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Towards a unifying narrative for climate change

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Headlines:

- The scientific case for climate change has been made, and solutions for reducing emissions are now readily available. However, there is a significant action gap between what the scientific evidence shows must be done to prevent the worst impacts of climate change, and what we are currently doing.
- The social and political dimensions of implementing the solutions to the climate change problem are at the heart of this action gap.
- The focus for stimulating action on climate change should therefore shift from scientific, technical and economic perspectives to these social and political elements.
- A good strategy must be at the heart of a climate change solution – combining existing scientific, technical and economic knowledge into a clear overarching blueprint.
- A set of strategic narratives – a story, or system of stories, that explain this strategy in a persuasive way – will be the most effective mechanism to provide relevance for the strategy, ensure engagement with a variety of stakeholders, and motivate action to realise the strategy.
- The process of developing strategic narratives would, itself, play an important role in unifying existing approaches, philosophies and attitudes to climate change into a cohesive and effective message.
- It is time for a wide range of stakeholders to come together and begin an iterative process of narrative forming through a constructive dialogue. This process should engage as many relevant stakeholders as possible, and is likely to require a catalyst or central agent to ensure a link to practice. The outcome of this iterative process should be a short, digestible and persuasive set of narratives that are then propagated by those stakeholders.

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Introduction

At the beginning of the new millennium, the word 'Anthropocene' was first used to describe the geological age in which we are now living, in recognition of the distinct and well-established changes to the Earth that humanity has caused since the industrial revolution[1,2]. Thirteen years later, the Intergovernmental Panel on Climate Change (IPCC) stated that: "It is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century,"[3] a position that 97.2% of researchers agree with[4]. This warming may have catastrophic effects on a global scale – "If we don't tackle climate change, our other problems will be moot"[5].

A number of reports have shown that there are multiple ways of solving the problem to minimise the negative impacts of climate change. These are not only technically feasible but also affordable and will deliver long-term economic, environmental, health and social benefits[6–10].

Despite this extensive scientific evidence, there is a significant gap between the globally accepted targets for limiting global temperature rise to 'safe' levels (2°C target, 1.5°C ambition)[11] and the sum of the contributions by individual countries ('NDCs', which indicate likely temperature rises of 2.7 – 3.7°C)[12], as illustrated in Figure 1. There is a further gap between these declared contributions to the global target, and the policy measures that are currently in place[13]. This so-called 'action gap' presents a serious challenge to policymakers and to humanity[14].[i]

There are several reasons for this action gap including a number of related sociological, psychological and political problems. Notably, there are two related reasons that both explain the action gap, and could be used to address it. The first is the absence of credible national-level strategy for addressing the problem. In the UK, for example, there has been a vast array of different roadmaps, targets and plans for how to tackle climate change, but there is a lack of any clear, coordinated strategy. The second reason for the action gap is the failure to explain the problem of climate change, and its solutions, in a compelling way[15]. Interestingly, neither of these reasons are scientific, technical or economic.

A coherent strategy and a compelling strategic narrative are essential to closing the action gap on climate change. This paper explores the reasons for the action gap, explains the importance of strategy and strategic narrative, and provides recommendations for the steps required to close this gap.

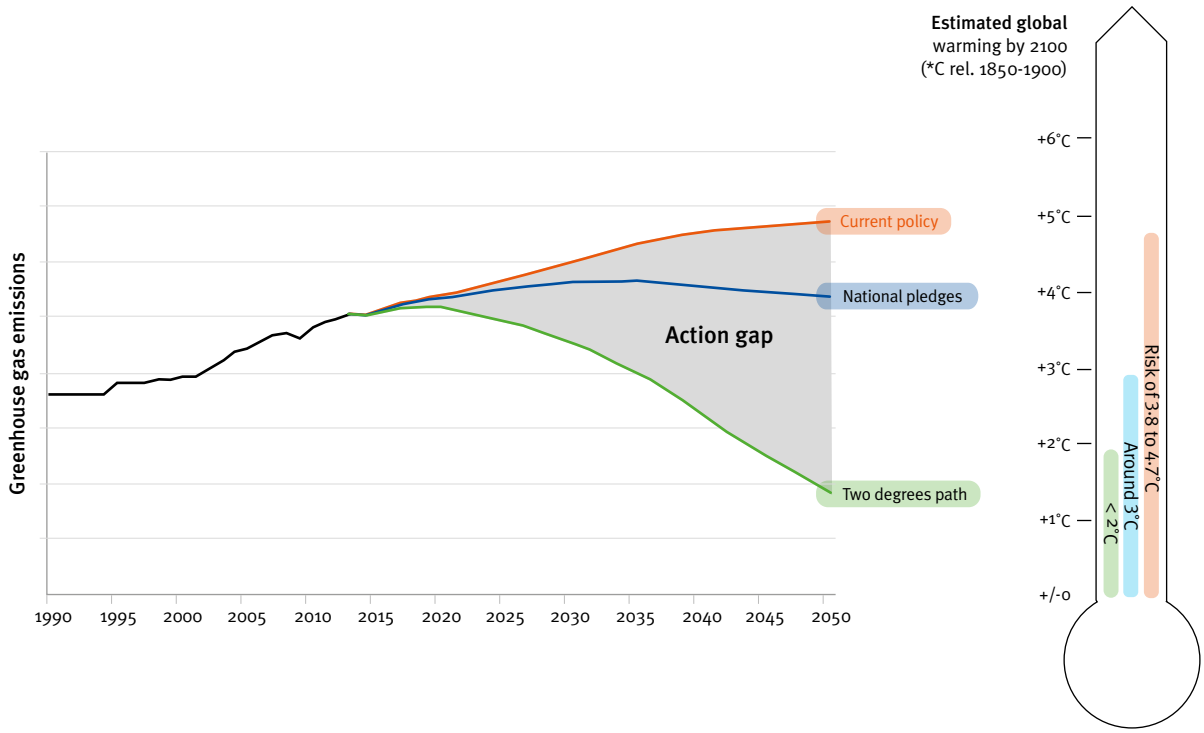

Figure 1: The 'action gap' on climate change. There is a large gap between emissions levels required to limit global temperature rises to less than 2°C and national pledges for COP21. There is a further significant gap between these pledges and what current policy is likely to achieve.

i. This action gap should not be confused with the 'value-action gap', or more formally the 'attitude-behaviour inconsistency', which describes the difference between an individual's stated concerns about climate change or other environmental issues and their behavioural response to the problem[130,131].

Climate change – a super wicked problem

The nature of climate change

"Humanity has never faced a problem like climate change. Unlike poverty, hunger, disease and terrorism it affects everybody. Climate change is a ticking clock that we cannot stop or slow down ... The essence is not what we must do but how quickly we must do it."[16]

Climate change is an example of a 'super wicked problem'. These problems have certain key characteristics that make them extremely difficult to address[17]. Four of these characteristics are that: "time is running out; those who cause the problem also seek to provide a solution; the central authority needed to address it is weak or non-existent; and, partly as a result, policy responses discount the future irrationally."[18]

Global economies, and the lifestyles that people worldwide aspire to live, have developed complex interdependencies that must be completely unpicked before we can begin to solve the climate change problem[19]. This complexity means that proposed solutions might lead to unintended and perverse impacts[17,ii]. Importantly, the scale of the issue, and the difficulties involved with conceptualising this scale, might not only result in misaligned business and policy design but also marginalise rather than engage society. When we are faced with a problem that requires "nothing less than the mass mobilisation of every part of the economy, every individual and every community"[20] the scale of the challenge seems overwhelmingly large. People are unable to make the connection between how, for example, boiling a kettle has anything to do with the huge volume of CO_2 that is emitted globally each year. As a result, individual contributions might seem too small and insignificant to change anything on a large scale[21].

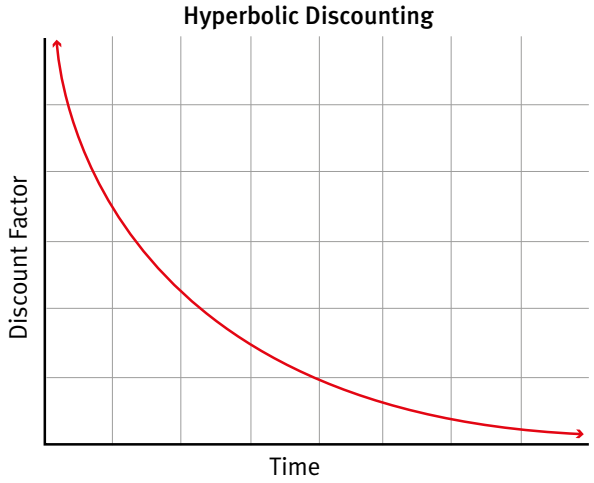

Figure 2: Hyperbolic discounting: a phenomenon whereby individuals place very large importance over short-term horizons and very low importance over long-term horizons.

A long-term challenge requiring action now

Individuals are inherently sceptical when there is a lack of immediate evidence for carrying out a certain action, or immediate and measurable consequences following that action. Climate change tempts this scepticism: CO_2 is invisible, so one cannot see its increasing concentrations in the atmosphere. Furthermore, the climate system is prone to inertia, meaning that raised levels of CO_2 take time to exert their impact on the climate system.

Delayed consequences tend to be disregarded due to the significant time gap between an action and its reaction[22]. This results in individuals discounting climate impacts, a process which can be highly inconsistent[23,24]: Work has suggested that individuals are prone to 'hyperbolic discounting' (see Figure 2), which occurs when we place a "high discount rate over short horizons and a relatively low discount rate over long horizons."[25] In other words, changes that happen in the short term are perceived as significantly more important than changes that happen in the long term. This is clearly a serious issue when trying to persuade people to act on climate change, a problem which has fundamental consequences for society in the longer term but requires significant action in the short term. This difficulty in both conceptualising the causes and effects of climate change, and bounding the issue, has led to what Stern called "the greatest market failure the world has ever seen" – we have completely failed to account for any environmental externalities[10].

This problem is compounded by the short-term thinking pervasive among politicians in liberal democracies. With a five-year election cycle, politicians spend significant amounts of their time in office worrying about getting re-elected, and focusing on subject matter that will produce positive results within the current electoral cycle.

Everyone has a stake, everyone has a role

Climate change "is a truly global problem that directly affects every single citizen of every single nation. This creates an entanglement of interests unprecedented in history. No opt-outs are available."[26] Both the causes of climate change and the solutions lie in the hands of a huge and disparate number of actors with divergent and vested interests. "Every single one of our six billion fellow citizens, every family, every small and large business and every community will need to act in response to climate change. No government in the world can implement a climate agreement alone."[27] The interdependencies between these actors and their contributions to both the causes and solutions of climate change are unprecedented.

Climate change is also a classic example of the 'tragedy of the commons', whereby individuals, by acting independently and out of self-interest, exhaust a common resource, thereby acting against the long-term interests of the group as a whole[28].

ii. An example of this is the rebound effect. This refers to the phenomenon of an unexpected behavioural response to an efficiency gain leading to the perverse effect of an overall increase, or at least no change, in energy usage. For example, if a driver buys a more fuel efficient car, the fact that it now costs less to drive per kilometre might lead to an increase in the number of kilometres driven, thereby either reducing, or even eliminating the environmental benefits of the new car[132–134].

The vested self-interests held by certain actors have had a significant impact on the climate change debate.

Difficulties associated with the energy transition

In order to mitigate climate change, a rapid and far-reaching energy transition is needed.[iii] Many reports have shown that, for example, over the next 30 years electricity generation must evolve from a system dominated by fossil fuels to one based almost exclusively on zero and low carbon energy sources, and heating and transport must be almost entirely electrified. This will be no easy feat – historically the vast majority of energy transitions have taken place over periods of at least 40 to 130 years[29,30].

The nature of some low-carbon technologies – with their supply being dependent on external factors such as the sun and wind, which are difficult to control and not constant, also makes the energy transition difficult. Previous energy transitions have also often come concurrently with a major increase in total energy consumption[31], which must be avoided in the transition to a low-carbon economy. They have also often involved the switch to a new energy carrier, such as the switch from biomass to coal. In the current case, the energy carrier (electricity) will remain the same[32].

Furthermore, there are often no immediate and obvious private benefits for either the end user or the energy provider in switching to low-carbon energy. Rather, this energy transition will yield benefits for a global public good in that the harmful effects of unmitigated climate change will have been avoided. Additionally, there is likely to be a tendency for individuals, and nations, to allow others to bear the burden of making expensive changes, while they do little and merely reap the benefits of others' actions.

The way in which climate change is presented

The complexity, scale, timeframe and all-encompassing nature of climate change mean that presenting the issue in a way that is meaningful and that resonates with people is extremely difficult.

Presenting uncertain information

The term uncertainty has different meaning and impact on different audiences. In politics, uncertainty suggests a lack of clarity and motivates inaction, whereas to a statistician it is merely the difference between the precision of an output relative to an accurate reality and will often motivate action[33]. Uncertainty is inherent in all areas of science, including climate science. For example, temperature data is subject to substantial inherent variability, and predicting the impacts of temperature increases is subject to multiple uncertainties[3,34].

In an attempt to bridge these two understandings of uncertainty, there is a risk of 'scientisation' of the problem – where a problem that is fundamentally political becomes an argument between politicians about their different understandings, or interpretations, of the science. This so-called scientisation "undermines the social value of science itself … Scientific resources end up focused on the meaningless task of reducing uncertainties pertinent to political dispute, rather than addressing societal problems … The opportunity cost may be huge."[35]

The same applies the other way, with the politicisation of science: Nate Silver, author of *The Signal and the Noise,* describes how he, as a relative outsider to both the politics and science of climate change, went to the Copenhagen COP15 climate summit. He had gone "seeking a rigorous scientific debate about global warming", but instead found just politics, and irreconcilable differences between the different political actors[34].

Selecting information

While scientists, and those on the side of the debate that has called for action on climate change, base their arguments on the weight of scientific evidence, sceptics often "reject inconvenient evidence and instead latch onto a few fringe outlier studies", that do not represent the views of the vast majority of scientists[36]. The public finds differentiation between different types of scepticism (e.g. scientific and that driven by self-interest[34]) difficult, which allows non-scientific sceptics to exploit scientific scepticism to advance their arguments.

Despite the simplicity of the underlying physics – greenhouse gases absorb heat, if you emit lots of greenhouse gases then you get global warming – sceptics have managed to raise doubts about this by focussing on the less certain detail, such as the speed and severity of the impacts of climate change, which is irrelevant to the overarching picture of what is happening and what we need to do. Basic risk management would suggest that we should act as quickly as possible.

The ability to misrepresent our understanding of the nature of climate change and its likely impacts, or the degree of agreement between scientists, is made worse by the way that arguments are portrayed in the media and the capacity of vested interests to gain political access via lobbying. Boykoff highlights that the way in which the media present climate change, giving a balanced view of the state of argumentation for specific climate issues, inherently underrepresents the degree of consensus that climate change is taking place[37]. Furthermore, the nature of the groups with vested interests, often large companies who benefit from the status quo, have the resources to be able to lobby government much more effectively than environmentalists. For example, in 2010, following COP15, where a 2°C limit on emissions was set, 'energy and natural resource' lobbying in the United States peaked at approximately $454 million, of which 96% came from the electric utilities, oil and gas, mining and energy sectors[38].

Choosing language

"Is there a problem with the phrase 'protecting the environment'? Yes. The image you get is of the environment as something separate from you. It sounds as if there is a helpless environment out there and you are the big protector. The expression ignores

iii. Energy transition: "the switch from an economic system dependent on one or a series of energy sources and technologies to another"[31].

the fact that we are part of nature, that we are nurtured by it, that we owe our very existence to it, and that it is our actions that are threatening what gives us, and everything else, life."[39]

Communicating the urgency and importance of climate change has not been an easy task, in part because the wrong language has often been used[40,41]. Frequently, alarmism has been employed, which is often an ineffective way of creating a sense of urgency, frequently leading instead to disengagement[42,43]. Words such as 'sustainability' and 'green' have been overused to the extent where they have, in many situations, become almost meaningless jargon, and some argue that they are now more harmful than useful[44]. The concepts and language used have also become increasingly technical and abstract: people can't relate to terms such as parts per million and CO_2, or understand how a 2°C increase in temperature might affect them.

The 'information deficit model' has long been a basis for public policy, especially on scientific topics such as global warming[45]. This "assumes that the public are 'empty vessels' waiting to be filled with information which will propel them into rational action"[46], but has more recently been generally criticised as inappropriate, as knowledge doesn't necessarily lead to more appropriate behaviour, and people instead see information through the lens of their pre-existing prejudices, morals, norms and values[47–49]. "Factual information is usually not sufficient to motivate behaviour … People are more likely to be motivated by prior beliefs and values."[50] "Just using the language of scientific facts when talking about global warming and the environment means that the emotional and moral significance of those facts may not be understood."[39]

A failure to communicate effectively

A government report published in 2015 "found little evidence of any significant coordination amongst Government, government agencies and bodies at national and local levels to communicate the science to the public … A lack of a clear, consistent and compelling messages on the science has a detrimental impact on the public's trust in climate science."[51] One of the reasons for this may be our inability to tell persuasive stories at the political level. An established preference for statistical arguments, buzzwords and clichés has eroded the western world's ability to construct effective, memorable stories[52].

We are also using the wrong messengers. Most communication on climate change to the public is done by politicians or scientists. This is problematic for two reasons. Firstly, the public does not trust the government[53], especially on climate change[54]. Secondly, scientists can give the impression that the issue is one which only they understand and which they must educate others about. This dynamic can create "an abiding rift between listener and speaker, preventing the listener from truly gaining ownership of the problem because of its alleged purely technical nature and the implicit hierarchy of expert/lay person in which it is approached."[41]

Contradictory messages undermine a coherent strategy

"The key problem in UK politics is this. The government has presented climate change as a potential catastrophe … Yet its statements about solutions, and its actual policies, do not match up to the story it tells … Mixed messages are highly damaging to public understanding, trust and sense of personal capacity to act."[55]

There are many examples of the mixed messaging that occurs frequently in government[56]. For example, despite the UK Prime Minister David Cameron once promising to run the "greenest government ever"[57], he has rarely even mentioned climate change, going as far as telling his aides to "get rid of all the green crap".[58] According to the official government website, in his first term, Cameron made just two speeches labelled as being *about climate change*. In one of these two speeches he failed to use either of the words 'climate change' or 'global warming'[iv].

Most recently, the UK government has removed substantial proportions of funding for the large scale deployment of renewables and cancelled the competition to develop Carbon Capture and Storage technology in the UK[59,60]. These decisions disconnect the capacity for the UK to undertake strategic innovation and energy technology deployment at a rate consistent with the scale of the challenge of decarbonising the UK energy system by 2050. Creating this disconnect and relying instead on the market to deliver incremental innovation creates dissonance between rhetoric of the need to address climate change and the ways and means of achieving this. Chris Rose sums up the UK government's problems as follows:

"Its actions have not helped create an effective visual narrative at home, as so much has been invisible. Desire for least-cost, hands-off, market solutions has led to a reliance on things like tweaking the terms of the electricity trading pool, emissions trading and other measures that mean and signal nothing in everyday life: it is all bean-counting jiggery-pokery and policy-speak mumbo jumbo."[61]

A lack of coherent messaging at the international level is highlighted by nations' commitments to climate change on one hand, and fossil fuel subsidies on the other. In December 2015, nearly all of the world's nations pledged to keep global temperature rise below 2°C relative to pre-industrial levels. These same nations have consistently ignored, and continue to ignore, the International Monetary Fund's (IMF) recommendations that lower fossil fuel commodity prices, as experienced in the last quarter of 2015, provide an excellent opportunity to reduce subsidies for fossil fuels. Subsidies for fossil fuels have been at least four to five times the subsidies given to renewables, if not forty times higher according to some reports[62,63], and their removal represents one of the cheapest ways of reducing carbon emissions[64].

iv. Authors' analysis of gov.uk

Sociological, psychological and political problems

The inherent problems with the way that climate change is presented play to various features of human psychology and sociology. As a result, we do not feel the urge to act on climate change. These sociological and psychological problems will now be examined.

Cognitive dissonance

In psychology, 'cognitive dissonance' describes the mental discomfort that is felt by someone who holds two or more contradictory beliefs[65]. In this context, it could describe an individual who believes that anthropogenic climate change is happening and could have negative consequences and that therefore we should mitigate this problem. They believe that one way of mitigating the problem would be by reducing air travel, but at the same time maintain that they should be able to take as many flights as they want.

A European Environment Agency report showed the significant role that social norms play in controlling energy consumption[66]. This effect is enhanced by our natural resistance towards changes in our habits and preference for the status quo[67]. If only 56% of the UK public believe that "Climate change is happening and is mostly caused by humans"[68], then for many it is perhaps "far more simple to deny science, than to accept that one's worldview is wrong"[69]. In this way, 'reality' is tailored to fit with one's personal narratives and stories[70].

Individuals will try to reduce the dissonance that they feel by changing their behaviour, changing their 'knowledge' about an issue – such as saying that their behaviour is inconsequential on a global scale (an example of othering – see next section) – or by seeking new knowledge that reduces the dissonance, such as evidence that climate change isn't happening.

The problem of 'othering'

In this context, 'othering' refers to the mechanism of portraying climate change as someone else's problem. This mechanism may be a way of reducing the cognitive dissonance felt by an individual who believes that something should be done about climate change, but due either to the all-pervasive nature of the problem or due to social norms, feels unable to do anything.

The perception that others, whether they be peers, elites or people in other countries, are not 'pulling their weight' – in other words, a low sense of political and collective efficacy – can also be a barrier to action[71]. People may also have a low sense of self-efficacy, meaning that they believe "that they lack the knowledge, skills or capacities to act."[71]

This othering mechanism helps to distance individuals "from taking any responsibility for seemingly overwhelming problems."[72] It is also useful for groups, or society as a whole as "it maintains a sense of that which is normal and desirable in a given culture."[73]

Cultural barriers and social norms

When a problem or concept is unfamiliar, a process of 'anchoring' takes place in which these new concepts are interpreted with reference to more familiar phenomena[74]. "Unwittingly, the meaning of seemingly similar phenomena is imposed onto a new phenomenon."[73]

As argued in the book *War from the Ground Up*[75], understanding the role of history and past experiences in shaping audiences' receptiveness to messaging is important in order to identify the competing narratives that need to be reconciled.

This process is amplified by the public's perception of the opinions of others: a recent report found that only 5% of British adults estimated that "between 75% and 100% of the public support the use of renewables, despite findings showing that 80% of the public support this."[76]

The failure of political strategic thinking and static policy design

Policy making exists in an extremely complex political, financial and social global environment, and the complex nature of climate change adds to this. This makes predicting the future, and anticipating the effects of policy, difficult if not impossible. Current policy design involves attempting to choose the best policy for an uncertain future, then seeing that policy in its initial state through to the end. It has been shown that this is less cost efficient than 'dynamic adaptive policy' (DAP)[77,78] – policy that can change over time, and remain robust, in response to future events.

Even more concerning is that the modern political class, especially in liberal democracies, has demonstrated a limited capacity to understand and enact strategy, as has been demonstrated by the poor execution of the 'war on terror'. In the UK, the proliferation of roadmaps and 2050 strategies has given the illusion of undertaking strategic thinking, but this has finite effectiveness as it focuses on far away issues which stand an apparently slim chance of taking place. This approach may actually result in more fire-fighting due to the lack of prioritisation of the here and now. The editor of The Independent reported that "[David] Cameron's close circle of foreign policy advisers...has explained...that the Prime Minister does not really think about strategy at all."[79] In 2009, the Chief of the Defence Staff said that the UK has "lost an institutionalised capacity for, and culture of, strategic thought."[80]

Furthermore, the complexity of the strategy required for climate change has led to a gradual oversimplification of issues in an attempt at making it understandable and easy to communicate. For example, a line of communication which states that fossil fuels and fossil fuel companies have no role in a low carbon, climate compatible world is polarising and limits progress. The polarisation of audiences is self-fulfilling and hinders the alignment of audiences around a common narrative to realise a mutually beneficial strategy. The reality is that the world energy

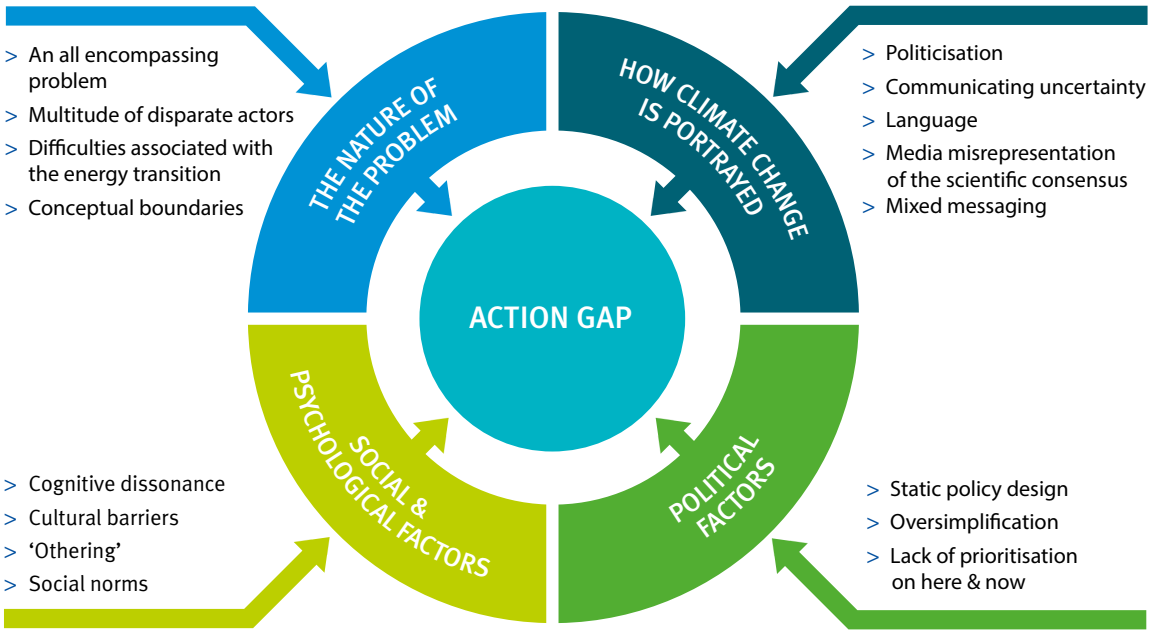

Figure 3: The reasons behind the 'action gap' between what the scientific evidence shows must be done to prevent the worst impacts of climate change, and what we are currently doing.

system is dependent on fossil fuels to such an extensive degree that there is likely to be a key role for the fossil fuel industry in the transition to a low carbon, climate compatible world. It is only by working with both the fossil fuel and low carbon sectors that a meaningful transition will be realised.

Closing the action gap

There are a large number of complex, connected reasons for the action gap on climate change. We must find a way of closing this action gap and, as Tony de Brum, former Foreign Minister of the Republic of the Marshall Islands, recently said, "we have the tools and technology to do it. Now we need the leadership and political will to make it happen."[81] What we are lacking is the political will to enact these solutions. A second, related factor, is the absence of public support for these solutions. As John Ashton, former Special Representative for Climate Change at the UK Foreign and Commonwealth Office (FCO), said: "We have started to will the ends but not yet the means. Yes, but not now. Yes, but not us."[16]

How to give meaning to the super wicked problem of climate change and motivate change?

It is essential that we develop a clear and compelling strategy to start closing the action gap on climate change. A good strategy would form the basis for bringing together the multitude of actors, who are both part of the cause and essential to solve climate change, together in a coordinated manner, working towards a common goal.

A strategy is an organising idea – an overarching approach to dealing with the challenges facing an individual or organisation. Strategic narratives are the 'public face' of strategy – a story, or system of stories that explain a strategy in a persuasive way[14]. The actions needed for the implementation of the strategy appear as events that take place in the narrative. Although we maintain that the UK government's strategy to address decarbonisation and climate change more generally is flawed (see *The Failure of Political Strategic Thinking and Static Policy Design*[135] for preliminary analysis of the state of UK government strategy around climate change) we focus here on the effective development of a coherent narrative around climate change. No matter how good a strategy is, in the absence of a narrative it will always struggle to gain traction and be effective.

Going beyond stories, narratives are needed

"It might be said that each of us constructs and lives, a 'narrative', and that this narrative is us, our identities ... Each of us is a singular narrative, which is constructed, continually, unconsciously, by, through, and in us ... A man needs such a narrative, a continuous inner narrative, to maintain his identity, his self."[82]

Narrative, storytelling and communication are of vital importance to the way in which we live our lives[83–85]. Our world is constantly "constructed and reconstructed ... by the stories, or 'narratives' that social actors construct about it."[86] These narratives are shaped by us, and they mould us and the societies in which we live[87–89]. They are a way of connecting, and giving meaning to, series of events and actions which would otherwise not obviously be connected and in which we would struggle to find meaning and commonality[90,91]. Telling stories is an essential human activity, and appears to be one of the first methods of dialogue that we learn[92].

The question of what narrative is, is a question for which there are countless answers and little consensus[93–95]. However, for the purpose of this paper the important question is not what narrative is but what narrative does, or can do. At its basic level, a narrative will explain the situation, define a problem that disrupts the order of the initial situation and then provide a resolution to that problem, that re-establishes that order[96]: in the case of climate change, to close the gap between climate policy and action.

Narratives turn individual 'events' into 'episodes' through emplotment, which "gives significance to independent instances" rather than "their chronological or categorical order"[70]. It is through emplotment that we then make sense of future events, which we 'test' against the narrative, and vice versa.

A complication for governments trying to use narrative to communicate climate change policy is that a narrative is not a single, static 'story' that is repeated verbatim over time; it encompasses a range of stories told and interpreted differently depending on the audience[v]. A narrative is a common thread that runs through many different stories told by different people in different ways over time.

Stories are always constructed and told with an audience in mind[85,97]. This process happens from a very young age: in tapes of a two-year old child's dialogues and monologues, "Emily is astonishingly duller in her dialogues than in monologue … dialogue with her parents gives her a fixed frame within which she must insert categorically appropriate completions."[98]

"The audience, whether physically present or not, exerts a crucial influence on what can and cannot be said, how things should be expressed, what can be taken for granted, what needs explaining, and so on."[97] This has been evident in communication on climate change where it has often been assumed that the audience, the general public, will respond well to being given more scientific evidence, communicated in a scientific fashion. This audience assumption has shaped much of the communication on climate change.

"While narratives can be constructed, planned, and promoted by specific actors to achieve desired objectives, they are not messages that get 'delivered'." They are not simply a 'message' to be sent out to an audience in order to trigger certain expected (and predictable) behaviours", and "they do not 'spread' like viruses either"[86]. Instead, it is a social product that only exists "through a collective [and continuous] reconstruction and retelling process' by the audience[86]. This process of appropriation, interpretation, retelling and reconstruction help us organise, shape and interpret the unknown, by "giving it one or other kind of narrative pattern, placing it into one or another kind of narrative frame."[98]

Narratives can, therefore, only be promoted by an actor: how they will be appropriated and interpreted by the audience and whether or not they will be retold and therefore continue to exist is merely something that the narrator can influence, not control. This is especially true in the "global and porous information environment" in which we try to promote these narratives[86]. One can no longer simply convey a narrative to a single audience – instead it will be commented on, interpreted, appropriated and retold by multiple actors, to multiple audiences. In this way the narratives take on a 'life of their own' once they are put out into the public realm[96].

Strategic narratives

"Stories can mobilise others into action for progressive social change."[99]

A compelling story is almost always more persuasive than abstract arguments or statistics. A unifying, collective narrative gives meaning to events, actions and underlying truths which gives narratives a unique capacity to both persuade and thereby strengthen cooperative action[6,7].

While all narratives are "strategic, functional, and purposeful"[99], a strategic narrative is one which is consciously developed and used to achieve a social actor's aims and communicate a desired end state and the means of getting there[100]. A strategic narrative could be defined as a system of stories that "aspires to communicate state policy goals in a way that makes sense and is persuasive to the various audiences against whom that policy goal is defined."[101] George Marshall, co-founder of Climate Outreach, explained that they are "a political tool with which one generates public support and buy-in; they are an interface with the public."

An effective strategic narrative should provide "a concise statement of what it is doing, why, and how that links a positive vision of the future with the individual actions of members of its own societies and members of other societies whom it wishes to influence."[102]

It would also help address many of the issues identified in the above section. For example, based on the effective use of narratives in international relations work, a good strategic narrative could 'convert' us from 'othering' to 'owning' the problem, which would increase our feeling of self-efficacy. If a critical mass of the general public started owning the problem, it would become a social norm, thereby promoting further action. Furthermore, the creation of a strategic narrative through a continuing strategic dialogue with and amongst relevant audiences could facilitate the development of a relevant, flexible and adaptive strategy through a dynamic and iterative process of strategy and strategic narrative development.

Climate change has not been talked about in the right way, and the way that we talk about climate change is fundamental to whether people accept the need for the strategy, and help to carry out the necessary actions to achieve the goals of the

v. George Marshall highlighted the importance of the distinction between narrative and policy: "Policy is about targets, goal, and objectives, whereas narrative is a socially constructed story, which could of course be completely divorced from reality."

strategy. It is clear that for a number of reasons, climate change is a difficult problem to talk effectively about, and that the way in which the issue of climate change communication has been approached has, to date, not been effective. Table 1 (page 10) summarises the narratives that are currently most prevalent in the climate change discourse in the UK, and comments on why those that support action on climate change (the *Gore, End of the world, Every little helps, Polar bear* and *Green* narratives) are particularly ineffective, and why, conversely, those that do not support action on climate change (the *Debate, Scam, Carbon fuelled expansion* and *Markets* narratives) are particularly effective. The mass media serve as the messenger between the actors who are projecting their strategic narrative, and the public who are receiving it. Herman and Chomsky argue that mass media "are effective and powerful ideological institutions that carry out a system-supportive propaganda function by reliance on market forces, internalised assumptions, and self-censorship, and without overt coercion."[110]

The effects of the media and the interconnected and global public sphere will pose problems for strategic narratives in the climate change arena: there are already multiple, competing and effective narratives present in the discourse. A strategic narrative will have to be able to accommodate and, when necessary, compete against these narratives.

Why a strategic narrative for climate change?

"A man is always a teller of tales, he lives surrounded by his stories and the stories of others, he sees everything that happens to him through them; and he tries to live his life as if he were recounting it." [111]

There are three key reasons why a strategic narrative is important for the climate agenda:

1. The complexity of climate change

The complexity of climate change means that it is difficult to understand the nature of the problem and solutions. Narratives are the way in which we make sense of our lives and the world around us. They help us find meaning in a series of events that would otherwise be unconnected[112]. "Stories give shape to 'disorderly' experiences"[90] while "[a] successful narrative will link certain events while disentangling others [and] distinguish good news from bad tidings."[113]

"Most people lack the time, education or motivation to access … technical scientific arguments and reach their beliefs [about climate change] through … applying tried and tested mental shortcuts." [114]

Climate change is an incredibly complex problem for a multitude of reasons. In the past, policymakers have assumed that information will be sufficient to motivate action: "if we provide the carrots and sticks, alongside accurate information, people will weigh up the revised costs and benefits of their actions and respond accordingly."[115] However, as we are limited in our decision-making ability by the information and time available to us, as well our own cognitive limitations, we use mental shortcuts and social cues to help make sense of the complex world we live in[114,116,117].

A strategic narrative could help us make sense of experiences, actions and observations that would otherwise be difficult to understand, such as the causes and consequences of climate change, and its solutions. The narratives promoted would do this by placing them in the context of other, related events and experiences, and by providing a frame, or an interpretive lens, through which to view and understand the actions. It could allow individuals to develop an understanding as to why they should care about climate change, making the issue more personal and attaching a more tangible benefit to the development of solutions to address the problem.

A strategic narrative can help the electorate to understand the stark realities of the impacts of climate change, what it really means for them and their children, what policy measures there are, why they are being used, the actions each individual can take and how those actions will contribute to the wider goals.

2. Legitimisation of policy

Strategic narratives are a way of communicating strategy in a persuasive way and could therefore help legitimise and explain government strategy on climate change.

"A good story and a well-formed argument are different natural kinds. Both can be used as means for convincing another. Yet what they convince others of is fundamentally different: arguments convince one of their truth, stories of their lifelikeness." [87]

Delivering solutions to climate change requires a number of diverse policy interventions. It is therefore often difficult to understand why certain policies are being implemented, or why there is a need to, for example, create a capacity mechanism in the UK. A strategic narrative could be defined as "a story that aspires to communicate state policy goals in a way that makes sense and is persuasive to the various audiences against whom that policy goal is defined"[101], and hence could help explain the government's policies, policy goals and strategies.

According to a number of sources, the UK Department for Energy and Climate Change (DECC) "has recognised that it's got to tell its story much better, if it wants to bring people with the Department." Strategic narratives help actors "project their values and interests in order to extend their influence, manage expectations and change the discursive environment."[96] Moreover, as they must develop through public engagement, their formation can "provide valuable insights that can improve decision making … to provide more acceptable and effective outcomes."[113]

Table 1: Prevalent narratives in the UK climate change discourse

Narrative	Explanation	Comments on this narrative
Gore	This starts with "the idea that 'the science is finished' ... as portrayed in An Inconvenient Truth. Martial and nationalist rhetoric, drawn from the second world war and the space race, set a tone for how society should respond."[103]	Joe Smith says that this narrative "proved insufficiently supple and robust. The rapid journey that people were offered — from apocalyptic scenarios to low-energy light bulbs — asked too much, too quickly, and many welcomed the chance, when it came along, to reject it."[77] It also "led to an over-emphasis on certainties ... a tactic designed to cope with the very narrow spaces of mainstream (old) media. This approach has been relentlessly punished in the more plural and discursive spaces of social media."[77]
End of the world	Organisations such as 350.org and One Hundred Months, who say "We have only 100 months to avoid disaster"[77].	Alarmism is generally an ineffective way to create urgency, and more often than not leads people instead to disengage[42,43].
Every little helps	Each of us should do our bit to solve the problem, e.g. Act on CO_2 campaign[104,105].	When people are faced with such a large problem as this, they feel that small changes they make can't possibly make any difference to the problem[21].
Polar bear	This narrative revolves around trying to save the polar bears whose habitat is being destroyed as the world warms up and the ice melts, e.g. Greenpeace.	As Neil Morisetti said, when we are faced with problems like the recent financial crisis, a problem that is perceived to be about polar bears can wait, as we have more immediate problems to worry about, leaving space for those who are not convinced of the need to act to exploit this. In fact, 'we are the polar bears': it is not the planet that is in danger, but humanity itself[39].
Green living	Living sustainably, such as not driving a car, is what everyone should do in order to solve the problem, e.g. Centre for Alternative Technology[106].	This is a classic case of social norms: even The Guardian, referred to those at CAT as 'Welsh hippies'[107]. People are much more likely to support a particular measure or behave in a certain way if they are either aware of, or imagine that, others are behaving in the same way[108,109]. This is in part due to the fear of not conforming to those norms.
Debate	The 'debate' on climate change is still open.	Both of these narratives play to the issues of cognitive dissonance discussed on page 6. People are easily convinced by these narratives, as it reduces the dissonance they feel.
Scam	Climate change is a myth propagated by those with vested interests, e.g. the documentary film 'The Great Global Warming Swindle'.	
Carbon fuelled expansion	Climate change mitigation is expensive, and therefore a hamper to economic growth, which is of fundamental importance.	These two narratives are comfortable for people as they fit in with our cultural history, and knowledge of past experiences. This is how we have always lived, and been successful, and markets are how we have solved problems before, so why shouldn't it work now? The problem, of course, is that carbon-fuelled expansion cannot go on indefinitely and markets don't account for environmental externalities.
Markets	The market can resolve almost all social, economic and political problems.	

A final point about a strategic narrative is that in building public opinion, it could be self-perpetuating. If the electorate is persuaded that action needs to be taken, this gives government a stronger mandate to act, and also allows government to tailor their narrative, which is of course developed continuously and iteratively, to a more 'mature' audience, i.e. one who understands some of the problems and is involved in the first stage of actions to solve climate change. These government and individual actions and this developed narrative will then persuade the electorate further, or simply persuade a larger proportion of the electorate, and so the cycle continues in a virtuous circle (see Figure 4).

3. Behaviour change
An effective strategic narrative would help drive behaviour change, in a manner that would still allow freedom of choice and would come at a relatively low financial and political cost.

"The plain fact is that modern government with its complex laws, access to finance ... and information technology capacity – as well as the leverage it gets from democratic legitimacy – cannot get a group of citizens to behave differently if they do not wish to do so."[24]

In order to achieve our objectives on climate change, many reports have shown that demand side management, i.e. social change of some sort, is *essential*[119]. Behaviour change is also the most cost effective way to reduce carbon emissions. This behaviour change can only happen if those who need to embrace it are willing to do so.

Citizens do not have time to process all of the information required to make informed decisions in the complex world we inhabit, so "they use social cues to help them decide what to do."[24] People look to others to help determine the 'rules' of how they should behave in various situations. Strategic narratives could "lead to low cost, low pain ways of nudging citizens – or ourselves into new ways of acting by going with the grain of how we think and act."[115]

It is essential to stipulate here that strategic narratives are not there to force citizens to change their mind, or in some way pull the wool over their eyes. They exist instead to inform people and create the conditions to enable us to make better choices. "Shifting the architecture for citizens' individual and collective choices is as appropriate and legitimate an act for government as passing laws and regulations or creating systems of taxes and charges."[24] How people make choices is constantly being influenced, both deliberately and unintentionally, by various social actors. The difference is that governments have been given a democratic mandate to promote good citizenship for the common good, and strategic narrative is just one way of doing that.

What could a good strategic narrative on climate change achieve?

Table 2 summarises how a strategic narrative could address each of the reasons for the action gap.

In summary, a good strategic narrative could: inspire and empower citizens to act on climate change; help explain, coordinate and legitimise science and policy; and persuade people and businesses to take action, with the end result being a narrowing action gap on climate change.

Creating a strategic narrative

"It always seems impossible until it's done." – Nelson Mandela

Governments should act as a powerful, driving nexus in the development of a coherent strategic narrative and effective strategy on climate change. It is important to note that these two should be developed together. Strategy consultants state "you're aligning people around the strategy all the time. When you're designing the strategy, you're designing it with a small microcosm of the organisation ... from the moment of inception you need a story. And it needs to therefore resonate with the target audience in mind, and therefore the language needs to apply to them."

How a strategic narrative might be created

A strategic narrative on climate change should be the outcome of a process of communications planning, centred on a climate change strategy.

Narratives have been described as "the outcome of a collective process of social construction" and through this process "contribute to shaping the identities of both those who have built them and those who appropriate them."[86] They also might be formed through a process of 'narrative shaping', which "entails imposing a meaningful pattern on what would otherwise be random and disconnected."[97] It is only by trial and improvement that an effective process that suits the specific stakeholders that have been engaged can be developed.

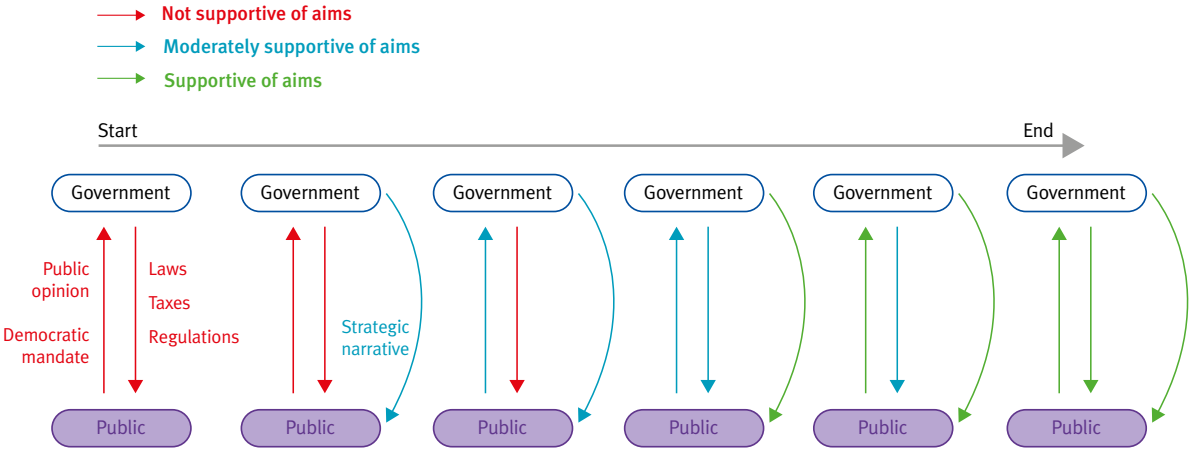

Figure 4: The virtuous circle of strategic narrative, for the interaction between government and public only (this process would be repeated for government – business interactions).

Table 2: How a strategic narrative could address the reasons for the action gap

Reason for the action gap	How a strategic narrative could address this reason
The nature of the issue	
Complexity and all-encompassing nature of the issue	A successful strategic narrative (SN) will allow all key audiences to engage with climate change in a way that is understandable and resonates with them. It will help them to understand the benefits involved in mitigating climate change. It must inspire and empower them, allowing them to understand that they can make a difference.
The multitude of disparate climate change actors	
Spatial and temporal conceptual boundaries	A SN should allow the public to be convinced that despite the lack of direct 'evidence' of the negative effects of climate change, action is required immediately and by everyone worldwide. It would allow actors to see how their actions, even small ones such as turning an appliance off, fit into the overarching strategy. An example of a historical success of inspiring people to make small changes for a larger, common good is the 'Dig for Victory' campaign during the second world war[121].
Difficulties associated with the energy transition	A strong SN can aid the energy transition by helping the government communicate and legitimise its strategies in order that targets can be met over the timescales required, and persuade us all to help by reducing our energy consumption.
The way the issue is presented	
Uncertainty and the role of information	A SN must separate the science from politics of climate change in order to ensure accountability for action is clearly attributed to those whom we have elected to make such difficult decisions on our behalf, rather than allowing them to defer making difficult decisions by scientising the issue.
Language and media issues	The language used must be inspirational. Clement Attlee said that to help win the second world war, what Winston Churchill had done was "talk about it". This was not flippant: Attlee meant that Churchill had been tireless in communicating a powerful vision of what the fighting was about, what the enemy was like and what was at stake for Britain and the free world. If, as many climate activists demand, we should be acting on climate change as if facing a wartime emergency, then we should look for similar power and consistency of 'talk' from our leaders[55].
Communication Issues	The output of a SN could essentially be a very simple "public relations briefing book"[122]. The overarching story told would mean that communication from government, and hopefully from other actors, would be more coordinated.
Mixed messaging	A good SN will allow the public to better contextualise the actions of government. Along with strategy, it will also provide guidance to enable coherent messaging and actions.
Sociological, psychological and political issues	
The problem of 'othering'	A conversion narrative must be developed that helps move people from 'othering' to 'owning' the problem[123]. This would generate "a sense of 'ownership' and responsibility for the problem, at every level from the micro-level to the international"[72].
Cognitive dissonance	A SN must encourage a sense of collective responsibility for climate change action, so that people think that they can 'make a difference'. It must also convince all actors that climate change is happening, thereby making it more 'acceptable' to want to do something about it.
Cultural barriers and social norms	An effective strategic narrative must attempt to influence social norms, by being persuasive to a wide audience, as they can be very effective levers for influencing attitudes towards climate change policy[124].
The failure of political strategic thinking and static policy design	The SN must be developed dynamically through a strategic dialogue[125]. This dialogue must be continued for the duration of the policy measures that are being influenced by the narrative. This adaptive approach and constant reflection is key for DAP design, especially in an area such as climate change, which has considerable uncertainties[126].

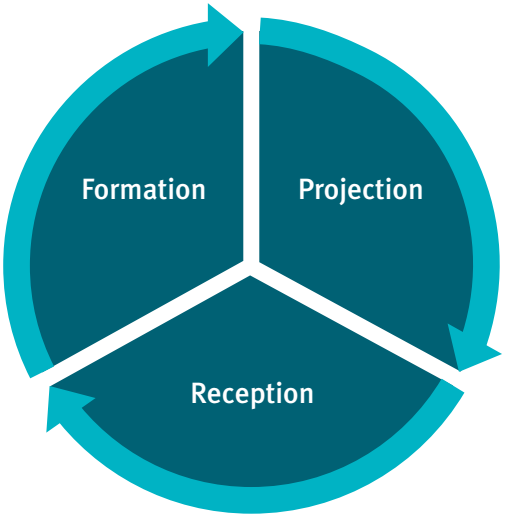

Figure 5: How states seek to project narratives: a triptych of three simultaneous and reinforcing dynamics: Formation/Projection/Reception[127]. Image credit: Miskimmon et al., 2012[127].

Strategic narratives are a dynamic, continuously occurring *process*[127] (see Figure 5). They are an iterative process: once the story is told, it gets appropriated, reconstructed and retold, at which point the strategic narrative must be adapted, built on or nuanced. Narratives evolve over time, and this is important to bear in mind to ensure that their foundational ideas can be adapted to new situations or audiences.

In Figure 6, we present a proposal for what the process for developing a strategic narrative for the climate change agenda could look like.

Getting the setting right

How do we go about starting a strategic narrative development process, combined with long-term strategy, especially in the context of the five-year political cycle? Rear Admiral Neil Morisetti said "it requires leadership from 'the leaders' to enable them to have the space to think strategically, and to understand that they're not going to get it right every time from day one. At the end of the day a plan is a basis for change, it's not a tablet of stone ... you need to allow people to make mistakes in strategic thinking."

There are a number of key considerations for strategic narrative development. Some fundamental and by no means exhaustive aspects are covered below:

1. The need for leadership

"The most important thing is missing: political action. To an enormous degree, governmental action outweighs and shapes individual actions. When we think of the environment, we should be thinking of political involvement."[39]

The government should lead the action on climate change, not only by taking on a strong leadership role, both at home and internationally, but also by taking the initiative and by being seen to be doing as much as it can. This "is a real opportunity for the government. Instead of claiming it cannot move faster because the UK population might not want to accept change or does not support sustainable policies, the government should be a step ahead, guiding and supporting its people."[56] Businesses desperately want the government to take a strong leadership role, as they currently have no clarity and certainty as to what direction we are going in.

The actions that government take should be visible and public, for "if government wants to create public support for its policies it must communicate not just in words but without words, as visuals: in realities observed or experienced, in pictures in the media, in pictures in the mind."[61] In this way the government's leadership can inspire action from the public.

Finally, the government should lead on action on climate change in order to be seen to be 'doing their bit'. This forms one half of a 'social contract', as "citizens often regard their own behaviour change as part of a contract with expectations on both sides: if citizens are to consider changing their behaviour, they will have high expectations about the behaviour of public agencies."[24]

2. Big picture

It is essential that we keep sight of the scale of the challenge and what we are trying to achieve. However, the focus must be on the aims and the vision not on any one particular way of achieving these aims. This bigger picture focus might mean that some of the strongest narratives that drive climate change might not focus on climate change for some, or multiple, audiences focusing on, for example, energy security, or health co-benefits instead.

It is also important for the leaders to know what is at stake, even if this isn't used in the messaging. If, for example, countries do not deliver on the bold ambitions of the Paris climate talks in December 2015, what does that mean? What would a 4-6°C rise in temperature mean for us in the UK? How would food prices and security be affected, how many homes and businesses would be at risk from flooding?

The international arena is also an important element for setting the wider framing. By highlighting the efforts that are being made around the world, the stakeholders in each country understand that their action is part of a global movement – thereby reducing part of the 'othering' problem.

3. Institutions

There is a need for joined-up thinking and clarity of communications between the relevant institutions, something that at present in the UK and globally is not happening. This is either a symptom of too many institutions (relevant and very important institutions in the UK alone include DECC, the Department for Food and Rural Affairs Defra, the Committee on Climate Change (CCC), the Department for Transport, the Department for Business, Innovation & Skills (BIS) and the Treasury to name a few) or the need for a single body to coordinate them. In 2010, the Conservative party itself said that, in order to achieve 'strategic clarity':

"... we believe that all UK energy policy should be set clearly and comprehensively by ministers accountable to Parliament and the electorate. Other bodies – minimal in number – should be clearly focused on executing, rather than making, public policy."[128]

Examples of other coordination efforts are the United States Global Change Research Program (USGCRP) which brings together 13 Federal departments and agencies to "develop and maintain capabilities that support the Nation's response to global change."[129] In the UK, the National Security Council, though not without its critics, is an example of an attempt to bring together a number of different departments, in this case in a cabinet committee that brings together cabinet ministers representing the Treasury, FCO, MOD, Home office, DFID and DECC, as well as the prime minister and deputy prime minister.

4. Take action now

"Without action, the world would still be an idea." – General Georges F. Doriot, founder of INSEAD

Most importantly, we just need to start developing a strategic narrative and designing better strategy. It is all well and good coming up with a perfect plan, but we will not know whether it works until we start executing that plan. A process for developing a strategic narrative is proposed in Figure 6. Mistakes may be made, but lessons will be learned, and improvements found. We must not forget that "climate change is a ticking clock that we cannot stop or slow down ... The essence is not what we must do but how quickly we must do it."[16]

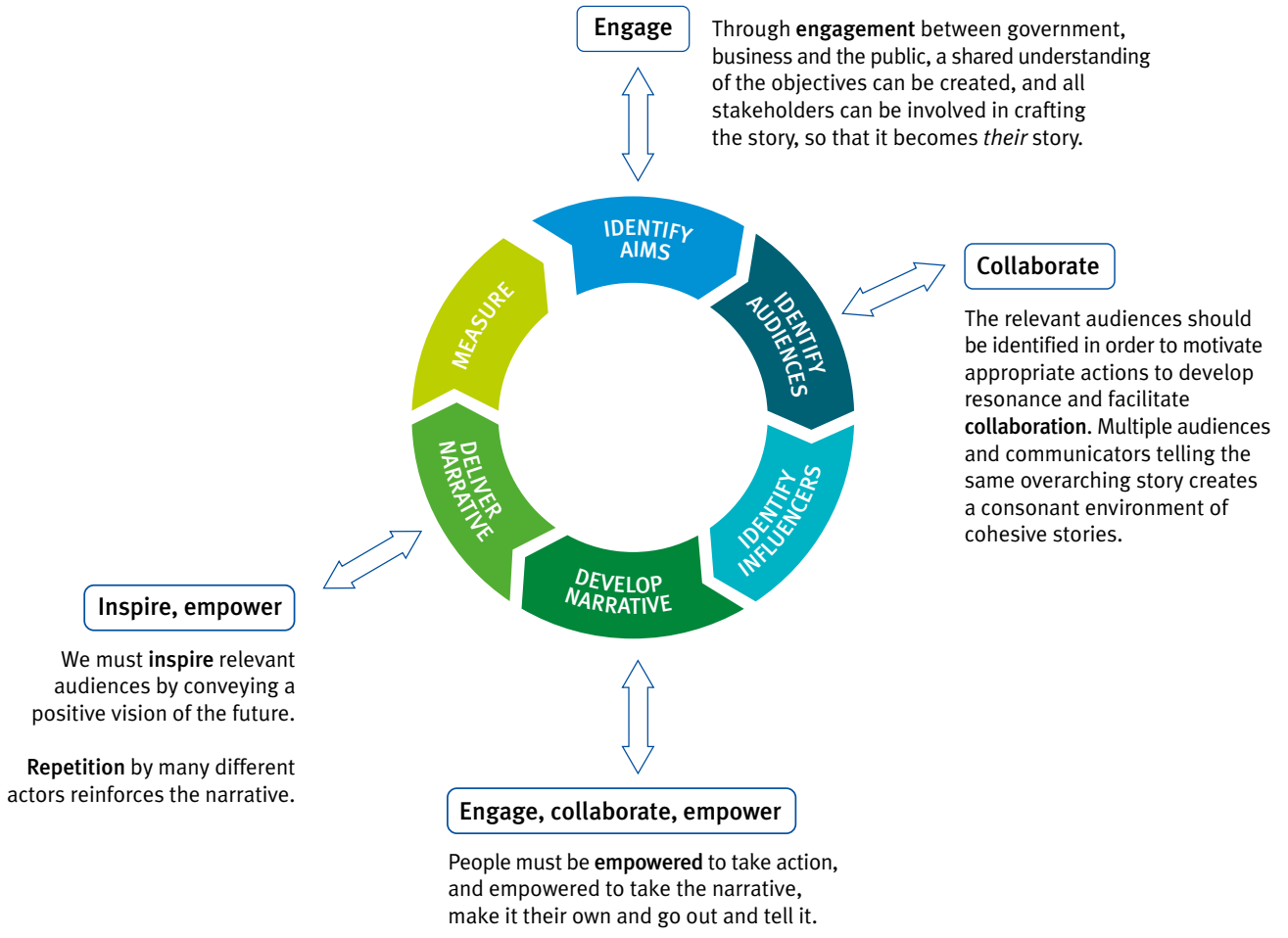

Figure 6: Suggested process for creating a strategic narrative. These cycles of strategic narrative development must be repeated, and the narrative adjusted to changing circumstances.

Conclusion

"This is no time for ease and comfort. It is time to dare and endure." – Winston Churchill

Climate change is a problem unlike any humanity has ever faced before. In the scale, complexity and all-pervasiveness of the issue, not only is the challenge we face greater than any other, but solving the climate change problem offers enormous opportunities, both in the UK and internationally. Worldwide, the opportunities presented by climate change are vast: a new era of international cooperation around a common goal, clean energy, job creation in new industries, health benefits, the alleviation of poverty and others that will feed into the United Nation's sustainable development goals.

However, there is a significant action gap between what scientists tell the government and public the necessary actions are to prevent catastrophic climate change, and the limited efforts that are currently happening globally. This action gap is due to a number of interlinked sociological, psychological and political effects, which mean that the nature of climate change itself and the way it is presented have, to date, not been effective in getting 'buy-in' to the climate change mitigation agenda.

Strategy and strategic narrative are key to closing this action gap. Analysis has shown that the UK government's strategy on climate change could be improved significantly. Irrespective of the quality of the strategy, a strategic narrative is needed to provide meaning to strategy. This strategy, and accompanying narrative, would help coordinate the large scale, decentralised action that is required, as well as help provide long-term certainty for business, industry, individuals and politicians, which is vital for the changes and investments which are necessary. Climate change is, after all, a problem with long-term consequences that requires solutions which must be acted on in the short term, but whose effects will be long lasting.

Those narratives in the climate change discourse that argue for action appear to be ineffective, and are certainly less effective than many of the narratives that have been promoted by climate change sceptics. Narratives arguing for action have often disengaged their audiences from the problem, allowing them to believe that climate change is someone else's problem, that it's not important for them or that they are not in a position to make a difference. Narrative promoted by sceptics, on the other hand, appeal to basic human psychology, social norms and our knowledge of past experiences.

Developed in the right way, a good strategic narrative would inspire, empower, enable, explain, coordinate, legitimise and persuade, with the end result being a narrowing action gap on climate change. This iterative development process should involve strong leadership from government combined with continuous engagement with all of the relevant stakeholders, including the public, and collaboration with stakeholders and experts from various fields. The narratives emerging from this should be retold repeatedly by messengers from as many relevant institutions as possible.

Climate change is arguably the greatest threat ever faced by humankind, but also presents opportunities unlike any other. If we are to tackle this threat and grasp these opportunities, a new approach is urgently needed. Governments, as well as business and thought leaders should prioritise the research, development and implementation of a strategic narrative.

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