theory, and includes reference to recent work in which attempts have begun formally to develop such models.

struggle in achieving widespread acceptability than those that evolve more easily from current patterns of behaviour.

Casual observation, however, makes it obvious that new social norms *are* perpetually developing, both within cliques and sub-sections of society and across society as a whole, and that some of these changes are more dramatic than others. This continuous, dynamic process has been the subject of much study, largely under the heading of 'diffusion theory'.

The diffusion literature is quite extensive, and is discussed in detail in chapter 3 of the evidence report. ^{NOTE 19} The evidence report includes an extended extract from the key diffusion text, "Diffusion of Innovations" from Everett Rogers (1995). ^{NOTE 20}

The literature contains very few examples of 'environmental' innovations. This appears partly due to a general difficulty in obtaining high quality data to analyse diffusion, partly to do with the relatively recent attention given to environmental issues, and partly because many of the environmental behaviours with which we are concerned are very difficult to observe. It may also be because few researchers have so far made the link that environmental behaviours constitute social innovations that could, indeed, diffuse.

There are, nevertheless, many lessons to be drawn from the diffusion literature that are of direct relevance to environmental behaviours. There are, too, particular lessons to learn from the two areas of behaviour that have been the principal focus of diffusion research in recent years, health and technology. ^{NOTE 21}

These lessons can be divided into two broad categories: general factors, the presence or absence of which has been shown to be an influential factor in accelerating or blocking diffusion; and issues associated with the particular role of individuals within those processes.

Thinking firstly about the general factors, a paper by Cain & Mittman (2002) draws upon and augments the analysis from Rogers to identify ten 'critical dynamics' of innovation diffusion.

^{NOTE 22} It is important to note that 'diffusion' is not yet an exact science: the 'critical dynamics' listed below describe the general factors that are likely to increase or decrease the probability of diffusion. There is not yet a 'model' for diffusion in which the relative contributions of these different factors can be identified. ^{NOTE 23}

1. **Relative advantage:** the more potential value or benefit is anticipated from an innovation, the faster it will diffuse;
2. **Trialability:** the ability to try an innovation improves the prospects for adoption and diffusion;
3. **Observability:** the extent to which potential adopters can 'see' the benefits of the innovation (and, indeed, physically see the innovation) improves the prospects for adoption and diffusion;
4. **Communication channels:** the paths chosen by opinion leaders to communicate an innovation affect the pace and pattern of diffusion;
5. **Homophilous groups:** innovations spread faster

NOTE 24 The role, nature and function of such individuals is the subject of chapter 4 in part 1 of the evidence report; introductory remarks appear in chapter 2.2 (on norms) and 3.4 (on diffusion).

NOTE 25 We have taken the trouble in part 1 chapter 3 – particularly sections 3.3 and 3.5 – to highlight some of the contested areas in diffusion theory.

NOTE 26 “Accelerating the diffusion of innovations using opinion leaders” Valente and Davis (1999)

NOTE 27 Feder & Savastano (Development Research Group at the World Bank) (2006) “The Role of Opinion Leaders in the Diffusion of New Knowledge: The Case of Integrated Pest Management”

NOTE 28 Balter & Butman (2007) “Grapevine – The new Art of Word-of-Mouth Marketing”

NOTE 29 Watts & Dodds (2007) “Influentials, networks and public opinion formation”

amongst homophilous [roughly, ‘like-minded’] groups;

6. **Pace of innovation/reinvention:** some innovations tend to evolve and are altered along the way of diffusion whilst others remain stable; the former tend to diffuse more quickly than the latter;
7. **Norms, roles and social networks:** innovations are shaped by the rules, hierarchies and informal mechanisms of communication operating in the social networks in which they diffuse;
8. **Opinion leaders:** ‘opinion leaders’ or catalytic individuals affect the pace of diffusion;
9. **Compatibility:** the ability of an innovation to coexist with existing technologies and social patterns improves the prospects for adoption/diffusion;
10. **Infrastructure:** the adoption of many innovations depends on the presence of some form of infrastructure or of other technologies that cluster with the innovation.

(Virtually all of these factors can be considered through the prism of ‘risk’: all innovations, of whatever type, imply some sort of risk for both individuals and societies.)

Having identified these general factors, it becomes possible to consider more specifically the role of ‘catalytic individuals’. ^{NOTE 24}

As we mentioned earlier, it seems broadly accepted that different kinds of individual can play

different roles at different stages of the diffusion process – or, in our terms, that different functions are more or less important at different stages of the process.

Beyond this, however, views diverge. ^{NOTE 25} Some researchers are firmly of the view that opinion leaders matter: as one of the leading figures in the field, Valente, put it in 1999, “simulations show how much faster diffusion occurs when initiated by opinion leaders”. ^{NOTE 26}

Others, of similar stature, qualify this in an important way. Feder & Savastano of the Development Research Group at the World Bank argued in 2006 ^{NOTE 27} that their research showed “that opinion leaders who are superior to followers, but not excessively so, are more effective in transmitting knowledge. **Excessive socio-economic distance is shown to reduce the effectiveness of diffusion...** People turn to seek advice from their peers, from individuals of the same background, interest and values. The flow of information and influence is likely to be horizontal [rather than vertical]”.

In short, the people by whom I am most influenced are ‘like me’.

Others go further still, gainsaying the role of catalytic individuals altogether: Balter & Butman (2007) state that “...mavens and high-profile influentials are effective in specific ways and in particular categories, but... most of the time, everyday people are better”, ^{NOTE 28} while Watts & Dodds (2007) ^{NOTE 29} are clear that the majority of large scale changes to public opinion are caused by “**easily influenced people influencing other easily influenced people**”.

NOTE 30 Systems theory having been introduced in chapter 1 of part 1, specific consideration of the relationship between individual and system-level effects is given in chapter 3.4.6

NOTE 31 Part 2 of the evidence report presents the full results from those interviews, together with details of the methods used.

NOTE 32 Note also that we did not set out to recruit people with histories of influence on environmental issues. Rather than interviewing 'environmental mavens', we wanted to interview generally 'catalytic individuals'. As we explained above, we had concluded for a variety of reasons that catalytic individuals were a more appropriate focus than mavens. We might still have focused on individuals that had been, or were, catalytic with respect to environmental issues. We noted, however, the findings that (a) individuals were most likely to be influenced by someone 'like me', and (b) that catalytic individuals were most likely to be effective when operating either within or close to social norms. By their very nature the headline pro-environmental behaviours represent changes to social norms. We conjectured that individuals with histories of 'environmentalism' would therefore be seen as *not* 'like me' by a majority of people,
Cont'd overleaf

These differences seem to arise less because of differences in researchers' views of how individuals exert influence, and more because of differences in consideration of the relationship between individuals and the situation in which they find themselves.

This situation – the 'system condition' or the 'state of the network' – is a vital factor in our research and analysis. Individuals do not operate in a vacuum: neither the influencers (our 'catalytic individuals') nor those that are influenced are operating in some isolated state. The overall circumstances within which they are doing what they do are powerful determinants of the means by which things do or do not change. ^{NOTE 30}

In short, if system conditions are not conducive to diffusion, then no individual, however ordinary, influential, powerful or otherwise, will be able to catalyse change. The research suggests that if social networks are too 'loose' (if the linkages between people are too weak or too few) or too 'tight' (if communities are too close, too bonded to each other with few links outside) then diffusion of innovations becomes much more a function of network conditions and much less to do with the role of individuals.

Between these limits, where social networks are neither too tight nor too loose, is where there appears to be room for individuals to play a particular role in catalysing diffusion. The literature suggests that, often, it is catalytic individuals that are key; sometimes it is 'ordinary people'; and, frequently, both.

Our focus, in this current research, was on catalytic

individuals. As a centrepiece of the research, we interviewed twenty two such people to find out what makes them tick, and to explore their attitudes and behaviour with respect to environmental issues.

^{NOTE 31 & 32}

As we mentioned earlier, we had initially planned to recruit them using standard market research techniques, whereby recruiters armed with carefully specified questionnaires interview members of the public in order to identify the target individuals. Our research showed us that, in the case of the particular people in whom we were interested, such a technique was unlikely to be effective.

The literature, helpfully, provided us with a comprehensive review of all possible techniques for finding catalytic individuals. ^{NOTE 33}

Each method has its strengths and weaknesses, but the most promising and suitable approach appeared to be 'socio-metric'. This involves getting 'up close and personal': the technique requires actually visiting and becoming familiar with a social network, and then asking people in that network questions in order to establish who the influential people are. Conducted with appropriate cross-reference and safety checks, this approach has worked widely in the research literature, and worked in our case too.

We identified pre-existing networks – sports clubs, church groups, school-gate communities – using carefully selected criteria, and our recruiters then spoke to individuals within each network to identify the most respected, influential individuals.

Note 32 cont'd: and/or that more generally catalytic individuals would previously have been wary of promoting some (if not all) of the headline behaviours precisely because they would have jeopardised existent social norms (and therefore the 'status' of those individuals).

NOTE 33 (From previous page) In "Identifying Opinion Leaders to Promote Behaviour Change" Valente & Pumuang (2007) conducted a comprehensive review to conclude that there are ten ways of doing it (see appendix to part 2).

NOTE 34 Full details of the interviews we conducted with marketing professionals, from both the commercial marketing and social marketing fields, are presented in part 2, chapter 1 of the evidence report.

NOTE 35 Chapter 6, part 1, provides an introduction to the headline behaviours. The chapter also includes information drawn from the more general diffusion and marketing literature (prefigured in chapters 3 and 5) to focus more especially on what is known both about the diffusion of pro-environmental behaviours, and the role of catalytic individuals in that diffusion.

NOTE 36 Individuals with expertise in environmental matters may well, in due course, come to play a vital 'maven-like' role. *Cont'd overleaf*

Our interviews with commercial practitioners made it clear that they, too, use such techniques.

NOTE 34 Those interviews corroborated much of what we had learned from the literature:

- that word-of-mouth marketing is increasingly well-established;
- that there is increasing evidence that it is both effective and cost-effective;
- that many companies use 'catalytic individuals' in their marketing plans;
- that there is no 'tick box' solution to finding such people;
- and that few endeavours in the environmental arena have yet been made.

The interviews also highlighted some of the pitfalls of 'word of mouth marketing', notably that it is extremely difficult to control, can backfire easily and needs to stay 'on the periphery' to work effectively.

It also emerged that, in instances where marketing campaigns have focused on catalytic individuals, the actual finding and recruitment of those individuals has generally been the most resource intensive and time-consuming part of any given marketing campaign. Despite this, in both mainstream product marketing and, increasingly, social marketing, there is evidence that – as we suggested above – such techniques are both effective, and cost effective. This helped to reinforce our decision that we should use a socio-metric technique to recruit our interviewees.

The environmental behaviours with which we were concerned, and about which we asked questions of these interviewees,

have been identified by Defra, following extensive research, as having an important contribution to make to the achievement of the UK's environmental ambitions, particularly in terms of reducing the country's emissions of greenhouse gases. **NOTE 35** The twelve headline behaviours are:

- Install insulation products;
- Better energy management & usage;
- Install domestic microgeneration;
- Increase recycling and segregation;
- Waste less (food);
- More responsible water usage;
- Buy/use more efficient (low carbon) vehicles;
- Use car less/seek alternatives for journeys (<3miles);
- Reduce non-essential flying (short-haul);
- Buy energy efficient products;
- Eat food locally in season;
- Adopt diet with lower GHG/environmental impacts.

Some of these behaviours are more established than others, and most have strong support among 'environmentalists'. We noted from the literature on diffusion, however, of the need for influencers to be 'like me'. Too many environmentalists, for the bulk of the population, are not 'like me', and are therefore unlikely at present to be in a position to catalyse wider behaviour change. **NOTE 36**

So we focused on more generally catalytic individuals. The characteristics of the individuals we interviewed conformed closely to the general descriptions in the literature of catalytic individuals. They are gregarious, sociable, opinionated, positive and altruistic. They are motivated to a very significant extent by a desire to help others. Their influence

Note 36 cont'd: As we have seen, the dissemination of market information, as conducted by a Feick & Price 'market maven', operates within an established 'social norm' rather than being part of actually *forging* a social norm. (Early expertise, before an innovation takes off, is an important *precursor* to take off, but is insufficient actually to bring that take off about.) Thus, once novel behaviours become 'mainstream', it may well be that those that developed preliminary expertise may come to be called upon again for their expertise.

NOTE 37 Details of the interviews, the recruitment methods and the interviewees are provided in the evidence report, part 2 chapter 2.

seems to derive in large part from their internal consistency: they tend to say what they mean, mean what they say, and do what they say. They influence people both directly (by persuading people that an innovation is good or bad) and indirectly (because people admire them and want to be like them). ^{NOTE 37}

We found that, as suggested by the literature, these individuals occur in all walks of life, and have no particular social, economic or geographical characteristics. In all of the networks where we searched – music clubs, sports clubs, at the school gate, on housing estates – we found them. They tend either to operate through established networks in order to 'get things done' or, if no such linkages exist, they simply make them.

Our interviewees shared few common sources of information. They talk to other people, read newspapers and magazines, watch television and use the internet to a greater extent than other people, but appeared to have no particular places in which they look more frequently. Many appear to absorb information in an osmotic fashion, through continuous discussion with people in their networks.

Several of the individuals we interviewed had already adopted environmental behaviours, and were in some way, shape or form promoting them to others. Whilst our interviewees were generally supportive of the behaviours, they invariably struggled to see how such behaviours would help the people in whom they are interested. Where they were most positive is where they could see how an environmental behaviour could be appended to some other behaviour – such as health, or

cost-savings - that would more obviously benefit the people around them (since their primary motivation for directly attempting to influence people and things is to help other people).

Catalytic individuals are also creative, thoughtful and idiosyncratic, which means they generally do not respond well to being told what to do, nor do they typically simply replicate or pass on an innovation; rather, they use their own judgment to adapt and modify it to suit their circumstances and the people they wish to help.

Among our interviewees it was clear that most could have been identified using questionnaire-based approaches – but as either 'mavens' or 'opinion leaders' or 'influencers'. Most had a mixture of all attributes.

Having conducted the interviews, reviewed the literature, spoken with commercial practitioners and considered the headline behaviours, we were then in a position to develop our conclusions.

3 Conclusions

NOTE 38 Detailed discussion of the headline behaviours is presented in part 1, chapter 6 of the evidence report.

NOTE 39 It is also important to note the importance of social norms. As we saw in chapter 2 (of part 1), social norms are dynamically constructed phenomena in which individual and social forces interact. At any given point in time, social networks are characterised by a range of behaviours considered 'normal', and new behaviours or innovations will have to compete with these established norms. There is a chicken-and-egg aspect, in which many individuals resist 'social innovations' precisely because they are not social norms, and new social norms do not arise because individuals resist change.

NOTE 40 Examples are provided in part 1 chapters 3 (on diffusion), 5 (social and commercial marketing) and 6 (the pro-environmental behaviours)

In seeking to address the research objectives, our research has, as the foregoing made clear, been extensive. We reviewed literature on the nature of social networks, the status and importance of norms and the theory of diffusion; we investigated 'catalytic individuals', examples from the worlds of commercial and social marketing, and pro-environmental behaviours; and we conducted innovative primary research with professionals in the field of environmental marketing, and members of the general public identified as catalytic individuals.

Numerous possible threads run through this volume of material; and, because the various issues are interconnected, there is no obvious, natural starting point either to any exposition of the material or to any analysis.

In the end, we judged that the appropriate place to both start and finish these conclusions is with Defra's headline pro-environmental behaviours themselves. ^{NOTE 38} It is these, after all, that are the basis for the research having been conducted at all.

Our conclusions take the form of ten propositions, which build sequentially and which are set out below.

Proposition 1 – the headline pro-environmental behaviours should be thought of as 'social innovations'

The dozen headline pro-environmental behaviours comprise "new things to do" for the majority of the population. Although they are heterogeneous, none of the headline behaviours, not even recycling, are yet fully

established as 'social norms'. (Indeed, if they were, there would not be an issue of trying to promote them.) Relatively few studies have focused specifically on the way in which new environmental behaviours permeate through populations. However, lessons from other domains, notably health, suggest that conceptualising these behaviours as social innovations offers the most fruitful analytical path. By understanding them as 'innovations', the more general principles governing the diffusion of innovations can be brought to bear. ^{NOTE 39}

Proposition 2 – the general process by which such social innovations will permeate through the population is a process of 'diffusion'; diffusion theory is therefore central

Diffusion theory draws on a range of disciplines, and the literature on diffusion abounds with examples of how novel products, beliefs and behaviours have permeated through populations around the world. Although relatively few of these examples ^{NOTE 40} are narrowly concerned with pro-environmental behaviours, once such behaviours are conceptualised as social innovations, it becomes more straightforward to see the generic linkages from the diffusion literature to the headline behaviours with which we are most especially concerned.

The literature review nevertheless highlights the innovative nature of this particular research: we found no work directly relating to 'pro-environmental mavens' and, as we have said, remarkably little on the diffusion of pro-environmental behaviours. This was in large part

why the literature review, in particular, was conducted (and reported on) in such depth. Further research, pilot work and/or policy development in this area will have to bear in mind the innovative nature of work in this area and, as a result, will need to lean carefully and thoughtfully upon the material presented in this report.

Proposition 3 – diffusion is the process by which novel behaviours move from ‘innovation’ to being ‘social norms’

The diffusion of successful innovations follows a predictable path over time. Although the precise naming and classification of this process varies between researchers, in broad terms an early adopter group within a population experiments with an innovation; on the basis of their experimentation, an early majority begin to take the innovation on board; a late majority follow the early majority; and laggards bring up the rear.

This pattern typically describes an S-curve, or sigmoid curve. Across a range of products, beliefs and behaviours, this pattern has repeatedly been observed. The broad socio-economic and psychological characteristics of individuals at the varying stages of the adoption process have been extensively researched. In broad terms, the process of adoption is the journey from innovation to normality, the path from a new idea first arriving in a social network [of whatever size] to it being a social norm that actually characterises that network.

It is clear that different types of ‘influencer’ are important at different stages of the diffusion of a new behaviour. Given the

different stages of development and uptake of social innovations, the concept of a ‘maven’ is too narrow to apply to all of them.

Proposition 4 – specific factors can be identified that dictate the likelihood and pace of diffusion

The ‘science’ of diffusion is not yet sufficiently well developed for there to be a coherent explanatory model. There are many variables, interacting under conditions of complexity. It is not yet possible to say with great certainty whether any given innovation will, or will not, be successful.

Nevertheless, the research has identified a finite number of factors that, between them, shape the likelihood of diffusion taking place:

1. **Relative advantage:** the more potential value or benefit is anticipated from the innovation, the faster it will diffuse;
2. **Trialability:** ability to try the innovation improves the prospects for adoption and diffusion;
3. **Observability:** again the extent to which potential adopters can ‘see’ the benefits of the innovation improves the prospects for adoption and diffusion;
4. **Communication channels:** the paths chosen by opinion leaders to communicate an innovation affect the pace and pattern of diffusion;
5. **Homophilous groups:** innovations spread faster amongst homophilous [roughly, ‘like-minded’] groups;
6. **Pace of innovation/reinvention:** some innovations tend to evolve and are altered along

- the way of diffusion whilst others remain stable;
7. **Norms, roles and social networks:** innovations are shaped by the rules, hierarchies and informal mechanisms of communication operating in the social networks in which they diffuse;
 8. **Opinion leaders:** opinion leaders [or, more generally, catalytic individuals] affect the pace of diffusion;
 9. **Compatibility:** the ability of an innovation to coexist with existing technologies and social patterns improves the prospects for adoption/diffusion; and
 10. **Infrastructure:** the adoption of many innovations depends on the presence of some form of infrastructure or of other technologies that cluster with the innovation.

The literature suggests that careful attention to each of these factors provides the route, on the one hand, to understanding the diffusion of any particular innovation and, on the other, to developing intervention strategies to promote more rapid diffusion than might otherwise be the case.

Several of these factors are directly linked to the function of particular individuals operating in social settings. The importance of 'homophily' – the idea that individuals are particularly likely to be influenced by people they perceive to be 'like me' – is considerable. The literature strongly suggests that excessive 'social distance' depletes the impact of innovations. The role of 'opinion leaders', too, is highlighted. In the context of the other factors, these elements powerfully suggest that localised 'opinion leaders', operating in their own social networks, have an

important role to play in the diffusion of innovations.

Proposition 5 – specific "catalytic individuals" have an important role to play in the generic diffusion of innovations

AND

Proposition 6 – particular functions of individuals are important at different stages of the diffusion process

Rather than simply focusing on 'opinion leaders' or 'mavens', many different types of influential individuals are identified in the literature. We came across some 40 near synonyms for 'influencer'. This suggested to us that social influence is a bundle of characteristics and attributes that are spread across the entire population. Some individuals have more of certain characteristics. Depending on the research question, different studies investigate different subsets of these attributes, hence the large variety of terms and slight divergences in meaning. This in turn suggested to us that we needed to recast our thinking in terms of functions, rather than individuals. Instead of thinking about individuals as mavens per se, the focus should be upon 'maven-like' (and other) functions played by individuals.

There were several consequences of this alteration in our thinking, both theoretically and in terms of the methodology for the primary research. First of all it opened up the possibility that a single individual may play more than one function, at different stages of the diffusion process, and with respect to different subject areas. For example, an individual might play a maven-like role with regard to

NOTE 41 A 'maven', as deployed in the marketing literature, is a knowledgeable and trusted individual who offers (or gives) advice on market matters. The key feature is 'market' – a 'maven' operates within the confines of an established social norm (predominantly that of 'shopping'). In the case of the pro-environmental behaviours, these norms do not yet exist – implying, amongst other things, that maven-like functionality, on its own, would be ineffective.

NOTE 42 The catalytic individuals in question are spread across a scale of influence with pure 'informational' influence (mavenism) at one end and opinion leadership – or normative influence – at the other end.

NOTE 43 The snowballing element of the recruitment method involved selecting a random person from a network and asking them a carefully designed question (see part 2, chapter 2) to elicit who they considered to be influential within the group. We purposefully did not ask the question with respect to any particular subject area, such as 'the environment', since we wanted to find the most generally influential people. The next step was to ask the same question of the individual nominated by the initial respondent, and follow the chain until the influencer at the end was reached. *Cont'd overleaf*

travel, and an opinion leader role with regard to politics. This was reinforced by the literature; several studies have shown that opinion leaders are more likely to have maven-like tendencies, and vice versa.

This change in perspective also enabled us to move away from the narrow 'maven' and to concentrate on what we termed 'catalytic individuals'.^{NOTE 41}

'Catalytic individuals' are those who play a particularly important role in the process of diffusion of an innovation, whether by being a trusted source of information and advice (roughly mavenism) or by 'setting the tone' of their social circles and, by their attitudes and behaviour, establishing an innovation as socially acceptable (roughly opinion leadership).^{NOTE 42}

A further consequence of this approach is that we chose not to attempt to recruit 'environmental influencers' or 'environmental mavens'. As we have seen, neither category has previously been identified by the literature; and, as we deduced, the functionality of influence is not 'either/or', but a continuum, with every individual having a mix of potentially relevant attributes.

Furthermore, given the overarching objective of considering how particular individuals might 'normalise' pro-environmental behaviours, we judged that individuals that are already strongly pro-environmental would be perceived, in many cases, as insufficiently 'like me' i.e. too far from mainstream social norms to be effective influencers in the current climate.

Proposition 7 – "catalytic individuals" exist, can be found and have the potential to play an important role in the diffusion of pro-environmental behaviours

Although thinking in terms of functions rather than individuals is helpful for clarifying thinking, it makes the job of actually identifying these individuals much trickier. We concluded that a traditional questionnaire-based recruitment methodology would be inappropriate to locate catalytic individuals.

Instead, we devised an alternative recruitment methodology that combined 'snowballing' with socio-metric techniques.^{NOTE 43} The review of the literature had led us to conclude that social networks (i.e. any group of interconnected individuals) are the context within which diffusion occurs and within which catalytic individuals operate. The concept of social influence is by definition an outward looking concept - it does not occur in a vacuum, but catalytic individuals influence *those around them*. We therefore decided that the best people to ask about who was influential and played a catalytic role were the members of the social networks within which catalytic individuals operate.

The literature indicated that catalytic individuals are to be found in all walks of life, in all socio-economic groups, and across all genders, ages and so on. We therefore identified a number of pre-existing social networks using criteria to ensure a spread of different types of people, and set about finding the catalytic individuals. The networks in which we searched included neighbourhoods, sports clubs,

Note 43 cont'd: This whole process was repeated from between three and five random entry points within each network in order to avoid the results being biased by cliques and personal agendas.

Alongside the snowballing, the number of times a name was mentioned in each snowballing chain was recorded, in order to triangulate results and ensure that the person who most people found to be influential was included. Results were also cross checked with a mini questionnaire designed to demonstrate some of the key characteristics we would expect a catalytic individual to have.

NOTE 44 For example, one individual had collected the unused food waste bins from his street in Hackney and taken them to his family and friends in the Welsh valleys. Another individual constantly exerted negative influence in her social circle about the patio heater a friend had bought since she considered it so wasteful. Another had telephoned all her contacts to tell them that B&Q were giving away energy efficient light bulbs. One individual had actually invested in a film about climate change because he was so convinced the message should be heard.

church groups, and school gate networks.

We conducted in depth interviews with 22 catalytic individuals. The 22 people we met shared some features and were completely different in other ways. No two individuals exerted exactly the same kind of influence.

Some individuals clearly fulfilled a maven-like role and were often asked for advice and information about their areas of expertise, which ranged from technology to travel to home improvement. Other individuals were more towards the opinion leader end of the scale, and gave many examples of when they had influenced others to change an attitude or behaviour just by expressing their opinion or through their own behaviour. Most of the individuals were in between the two extremes and had characteristics of both types of influencer.

Although we did not aim to recruit 'environmentalists,' many of the interviewees had already influenced those around them on environmental matters, from recycling to car use. It became apparent that the influence exerted by these individuals could very easily be turned to environmental matters. There were many examples of when they had played a part in the diffusion of an environmental behaviour or idea. ^{NOTE 44}

It seems that, in principle, the environment is no different to any other topic about which catalytic individuals influence others. It is subject to exactly the same conditions as other topics: the interviewees all stressed that they must believe in something and have enough knowledge about it in order to influence others. If

these conditions are fulfilled, with regard to the environment or any other topic, these individuals are likely to influence others.

There is one factor that seemed to be the key to the interviewees' areas of interest and knowledge: they were overwhelmingly motivated by altruism. The majority of the examples they gave about influencing others involved some element of helping them out through improving their circumstances in some way. Whether their focus was on their immediate circles or they had more global perspectives, helping others was by far the most important thing to them.

Overall, the type of social influence exerted by our interviewees would seem to transfer neatly to environmental matters in general. The main way to facilitate this transfer would be to convince the catalytic individuals that they would help others and improve their lives by encouraging them to be environmentally friendly. It would also be necessary to ensure they had sufficient knowledge to feel that they were expert enough to answer questions and to make a real case for why a behaviour was a good idea.

Proposition 8 – there are actual and potential barriers to any prospective engagement with catalytic individuals in the realm of pro-environmental behaviours

In the light of the literature and both waves of primary research, it became clear that there are, or are likely to be, a number of barriers that could limit endeavours to engage with catalytic individuals and/or to use such endeavours to accelerate the

update of pro-environmental behaviours:

- the high number of factors influencing diffusion, and the formal complexity of the diffusion process, mean that, on the one hand, many other elements may need to be correctly in place for catalytic individuals to have a beneficial effect and, on the other, even a highly effective intervention associated with catalytic individuals may fail for 'system-level' reasons;
- given a shortage of historic case studies on pro-environmental behaviour change, and a chronic shortage of "real world" data about social networks in general, interventions will necessarily have a highly innovative element to them;
- the importance of adaptability highlighted in the diffusion literature, as well as the consideration of 'word of mouth' as a marketing channel, highlight the lack of control that is inherent to a diffusion programme: the eventual 'social norm' may look quite different from the original innovation;
- it would seem that innovations characterised by 'ambiguity' – where the costs and benefits of adoption are not clear, or apparently contradictory – are much less likely to diffuse than others. This potentially poses considerable challenges for some of the pro-environmental behaviours, given persistent diffidence on the part of the general public about the seriousness with which climate change is being tackled;
- the literature suggests that the development of a 'critical mass' of adoption of an innovation is a key stage of the diffusion process – but it is by no means clear how to spot that a critical mass has been reached. This begs questions about for how long any intervention in support of an innovation may need to persist – other things being equal, it would be very possible either to under- or over-shoot;
- the evidence suggests strongly that 'negative word of mouth' can be a powerful force, capable of scuppering a diffusion strategy. The only antidote appears to be complete honesty about that which is being diffused: which could raise very challenging questions for some pro-environmental behaviours;
- catalytic individuals appear willing to promote ideas they consider to be good ideas that are useful to people – but only if they themselves are (a) convinced and (b) sufficiently knowledgeable to be able to argue positively for the idea without jeopardising their own identity;
- they are also unlikely to promote an idea or behaviour that is 'too far' from the social norm(s) characterising their social group, not least because this would jeopardise the status (and future effectiveness) of the catalytic individual themselves;
- there is also the question about whether it would be ethically proper for government to engage directly with catalytic individuals in pursuit of pro-environmental

policy objectives. The research team began with mixed views on the ethical question, and these persisted throughout the study. In the event, it was the demeanour and character of the catalytic individuals themselves that, perhaps, provides the answer: these people cannot be 'used' in an unethical way. If they think the idea being promoted to them is a good idea, they will be more than happy to do your diffusion for you; and if it is a 'good' idea, then there is no ethical difficulty. If it is a bad idea, or a stupid idea, or an idea that will not actually help anybody, then catalytic individuals will not help anyway and the ethical difficulty does not actually arise.

At a general level, each of these issues can be considered as a 'risk', and will need to be managed accordingly. They do not, in our view, when balanced against the positive factors emerging from the research, constitute barriers that cannot be overcome.

Proposition 9 – it is possible to prioritise headline behaviours on the basis of the likelihood that catalytic individuals will have a useful role to play in their diffusion

In chapter 6 of the evidence report we derived from the literature a set of criteria that could be used to prioritise Defra’s headline pro-environmental behaviours. These factors combined the general factors thought to influence diffusion with some factors specific to pro-environmental behaviours.

On the basis of a provisional analysis, a more complete version of which should, in our judgment, be conducted before any pilot work is conducted (see below), we have classified the behaviours into five groups, on the basis of (a) their current state of diffusion and (b) the potential for a useful role to be played by catalytic individuals operating in their social networks:

We would suggest that this prioritisation could provide the basis for any follow-up work to this research.

Behaviour status	Headline behaviours
Diffusion already underway, clear role for catalytic individuals to promote new social norm	Increase recycling & segregation; install insulation products; buy/use more efficient (low carbon) vehicles
Diffusion beginning, possible role for catalytic individuals to promote emerging social norm	Buying energy efficient products; eating food locally in season
Diffusion not yet properly underway, possible role for catalytic individuals to disseminate information (in a maven-like way) but also to begin process of normalisation	Better energy management & usage; and using the car less for shorter journeys
Diffusion at a very early stage, with limited scope for catalytic individuals to specify new norms, but with some scope for information diffusion	Waste less (food); install domestic micro-generation through renewable; more responsible water usage
Diffusion at a very early stage and little or no scope for catalytic individuals	Reduce non-essential flying (short haul); adopt diet with low GHG/environmental consequences

Proposition 10 – it is possible to identify a number of ways in which to engage with catalytic individuals with regard to these behaviours

We have concluded very firmly that generally catalytic individuals, of a type not previously captured in the literature, have a potentially important role to play in promoting pro-environmental behaviours. The role they play, and precisely how they play it, will vary between the headline behaviours. The characteristics of the catalytic individuals we interviewed suggest that a programme of engagement is feasible. Such individuals would need to be convinced of the positive benefits of the proposed behaviour for the people in their social network; and would need to have sufficient knowledge and/or understanding to confidently promote the idea.

We have concluded, too, that there are a number of barriers and complexities to any intervention programme intended to make use of this conclusion.

On balance, we feel these barriers can be treated as risk issues, and managed accordingly, and that pilot projects to explore how diffusion can be accelerated through engagement with such individuals should be attempted.

Whilst there remain some outstanding research questions – see below - the crucial questions for any pilot projects (in addition to precise decisions about which behaviour(s) should be the focus of any pilots, what level of resources should be committed, which networks should be targeted and so forth) focus on how, precisely, to reach and then engage with catalytic individuals.

We have made it clear that a questionnaire-based approach is unlikely to work: the idea of randomly sampling the population to find these individuals is misplaced. The approach used during this research – socio-metric snowballing – is remarkably similar to the techniques used in peer-to-peer commercial marketing; and some of the recent Defra-funded EAF projects have also relied upon ‘champions’ or catalytic individuals, accessed ‘the hard way’. This would therefore appear to be the most sensible way forward.

Broadly speaking, a programme of this kind would comprise identifying catalytic individuals in specific social networks; persuading them of the benefits of the particular behaviour to members of their social group; providing them with tailored support material; and then allowing them the freedom to do what they do.

Such an approach would, certainly at pilot stage, be human resource intensive, and would also require quite particular skills (to find, recruit, engage with and support the individuals). Detailed work would need to be done on the ‘value for money’ questions (comparing hoped-for outcomes per £ with alternative approaches) but our research, and the experience in particular of the commercial sector, suggests that these calculations could well provide attractive results.

There are, nevertheless, alternative possibilities for access and engagement that could be considered:

- **Green platforms** – some of our interviewees, when invited to consider how they would

promote the pro-environmental behaviours, spontaneously mentioned ideas like 'environmental coffee mornings' or 'neighbourhood teams'. These kinds of platforms echo many of the schemes funded in recent years by, for example, the Environmental Action Fund (EAF). We know that catalytic individuals are keen to adapt or establish organisational infrastructure in pursuit of their objectives, so there may well be scope to disseminate lessons from programmes such as EAF within and, more especially, beyond the 'environmental community'.

- **Local delivery partners** – given, on the one hand, the generalised nature of the influencers we believe should be targeted and, on the other, the fact that numerous existing governmental mechanisms reach down to the ultra-local level, it might be more appropriate to work through established network channels. These appear to be well developed in the fields of health and social care, and these are also fields where 'social marketing' more generally is increasingly well established. It may be possible, therefore, to elide the 'pro-environmental' element alongside other initiatives to access and engage with catalytic individuals.
- **'Probabilistic marketing'** – traditional marketing segments populations on socio-economic criteria, considers which segments might be interested in a particular product or service, identifies where or when the target segments will be amenable to a message, then fires the message

accordingly (during a particular television programme, on a poster at a particular road junction, in a particular newspaper and so on). We have seen that the catalytic individuals in which we are interested are scattered throughout the population – they have no common socio-economic characteristics, and could not therefore be targeted in this traditional manner. We do know, however, that they have similar personality traits – in particular, a strong desire to help others. An innovative possibility, mimicking certain commercial marketing campaigns, may therefore be to develop marketing messages that could be generically 'fired' with the intention that only particular types of individuals would notice or heed the message.

These approaches are all innovative, and further work would be needed fully to detail how any pilots could and should be done. The possibility of different approaches being trialled in different settings, for different headline behaviours, would seem – resources willing – appropriate.

Further work, too, could easily and usefully focus on particular outstanding research questions that have been highlighted by our work. Three, in particular, stand out:

- Firstly, our research has focused overwhelmingly on individuals that exert influence – we have attended very little to those that are influenced. Some recent research literature suggests that there are circumstances in which diffusion proceeds because a mass of easily influenced people influence other easily

influenced people; whilst, more generally, even the influence of catalytic individuals is in large part a function of the views and perspectives of those that are being influenced.

We do not believe that further desk research is required in this regard. However, there may well be scope for primary research to explore how and how often people are influenced. There would appear to be scope for both qualitative work (which would need to be carefully structured, since people are unlikely easily to know or to admit to being influenced) and quantitative work (suitably worked omnibus questions could, in principle, give very useful insights into the relative importance in people's minds of catalytic individuals as opposed to other factors).

- The second area where relatively little is known concerns the composition and condition of actual social networks. We have seen that network conditions are a major factor influencing diffusion; we have seen, too, that there is very little 'real world' data on such networks. It would clearly be impractical to map the innumerable social networks that characterise modern Britain, but possibilities include:

(a) action research projects associated with the pilot projects discussed above;

(b) formal attempts to quantify the number of particular network types;

(c) efforts to, in a particular location, understand the

inter-relationship between different, over-lapping social networks;

(d) more theoretical work to identify the visible factors that could indicate a network's readiness or otherwise to make more rapid shifts in social norms.

- Thirdly, we are aware through, for example, our work evaluating Defra's Environmental Action Fund, that a number of projects in the UK in the very recent past have been pursuing behaviour change programmes that involve a focus on specific individuals. At the time of writing, very little of this work has been formally evaluated, and still less has it been drawn together in a manner that might complement the literature-based and interview based material presented in this report. An exercise might therefore usefully be undertaken, in due course, to ensure a dynamic process of learning lessons from these experiences.

There will, of course, always be more research that could be done. However, as Eric Beinhocker put it when speaking to Defra recently about his book "The Origin of Wealth: Evolution, Complexity, and the Radical Remaking of Economics", there comes a point in the development of an idea when there is no alternative but to give it a go, and tinker. We have been persuaded, on the basis of our research, that there is mileage in the idea of engaging with catalytic individuals to accelerate the update of pro-environmental behaviours and that it is time to give it a go.

In our 2005 paper for Defra
“Triggering Widespread Adoption
of Sustainable Behaviour”, we
concluded by suggesting that
whilst it may not be possible to
‘nudge an S-curve’, it might well
be possible to ‘coax diffusion’.
Perhaps, somewhere between a
nudge, a coax and a tinker, there
is an achievable and even
enjoyable way to change people’s
behaviour.

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