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**Information warfare and new organizational landscapes: An inquiry into the  
ExxonMobil-Greenpeace dispute over climate change**

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# **Information warfare and new organizational landscapes: An inquiry into the ExxonMobil-Greenpeace dispute over climate change<sup>1</sup>**

## **Abstract**

A defining characteristic of the emergence of new organizational landscapes is that information is not just being used as a tool by organizations, as it is more usually understood, but also as a weapon in a 'war of position'. As organizations seek to influence public perception over such emotive issues as climate change, conflict at the ideational level can give rise to information warfare campaigns. This concerns the creation and deployment of often ideologically-infused ideas through information networks to promote an organization's interests over those of its adversaries. In this article, we analyse the ways in which ExxonMobil and Greenpeace employ distinctive informational tactics against a range of diverse targets in their dispute over the climate change debate. The purpose of this article is to advance the neo-Gramscian perspective on social movement organizations as a framework for understanding such behaviour. We argue that information warfare is likely to become common as corporations and non-governmental organizations are increasingly sensitive to their informational environment as a source of both opportunity and possible conflict.

Keywords: Climate Change, Corporate Strategy, Information Warfare, Network Society, NGOs, Social Movement Organizations

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## **Introduction**

This article investigates the informational tactics employed by ExxonMobil and Greenpeace in their battle to win the climate change debate. It focuses on the extent to which information has been employed as a disruptive weapon, rather than as a tool used for productive purposes as it is more usually understood in organization theory. Notions of ‘information warfare’ have become a fertile area for theorizing in computer studies (Denning, 1999) and military strategy (Arquilla and Ronfeldt, 1997a, 2001; Knott, 2007; Libicki, 2007), and there is also an emerging literature developing within the social sciences (Terranova, 2004, 2007; Virilio, 2000, 2002). In both military and social conflicts, communication and information systems are increasing the ability of small groups and individuals to confront much larger entities through a range of guerrilla tactics, be they companies, militaries or governments (Arquilla and Ronfeldt, 1997). We argue here that as information warfare gains currency in the civilian realm it is being waged increasingly by organizations such as NGOs, but importantly also by corporations to both defend against perceived threats and to take advantage of identified opportunities arising from their informational environments.

An increased concern with such information warfare tactics corresponds with the rise of the so-called network society (Castells, 1996, 2001). The network society is characterized by the increasing use of distributed networks, most notably the Internet and the World Wide Web. This enables small groups of media savvy ‘information fighters’ (Birnbaum, 2005) to have disproportionate influence over public perception, government planning and business policy. Comparatively poorly resourced social movement organizations have been keen to exploit the advantages offered by modern communication networks (Castells, 2001; Davis & Zald, 2005; Derville, 2005; Heath, 1998; Levy & Newell, 2002). Likewise, companies threatened by the public pillory over the impact of their operations on, for instance, climate change, have responded by developing their own information warfare tactics including

financing networks of loosely affiliated organizations to fight proxy information wars in pursuit of their strategic interests. We show in this article that such tactics have been used extensively by ExxonMobil and Greenpeace, the world's largest oil company and one of its major critics, in their climate change dispute.

The nascent literature addressing organizational responses to such issues as climate change, we suggest, has paid insufficient attention to theorizing the specific nature of the informational strategies and tactics that have been used to legitimize and delegitimize the framing of the climate change debate. Scholars of organization theory have demonstrated how a neo-Gramscian approach can be fruitful for analysing controversial issues such as climate change in terms of strategic 'wars of position' (e.g. Levy & Egan, 2003; Levy & Scully, 2007). Related social movement organizational theory has drawn attention to the use of networks to disseminate messages, but they have yet to elaborate the precise nature of such informational skirmishes between ideologically opposed organizations (e.g. Banerjee, 2003; Boykoff, 2009; Levy & Egan, 2003; Levy & Kolk, 2002; Levy & Newell, 2002; Okereke, 2007; Wittneben, 2007). We address this gap here by combining insights from information warfare and social movement theory to develop a theoretical framework that explains the informational campaigns employed by some organizations in relation to climate change.

A study by Levy and Kolk (2002) into the 'strategic responses to global climate change' of the four oil super majors (i.e. ExxonMobil, Royal/Dutch Shell, Chevron-Texaco and British Petroleum (BP)) found that a diverse range of environmental strategies were employed by the four companies. On the one hand, BP was broadly supportive of climate science and advocated precautionary action, such as investment in renewables, as did Shell and Texaco. On the other hand, ExxonMobil adopted a political strategy of fighting tighter environmental regulation. Organizational responses to the risks associated with climate change thus range from cooperation to conflict (Levy & Egan, 2003). Research shows that variance in

the climate change policies of different oil companies depends upon whether the company's management views it as a real net cost to the company or a 'culturally relevant cost' (Beale & Fernando, 2009, p.29).

More recently it appears that there has been some convergence with the climate change strategies of the oil majors, with some pulling back from commitments to develop alternative energy sources and similar environmentally friendly policies, retrenching in their traditional oil and gas businesses, while others are adopting more conciliatory positions on issues such as climate change. For instance, BP shut down its stand-alone Alternative Energy head office in 2009 and was responsible for the 2010 Deep Water Horizon oil spill in the Gulf of Mexico. Similarly, Shell has been cutting back its investments in renewables with the sale of solar power divisions in 2006 and 2007. ExxonMobil, by contrast, has traditionally taken up one of the most overtly hostile stances towards the climate change debate. It has thus become, unsurprisingly, a chief target of environmental NGOs like Greenpeace resulting in highly adversarial positions. In 2008, however, ExxonMobil pledged to stop funding climate change deniers and it has now adopted energy efficiency as a marketing position (see ExxonMobil, 2012; Wittneben, 2009). While ExxonMobil has adopted an outwardly softer 'climate friendly' discursive strategy, debate continues concerning the extent to which this is genuinely the case (*New York Times*, 1<sup>st</sup> Jul 2011; *The Independent* 7<sup>th</sup> February 2010; Greenpeace, 2011).

In this article we examine the information campaigns employed by the oil giant ExxonMobil and the environmental NGO Greenpeace. Our aim is to show how these two organizations deploy a number of informational tactics against each other in a 'war of position' to alter the public's perception over this controversial issue. The article begins by advancing a neo-Gramscian perspective on social movement theory by drawing on concepts of information warfare. It then develops an empirical case study identifying the tactics of information and misinformation employed by ExxonMobil and Greenpeace with respect to the climate change

debate. These tactics are analysed in terms of the concept of information warfare, highlighting the way in which the debate over climate change is framed by these organizations and, more specifically, the ways in which the different sources of information involved in this debate have become an object of attack and defence. Following this we develop a fine-grained analysis of the specific tactics, targets and methods identified in the case study to make a conceptual contribution to social movement organizational theory by developing Gramsci's idea of a 'war of position' in terms of a tactical information war. In the next section we turn to our theoretical overview.

### **Theoretical Overview: Information Warfare and Organizations**

The manipulation of the public's perception of important social issues has long been a concern for scholars of issues management and public relations (Cralle & Vibbert, 1985; Gaunt & Ollenburger, 1995; Jones & Chase, 1979). To a certain extent it could be argued that the debate over information warfare is little more than old wine in new bottles. The theorists who developed the concept of information warfare have openly acknowledged the important role of techniques such as public relations and propaganda in their development of this concept (Arquilla & Rondfelt, 1997; Denning, 1999; Terranova, 2007).

Tsoukas (1999, p.500) has argued that, 'in late modernity, the organizational environment increasingly consists of signs, namely mediated images, symbols, and knowledge claims'. When issues emerge from a company's symbolic environment that may influence their interests, corporations can respond by using a range of tactics such as public relations events, advertising and lobbying (Cralle & Vibbert, 1985; Hillman & Hitt, 1999; Krippendorff & Eeley, 1986). Such purely managerial approaches have clear limitations as frameworks for understanding the social world in that they are explicitly defined as a strategic planning tool for corporations. For instance, in an analysis of the Brent Spar controversy where Greenpeace

activists had protested a decision to sink a defunct Royal Dutch/Shell oil platform in the North Sea, Heath (1998, p.275) argued that activist groups manipulated the public's perception of environmental issues and warned that, 'No entity should dominate the dialogue'. He thus recommends that the tools of issues management should be employed by corporations to 'balance' the public's views.

Rather than seeing the informational campaigns that originate from environmental NGOs as a means of redressing an existing imbalance resulting from corporate sponsored PR, the discourse of issues management portrays any critique originating from civil society as being itself an 'imbalance'. Gaunt and Ollenburger (1995, p.200), for example, define the remit of issues management stating that it is 'important for companies to use [issues management] in an attempt to counter the efforts of activist groups'. Arguably, these approaches are limited in the scope of their analysis by their functionalist presuppositions (Burrell & Morgan, 1979). This is because they are premised on unitary assumptions about the nature of the social world that tend to underplay any genuine social conflict where activist groups are portrayed simply as being mistaken (Livesey, 2002). Furthermore, such approaches present information and knowledge as being a kind of democratic tool rather than as being a weapon that may also be employed for disruptive purposes.

The approach of the present study departs from such functionalist perspectives (e.g. Gaunt & Ollenburger, 1995; Heath, 1998) by situating informational conflicts within a framework that admits to the possibility of a fundamental ideologically-infused conflict on the ideational level. Our study is in broad agreement with existing discourse analytic approaches to the extent that it focuses on the different forces that contribute to the social construction of the climate change issue (e.g. Livesey, 2002; Hajer, 1995), *but we differ in the extent to which we emphasize the precise tactical aspects of information campaigns to explain the responses of some organizations to climate change, which reject the discourse of 'ecological*



*modernization*' (Hajer, 1995). We therefore examine the climate change debate not simply as a discursive construct, but in terms of the way information is deployed as part of an information war targeting the public's perception of the climate change debate (cf. Terranova, 2007). Such a perspective is differentiated markedly from those posited by scholars of discursive politics and institutional entrepreneurship (e.g. Clemons & Cook, 1999; Fligstein, 1997; Greenwood & Suddaby, 2006; Maguire et al. 2004; Maguire & Hardy, 2006; Phillips et al. 2004) who conceive the deployment of informational strategies and tactics largely in terms of reaching some accommodation through political contestation and manoeuvring. Information warfare, by contrast, implies a privileging of ends over means where political accommodation and compromise is supplanted by asymmetric attacks and counter attacks aimed at the discrediting or even destruction of an opposing ideology. The possibility of such conflictual or even hostile behaviour in which 'anything goes' has rarely been considered in organization theory.

Scholars from diverse fields of studies have observed that the increased importance of networks as a medium of organization has in fact led to an intensified use of information warfare tactics. Castells' (2001, p.58) analysis of new social movements concluded that 'informational politics naturally leads to the possibility of informational warfare...' Terranova (2007, p.130) has drawn links between older forms of propaganda and perception management and more modern techniques of information warfare where there has been,

'a mutation introduced by what we might call new techniques of power (public relations, advertising, communication management, infotainment) to which corresponds another mode of conflict – a regime of information warfare. These techniques of power and regimes of warfare express an important mutation in the means by which the effect of cultural hegemony is accomplished'.

The integration of different forms of communicational and informational networks leads to forms of information warfare that exceeds the older forms of propaganda in a number of

important respects. First, there has been a proliferation of alternative communication networks, particularly distributed networks, which have been rapidly colonized by existing social struggles (Castells, 1997; Zald & Davis, 2005). Tarrow's (2011, p.137) comprehensive survey of new social movements has observed that, 'the most dramatic change in social movement organizing in the last few decades has been the impact of the Internet and, more generally, of electronic communication.' Second, the wide-scale use of distributed networks has allowed for social movement organizations and insurgent organizations to intensify their activities both within the virtual world and the real world where both kinds of groups are adopting similar informational tactics (Zald & Davis, 2005). Garrett's (2006) review of existing research in this field concluded that there has been a 'tactical adaptation' by new social movements to modern information technologies, especially in terms of the use of swarming tactics, which make use of technology to mobilize protestors rapidly on multiple fronts. Garrett (2006) argues that the WTO protests in Seattle, for instance, were marked by the deployment of swarming tactics, forms of online activism and a general intensification of traditional disruptive tactics. Third, the alternative media of the Internet has given relatively poorly resourced NGOs and social movements tactical advantages that they had not previously enjoyed. For instance, the environmental movement has benefited from increased tactical advantages in terms of its real-time global reach and its ability to bypass the traditional mass media. Fourth, within the 'semiotic business environment' the brand image of organizations and their associated reputational risks have become increasingly open to informational attacks from both internal and external sources including social protest movements (Power, 2007; Tsoukas, 1999). And fifth, increasingly information is itself being used as a weapon rather than as a tool. Terranova has highlighted the crucial role of images in the tactics of information warfare, describing the use of provocative images in propaganda campaigns as the 'becoming-weapon of the image' (Terranova, 2007, p.130; Mirzoeff, 2005). In particular, she shows how racist media imagery

has become an informational weapon by highlighting the role of imagery in the racist portrayal of groups, notably Islamic groups, who are portrayed as being a threat to the social body. Her conception of information warfare is influenced by the works of Mirzoeff and Virilio on post-modern warfare, which argues that in the perception and determination of targets ‘image is one munition among others’ (Virilio, 2002, p.23). In a slightly different vein, Bob Hunter, one of the founding members of Greenpeace, described the dramatic images that environmental activists create as being ‘media mindbombs’ (*Sunday Times* May 3<sup>rd</sup>, 2005).

Information has thus been conceived as a weapon of disruption that is used in civilian struggles, and in which interest extends beyond the military strategists of the RAND Corporation (Terranova, 2004, 2007; Virilio, 2000). In the following section we outline how the idea of information warfare has developed since its initial conception by the researchers of the RAND Corporation and what its significance is for the study of organization. We follow its original formulation as a military doctrine and its adaptation for the analysis of conflict in civil society. Following from this, we consider how social movement organizations can be more fully understood with regard to the specific informational tactics they have developed to carry out their strategic aims.

### **Information Warfare: Cyber Wars and Social Netwars**

Information warfare was first formulated as a distinct doctrine by researchers at the RAND Corporation to refer to the use of network forms of organization in military and civilian conflict (Arquilla & Rondfelt, 1997a). This theory provided a key resource for the US military’s ‘Revolution in Military Affairs’, which attempts to adapt traditional hierarchical military structures in order to better exploit the strengths arising from modern information technologies. Two of the core ideas of this research are that, i) it takes a network to fight a network, where traditional hierarchical organizations are seen as being poorly suited to the

contingencies of many modern conflicts, and ii) that communication networks can be both the medium and the target of an attack. Information was thus no longer understood as being solely a potentially valuable resource, but it was also conceived as being a weapon in its own right.

RAND analysts Arquilla and Ronfeldt (1997a, p.14) defined information warfare very broadly as ‘the use of information to impose one’s will upon an adversary’, which they maintain is a crucial dimension of modern ‘low intensity’ conflicts, especially with respect to their distinctive use of communication networks. The main exemplar drawn on was the Zapatista rebel movement in Mexico, which is a social movement organization that evolved to represent the rights of local indigenous peoples in the Chiapas region of Mexico. The Zapatistas have employed informal local networks in combination with international NGOs such as human rights groups and the Internet to disseminate their message. This message directly criticizes the reforms that were imposed on peasant farmers in Mexico as a consequence of the North American Free Trade Agreement (NAFTA) and challenges the portrayal of their struggle in the mass media. The network society theorist Castells (1996, p. 79) has called these rebels ‘the first informational guerrillas’. Likewise, the RAND analysts describe the Zapatista social movement as the pioneers of information warfare. One of the key elements of this doctrine is the ‘blurring’ of civilian and military realms. This concept has since been applied to non-military settings to describe conflicts between organizations in civil society more generally (Denning, 1999; Munro, 2005; Terranova, 2007; Virilio, 2000). Since the initial development of these ideas by the RAND researchers, they have been taken up by thinkers in a variety of fields of inquiry including computer studies (Denning, 1999), social theory (Hardt & Negri, 2004; Terranova, 2004, 2007; Virilio 2000), international relations (Der Derian, 2002), and business (McAfee, 2010; Munro, 2005).

The diversity of tactics that have been developed for information warfare operations involves a wide range of measures including the methods of traditional low technology

propaganda and newer high technology methods. Technology-enhanced 'hi-tech' weapons are generally found within the virtual environment of the Web and include measures such as phishing, identity theft, the spread of computer viruses, distributed denial of service attacks, blogging and the creation of special issue websites. Traditional 'lo-tech' weapons of information warfare include pamphleteering, the spread of gossip, rumour and 'social engineering'. In addition, two general forms of information warfare have been distinguished: 'cyberwar' and 'netwar' (Arquilla & Ronfeldt, 1997a, 2001). Cyberwars are concerned with hi-tech information operations, either to protect proprietary systems or to launch an attack on an adversary's systems. They may involve the use of technology such as communications satellites, computer systems, computer viruses, denial of service attacks, identity theft and the like. In contrast, social netwars are concerned with broader social uses of information warfare, particularly forms of asymmetric warfare. Netwars include the use of both 'hi-tech' methods and 'lo-tech' tactics such as social engineering and the spread of misinformation and propaganda in a variety of media.

The informational campaigns developed by ExxonMobil and Greenpeace that form the basis for the present study concern scientific and counter-scientific claims over the causes and consequences of climate change (e.g. Beck, 1992, 1995, 1999). They illustrate the evolution of a 'social netwar' that combines both technology-enhanced 'hi-tech' and more traditional 'lo-tech' tactics of information warfare. Hi-tech approaches can be combined with existing lo-tech tactics of information warfare to great effect. For instance, one compelling example of the combination of traditional informational tactics with high technology techniques of information warfare is the release of whistle-blowing material through the Wikileaks website (Leigh & Harding, 2011). The Wikileaks organization combines the hi-tech expertise of the hackers who developed the software for ensuring a secure and anonymous channel for the distribution of important information with the relatively lo-tech 'human intelligence' that it

receives from both corporate, military and government whistle-blowers. The effects of what might be only a small leak of information are greatly amplified when combined with the information technology of Wikileaks (Leigh & Harding, 2011).

Denning (1999) has argued that the concept of information warfare can potentially be applied to even small-scale social interactions such as speech-acts and sloganeering. She has shown that within informational environments, words and images can be developed as weapons for the purposes of misinformation and perception management. Denning also demonstrates a blurring between civilian and military realms in her discussion of a broad range of information warfare ‘players’. She identifies six distinct classes of players including criminals, corporations, governments, hackers, insiders and terrorists. This categorization shows that the tactics of information warfare are being developed and deployed by a variety of organizations within civil society which are clearly not military in orientation. The broad spectrum of information warfare ‘players’ and tactics is also apparent in the diverse definitions of the concept of information warfare that have been developed in both the military and social science literatures as we can see from the following range of definitions set out in Table 1.

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**INSERT TABLE 1 HERE**

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While there is not a consensus amongst information warfare theorists on a definitive conception of information warfare, there is general agreement that it concerns how people orientate themselves in the world in terms of what they believe about themselves and their environment. This diverse range of definitions makes clear that information warfare, especially ‘netwar,’ tends to be orientated around a key issue that is considered to be of fundamental importance to a specific group. Examples might include the protection of the rights of indigenous peoples, the protection of human rights, the protection of the environment and

climate change. Adopting this perspective we argue that a clear connection can be seen between new social movements and their concern for important social issues and the concept of information warfare. With the possible exception of Castell's (1996, 1997, 2001) work on network societies, this connection has not yet been developed in the social movement literature. In the following section we further explore the significance of information warfare to organization studies by drawing attention to the role that social movement organizations have had as pioneers of netwar and information warfare.

### **Social Netwars and Environmental Social Movements**

Information and communication technologies have predominantly been conceived as either sense-data or as tools in the organization and strategy literatures (e.g. Husted, 2007; Porter, 2008, 1985). Increasingly, new technology is allowing information to be used in a different way, as a weapon in the tactical armoury of organizational strategy. As a tool, information networks have been used to 'obliterate' traditional organizational hierarchies (Hammer, 1990) and to re-structure corporate supply chains and expand the extent of their markets (Porter, 2001). As a weapon, information networks have been used to steal valuable intellectual property, to mislead and confuse competitors and adversaries, and to undermine and destroy competing information systems (Arquilla & Ronfeldt, 1997; Denning, 2001; Munro, 2005). Denning (1999, p.26-27) explains that information warfare is practiced in conjunction with market-based strategies by corporations for the following reasons:

'They engage in offensive information warfare when they actively seek intelligence about their competitors or steal their competitors' trade secrets through illegal means, such as bribing insiders. They sell information about their customers, sometimes violating their privacy. They are motivated by money and competitive position.'

The use of cyberspace for information operations has become a serious concern for business firms. A recent analysis of the development of information warfare by the consultancy firm McAfee (2010) has highlighted the oil and gas industry as the most likely business sector to be the object of information warfare attacks. Their survey of 600 IT executives found that, ‘The most victimized sector was oil and gas, where two thirds of executives report such [distributed denial of service] attacks, with one third reporting multiple attacks a month’ (McAfee, 2010, p.7). Perhaps of greater significance for the oil industry has been the extensive use of information networks by environmental NGOs to mobilize resistance against their activities and the rise of networked social movements as a socio-political force more generally (Castells, 1997, 2001; Davis & Zald, 2005).

A diverse range of commentators from sociology and organization theory have observed that new social movements such as environmentalism have benefited from the adoption of network structures in the furtherance of their agenda (Castells, 1997, 2001; Davis & Zald, 2005; Hardt & Negri, 2004; Tarrow, 2011). A common theme of theorists of both information warfare and new social movements is that successful social movements have made much use of the Internet in the organization and coordination of their activities and as a means of subverting the mainstream media to get their own distinctive message across to the public. Highly professional environmental NGOs such as the Worldwatch Institute, World Resources Institute, World Wildlife Fund and Greenpeace International, for example, are thus able to dominate the global stage as the articulators of environmental messages and influence the framing of the environmental problematique and governmental policy to a global lay public. With very effective media strategies and significant investments in scientific and technological development programs they are also generators and publicists of scientific knowledge themselves (Jamison, 1996). A search on Google for the word ‘Greenpeace’ at the time of writing this article returns an impressive 12 million results and the topic of ‘climate change’



itself returns over 65 million results. Greenpeace actively exploits its presence on the Web, circulating a regular cyber-activist newsletter and promoting this as a key element of its global campaigns (*Cyberactivism revolutionizes, Greenpeace Campaigns, Greenpeace Archive* 2006). Greenpeace boasts that they have over 300,000 cyber-activists involved in a range of different environmental campaigns, including campaigns focused on climate change. These new networks have proven to be highly significant for environmental NGOs. For example, Carroll and Ratner (1999, p.7) have argued that, 'Greenpeace's political project has been elaborated from its media strategy, rather than vice versa'. They observe that the use of alternative media as a platform for their information campaigns has allowed Greenpeace to overcome its existing dependence on the mass media and the associated danger that their ecological message might become just another form of media 'infotainment'.

Global social movements such as environmentalism are essentially 'networked social movements', which have attracted large numbers of cyber-activists to promote their cause online and in the 'analogue' world (Castells, 1997, 2001). Castells explains that, 'They [environmentalists] have used the Internet to coordinate actions and information, and they built a permanent network that draws the battle lines of transnational environmental action in the Americas in the 1990s. World Wide Web sites are becoming the rallying points for environmentalists around the world...' (Castells, 1997, p.129). The relationship between cyber-activism and events in the analogue world is an important aspect of the recent development of global social movements. The Internet provides a platform for groups to disseminate their message to large numbers of individuals using methods that by-pass the mainstream media as well as opening up opportunities to build alliances with like-minded groups and individuals around the globe. The question of the extent to which such social movements are engaged in a form of rebellion that might be considered in terms of a 'war', even if only an information war, is the issue to which we shall now turn.

## **Information Warfare as a 'War of Position'**

It is clear that a variety of social movement organizations have exploited the alternative communication channels provided by the Internet in pursuit of their strategic aims, whether they are insurgent organizations, human rights groups or environmental activists. The tactics employed by insurgent organizations such as the Zapatista rebels and those used by other social movement organizations such as environmental groups share many similarities, particularly regarding their distinctive use of a wide variety of communication technologies in the dissemination of their arguments, ideas, ideologies and values. Existing research in both organization and social movement theory has argued that the revolution in telecommunications and the use of the Internet as a domain of contestation has provided environmental activists and their NGOs greater opportunity to tackle their corporate adversaries (Castells, 1997, 2001; Gaunt & Ollenburger, 1995; Heath, 1998; Tsoukas, 1999). For instance, Tsoukas' (1999) analysis of the dispute between Shell UK and Greenpeace over the 1995 disposal of the Brent Spar oil platform in the North Sea argued that although Greenpeace had far less financial resources at its disposal than Shell, it employed superior informational tactics in the management of its 'semiotic business environment.' Castells (2001, p.164) has argued that the new technologies have allowed for 'levelling the ground of symbolic manipulation' and thus increased the possibilities for democratic action. Others have challenged such claims noting that the Internet resembles more a 'battlefield' than a democratic polity (Terranova, 2004). In this light, it is not surprising that insurgent organizations have appeared as exemplars of new social movements, such as the Zapatista rebels in Mexico (Castells, 1997) or the 'yellow revolution' in Manila (Davis & Zald, 2005). The new informational milieu provided by the Internet and its associated technologies has become rapidly populated by insurgent groups and other social movements in the pursuit of their strategic interests and these groups have made

extensive use of new informational tactics in these struggles (Davis & Zald, 2005; Terranova, 2004).

The war metaphor has been drawn upon explicitly by social movement organization theories that are influenced by the work of Gramsci (Böhm et al. 2008; Levy & Newell, 2002; Levy & Egan, 2003). They describe social movements as being engaged in a ‘war of position’, which is orientated around such techniques as persuasion, boycotts and passive resistance, rather than being a frontal ‘war of manoeuvre’, which often precedes it (Gramsci, 1971). From a Gramscian perspective the outcome of a war of position is a hegemonic order which entails the ‘contingent stabilization of socio-economic systems’ (Levy & Scully, 2007, p.972). Existing studies within social movement organization theory have drawn upon these concepts to explain the activities of environmental social movement organizations. As Levy and Newell (2002, p.88) argue:

‘The concept of ‘war of position’ employed a military metaphor to suggest how subordinate groups might avoid a futile frontal assault against entrenched adversaries; rather, the war of position constitutes a longer term strategy, coordinated across multiple bases of power, to gain influence in the cultural institutions of civil society, develop organizational capacity, and so win new allies.’

They use this concept to explain the success of comparatively poorly resourced environmental NGOs in out-manoeuvring large MNCs in the public perception of climate change, and specifically the Kyoto Protocol. In such conflicts international NGOs are viewed as being key players, but serve a largely ambivalent role in ideological struggles. On the one hand, environmental NGOs serve to mobilize resistance to the hegemonic powers of capital by building a counter-hegemony (cf. Gramsci, 1971), but on the other hand, they can also be key allies in maintaining the status quo, achieving a degree of hegemonic stability.

In the extant organizational literature, ‘wars of position’ are framed in discursive and institutional terms of ‘negotiations’ between diverse actors in civil conflicts (e.g. Levy & Newell, 2002; Levy & Scully, 2007). Our own analysis of the dynamics of the dispute between ExxonMobil and Greenpeace over climate change is in broad agreement with this literature, but differs in one important respect; we argue that the tactics of information warfare are a key consideration in understanding contemporary wars of position emphasizing the role of conflict in such struggles prior to any apparent accommodation between entrenched positions. An information warfare perspective allows for processes of negotiation and compromise, but explores the possibility that underlying such negotiations we can find deliberate, directed and destabilizing tactical attacks upon the information resources of the different parties involved.

We argue that the tactics of information warfare are a key part of modern wars of position, which can be employed to challenge an existing hegemony or to defend against the emergence of a counter-hegemony. Terranova (2007) has proposed that the theories of hegemony and information warfare are by no means incommensurable and she argues that today the ‘terrain of battle’ of wars of position is being gradually displaced by forms of information warfare. In a similar approach to the one developed in the present paper, she highlights the emergence of tactics of cyberwar and social netwar which are used for ‘the degradation of the adversaries’ capacity for understanding their own circumstances’ (Terranova, 2007, p.132). Information warfare can thus be understood as one possible strategy by which hegemony is either maintained or undermined.

The outcomes of informational attacks help to ‘frame’ the process of negotiation between the various NGOs and other organizations involved, such as corporations. The framing process has already been the subject of much debate within the social movement literature as being a key characteristic of a war of position (Benford & Snow, 2000; Campbell, 2005; Ryan, 1991). However, there has been little research as of yet devoted to the specific

tactics used by organizations that are engaged in such ‘framing contests’ (Carragee & Roefs, 2004). Social movement scholars have argued that the success of a social movement organization is very much determined by their ability to create a frame that resonates with the public (Benford & Snow, 2000; Campbell, 2005). The present analysis builds on the existing work on frames in their role as ‘symbols and cognitive cues’ (Campbell, 2005 p.49) and ‘action orientated sets of beliefs and meanings’ (Benford & Snow, 2000, p.614), highlighting the significance of deliberate sabotage, deception, and disruption of informational resources by the parties involved in framing contests. Framing contests involve a broad variety of informational tactics, not only to develop partisan frames, but also to attack alternative frames of the climate change issue that have been developed by their adversaries. These tactics include the ways in which frames are sponsored, and the various ways that the credibility of a particular frame is either established, undermined or attacked. The notion of a ‘framing contest’ emphasizes the combative nature of the work of social movements, moving away from understanding this as some kind of egalitarian negotiation towards one involving fundamental conflict. Carragee and Roefs (2004) have observed that in practice framing contests tend to favour political elites, which have more resources at their disposal to sponsor their preferred frames. Similarly, Levy and Egan (2003, p.812) have noted that this ‘process should not be mistaken for a pluralist model in which all actors are equal.’

Thus, whilst framing contests may take place under the conditions of a democratic society, it would be a mistake to view these as taking place within a framework of an open democratic debate. In fact, we will see that many framing tactics used by stakeholders are not immediately transparent and may be hidden from the public eye. This present inquiry shows clearly that underlying the climate change debate, informational tactics are being employed by stakeholders to create and defend their preferred frames and to attack the frames of their opponents. These tactics will be analysed in greater detail later in the paper in terms of the

strategy of the ‘remote guidance of confusion’ (Virilio, 2000). An analysis of these informational tactics is crucial in understanding precisely how ‘wars of position’ are being fought by modern social movement organizations.

The focus of the following case is the various informational tactics employed by ExxonMobil and Greenpeace, where information is explicitly conceived as either being a weapon itself or as being the possible object of an attack. The concept of a war of position used by theorists of social movement organizations can thus be enriched by an analysis of the specific informational strategies and tactics that are employed in such conflicts. Now that we have developed the concept of information warfare in an organizational studies context, we shall turn to an elaboration of the case itself.

### **The ExxonMobil and Greenpeace Climate Change Dispute**

The following analysis explores the respective information campaigns of the oil company ExxonMobil and the environmental group Greenpeace concerning the specific issue of climate change. The writing of our case draws on sources from a range of mediums including corporate press releases, media reports, public correspondence, leaked memos and Internet websites. Our most substantive source of data for the writing of the case study came from the full-text dataset of newspaper articles Factiva. Using the interactive search facility our search parameters included variations of the key words ‘climate change’, ‘global warming’, ‘climate change denial’, ‘Greenpeace’ and ‘Exxon’. A second full-text dataset of press releases, PRNewswire, was also consulted using the same search parameters. Finally, public correspondence (e.g. open letters from the Royal Society, US Congressional Testimony) and Internet websites (e.g. [www.exxonmobil.com](http://www.exxonmobil.com), [www.exxonsecrets.org](http://www.exxonsecrets.org), [www.greenpeace.com](http://www.greenpeace.com) etc.) were referred to.

Our initial search resulted in generating a dataset of 1,934 documents, which were then filtered for relevance and organized chronologically. This was reduced to a dataset of 400 documents, which focused on the information campaigns of ExxonMobil and Greenpeace. The first stage of analysis involved interrogating the textual evidence for key events in which either ExxonMobil or Greenpeace were identified as actors in the climate change debate. This enabled us to build a timeline and construct a case study describing interventions by these two organizations. The case study provided a contextual overview illustrating the evolution of this dispute between these two organizations over time, thus providing the basis for a more granular analysis in the second stage. The second step in the analysis of the textual evidence, therefore, involved the identification of particular informational tactics employed by each organization, where information was being used as a disruptive tactic or a defence against such disruptive tactics within broader climate change organizational strategies. Note that we maintain the usual distinction between strategy and tactics where tactics are the particular means for carrying out the broader ends defined by an organization's strategy. Specific instances of information warfare were then identified in an iterative process of moving between concepts outlined in the previous section and our data-set (Glaser & Strauss, 1967; Strauss & Corbin, 1998). For both organizations we identified a broad range of tactics for achieving their strategic objectives. They included approaches that we are already familiar with from studies of issues management and public relations (e.g. Bonardi & Keim, 2005; Crable & Vibbert, 1985; Hillman & Hitt, 1999; Jones & Chase, 1979; Krippendorff & Eeley, 1986), as well as a range of approaches consistent with concepts of information warfare, which exploited the alternative media of the Internet and were used in a limited way by ExxonMobil and far more extensively by Greenpeace.

The purpose of our case study of the dispute between Exxon and Greenpeace is to illustrate the specific tactics of information warfare introduced in this article, thereby extending

the neo-Gramscian perspective on social movement theory. We acknowledge the usual limitations of single-context, case-based research regarding the generalizability of such findings, but we believe that the general message of our study, which is that information warfare is becoming a feature of emerging organizational landscapes, is transferable to other contexts. In the following section we present the results of our analysis, highlighting particular instances of information warfare and in each instance making clear the specific tactics employed in the campaign, the intended targets of the tactics and the reactions subsequent to their deployment. Before proceeding with this analysis we shall provide some background to the two organizations that are the focus of this study.

### **Case overview**

ExxonMobil is one of the world's largest companies with total revenue of \$383,43 billion in 2010 (ExxonMobil, 2010, p.31). Founded by John D. Rockefeller in 1870 as Standard Oil, and with a head office in Irving Texas and operations spanning the world over, ExxonMobil produces a range of products including fuels, petrochemicals and lubricants and specialities. ExxonMobil describes itself as being 'the world's largest publicly traded international oil and gas company' (ExxonMobil, 2008). ExxonMobil donated more than half of a planned \$USD100 million investment to Stanford University's Global Climate and Energy Project along with donations from other corporate partners such as General Electric, Schlumberger and Toyota (ExxonMobil, 2012; GCEP, 2012). It has been criticized for its funding of organizations producing research that denies a connection between climate change and human activity. These criticisms do not just come from environmental groups, but also from prestigious scientific bodies such as the Royal Society (Ward, 2006) and even some of its oldest shareholders, the Rockefellers, have held the company to account for their position on climate change (Krauss, 2008; McNulty, 2008; Rockefeller & Snowe, 2006).



Greenpeace, by contrast, is an international environmental group with gross annual income from fundraising of \$296 million in 2010 (Greenpeace, 2010, p.26). With regional offices in numerous countries around the world, and an international head office in Amsterdam, Greenpeace is a global organization. Founded in Vancouver, Canada, in 1971, it describes itself as a ‘global campaigning organization that acts to change attitudes and behaviour, to protect and conserve the environment, and to promote peace’ (Greenpeace, 2008). While its methods include funding research and conventional lobbying, its activist strategy, occasionally criticized for being too radical, is to employ a range of non-violent, direct action tactics, such as confrontations with fishing trawlers on the high seas, or occupying oil platforms. These tactics are designed to reduce complex issues into news-friendly images, sounds and text that are then disseminated through the global media as what journalist and founding member Bob Hunter has termed ‘mind bombs’ (Greenpeace, 2005). Hunter’s terminology is revealing in its explicit recognition of the fact that information is used by Greenpeace as a weapon.

Recently, ExxonMobil has come under public pressure over its funding of non-governmental organizations, politicians and scientists sceptical of the risks posed by climate change (Adam, 2006; Gunther, 2007; Krauss, 2008; McNulty, 2008; Rockefeller & Snowe, 2006). Greenpeace has been instrumental in catalysing this pressure mounted against ExxonMobil. We shall now turn to an analysis of the various informational techniques employed by these organizations in this dispute in terms of the tactics of information warfare.

### **i) ExxonMobil’s Response to the Kyoto Protocol**

The dispute over climate change between Greenpeace and ExxonMobil originates with the latter’s hostile stance to the 1997 Kyoto Protocol. ExxonMobil’s first systematic campaign to engage with the public’s perception of climate science began in 1989 when it joined an

industry lobby group called the Global Climate Coalition. This lobby group was formed immediately after the United Nations created the Intergovernmental Panel on Climate Change (IPCC). Prior to the 1997 meeting of governments in Kyoto to discuss the United Nations Framework Convention on Climate Change, this industry lobby group spent \$13 million on advertising in the USA. This was aimed at directing public opinion against the Kyoto Protocol, using emotive messages such as, ‘America has signed many treaties... but never a treaty of surrender’ (quoted in Davies, 2008, p.187; *New York Times* 24 April 2009). In 1998, following the abandonment of the Global Climate Coalition by BP, Royal Dutch/Shell and Texaco, ExxonMobil formed a task force called the Global Climate Science Team. A leaked memo revealed that their purpose was to manufacture uncertainty over climate science by investing millions of dollars in orchestrating a disinformation campaign through a network of ideologically driven advocacy groups and public relations partners. In addition, between 2000 and 2005, ExxonMobil gave over \$4 million in campaign donations in the United States, gaining a spot on the Energy Task Force set up by the Bush Administration and led by Vice President Dick Cheney (UCS, 2007).

## **ii) The Greenpeace Reaction to ExxonMobil**

In April of 2001, Greenpeace Directors sent letters requesting clarification from ExxonMobil’s Executives on their stance on climate change. Greenpeace has claimed that ExxonMobil referred them to their advertising campaign running in the United States denouncing the ratification of the Kyoto Protocol. Greenpeace responded by organizing a global movement to boycott ExxonMobil’s products and to protest their stance on climate change.

In May 2002 Greenpeace published a report entitled ‘Denial and deception: A chronicle of ExxonMobil’s corruption of the debate on climate change.’ In the report, Greenpeace

attempted to expose the role that ExxonMobil was playing directly in climate change policy and particularly with government's stance on the Kyoto Protocol. In an interview with *Chief Executive Magazine* in October 2002, Lee Raymond, the CEO of ExxonMobil was quoted as saying 'The mainstream of some so-called environmentalists or politically correct Europeans isn't the mainstream of all scientists or the White House. The world has been a lot warmer than it is now and it didn't have anything to do with carbon dioxide.' In May 2003, Greenpeace released a spoof of ExxonMobil's annual report, prompting widespread media coverage. ExxonMobil responded in July 2003 by filing an injunction on Greenpeace's protests on their property that had been mobilised as a direct action against ExxonMobil's climate change stance and sought compensation for damages to their trademark, a legal tactic they employed in France in 2002. Again in May 2004, Greenpeace engaged in direct action by trying to pressure ExxonMobil shareholders by projecting 100-foot images onto the building where there was about to be a meeting for ExxonMobil's shareholders. These images showed the harmful effects of global warming including storms and floods. In February 2005, in a dinner to honour ExxonMobil CEO Lee Raymond, Greenpeace protestors again engaged in direct action disrupting the dinner, dumping red wine on the tables and calling Raymond the 'No.1 climate criminal' (*Wall Street Journal* 15 June 2005).

### **iii) ExxonMobil funding of NGOs dedicated to climate change denial**

Whilst the lobby group Global Climate Coalition was disbanded in 2002, ExxonMobil continued to support a network of advocacy organizations and lobbyists that deny the existence of climate change and man-made climate change. The kinds of organizations sponsored by ExxonMobil are not scientific centres for the study of climatology, but are mainly lobby groups and policy think-tanks such as the American Council for Capital Formation, the Fraser Institute, the Center for Policy Research, the George C. Marshal Institute, Competitive

Enterprise Institute, the Centre for the Defence of Free Enterprise, the American Legislative Exchange Council, the Frontiers of Freedom Institute and Foundation, the Centre for the New Europe, the Committee for a Constructive Tomorrow, and the International Policy Network. In their database, Greenpeace documents a range of detailed information regarding this network of organizations. Take one organization as an example, the Competitive Enterprise Institute (CEI), who are known for describing climate change as a myth and running television advertisements in May of 2006 advocating the catch-phrase ‘Carbon dioxide: They call it pollution. We call it life’ (Competitive Enterprise Institute, 2006). The Institute referred to the work of Curt Davis, the director of the Centre for Geospatial Intelligence at the University of Missouri-Columbia. In a much cited press release this is how Professor Davis explained the reference to his work by the producers of these adverts: ‘These television ads are a deliberate effort to confuse and mislead the public about the global warming debate ... They are selectively using only parts of my previous research to support their claims. They are not telling the entire story to the public’ (News Bureau, University of Missouri, 2006).

#### **iv) Greenpeace reveals ExxonMobil’s tactics and counters**

In June 2004 a website developed by Greenpeace entitled *exxonsecrets.com* went online. A database compiled by Greenpeace shows that a network of loosely affiliated organizations, scientists and politicians, all of which are associated with climate change denial, have been the recipients of millions of dollars of funding from ExxonMobil. The Greenpeace database exposes an information warfare strategy by ExxonMobil, which is aimed at undermining the public’s perception of the scientific consensus on climate change. The Greenpeace campaign reveals information about these organizations including a description of the organization, the extent of their funding from ExxonMobil, dossiers of their key activities, key quotes, and key people such as scientists and legislators. The database is organized by a

series of visual maps of the different networks sponsored by ExxonMobil that are devoted to climate change denial. This includes a map of key academics and their links with ExxonMobil and its network of think tanks, key congressmen and their links to ExxonMobil, and a map of major lobbyists and their links with climate scepticism and ExxonMobil. To add legitimacy to these maps, the sources of its information are all available from drop-down menus (see Table 2 for a visual example).

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**INSERT TABLE 2 HERE**

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This analysis reveals the existence of a distributed network of climate change deniers and sceptics all funded by ExxonMobil, devoted to producing a pseudo-science that is not validated using established scientific methods and peer-review, and is designed to undermine the perception of the scientific consensus on climate change (See Figure 2). Further, the government-corporate interface is also mapped ostensibly for the purpose of applying political pressure to legislators over their association with organizations implicated in ExxonMobil's funding of organizations sceptical of climate science knowledge claims. Greenpeace (2006) found that ExxonMobil has paid \$3.5 million to 49 different organizations all of which actively campaigned against policies to address global warming in the year 2005. Subsequent research into this elaborate network of funding revealed that Exxon has paid out over \$22 million to the climate change denial industry since 1998 (Greenpeace, 2007). Greenpeace explained that the purpose of their own 'map' is to aid journalists, researchers, policy makers and concerned citizens in their understanding of the complex funding relations that underpin the research of the climate change sceptics, and to show that this research is not independent science.

In response to Greenpeace's information tactics, ExxonMobil began a PR campaign using the mainstream press to argue that the groups they were funding are varied and are not

necessarily climate change deniers, stating that ‘The groups Greenpeace cites are a widely varied group and to classify them as “climate deniers” is wrong,’ and that ‘We believe that climate change is a serious issue and that action is warranted now.’ ExxonMobil explained their own campaign of funding these groups as ‘an unfortunate distraction’ (*Business Week* 23 April 2007). Greenpeace’s campaign against ExxonMobil gained political currency in the United States when North Carolina House of Representative Brad Miller stated to the press that: ‘The support of climate sceptics, many of whom have no real grounding in climate science, appears to be an effort to distort public discussion about global warming. So long as popular discussion could be about whether warming was occurring or not, so long as doubt was widespread, consensus for action could be postponed’ (*Fox News*, 17 May 2007).

#### **v) ExxonMobil exerts legal pressure to close communication**

Following an IRS (Internal Revenue Service) audit of Greenpeace in the US in 2005, Greenpeace alleged that ExxonMobil had abused its political clout and prompted the audit. This phase of their dispute began when the IRS was contacted by the PIW (Public Interest Watch), which was set up in 2002 as a watchdog for charitable organizations. Its founder, Michael Hardiman, was a Washington-based lobbyist and public-relations consultant who had also worked for a Republican congressman. The PIW alleged in a report attached to their letter to the IRS that Greenpeace was abusing its tax-exempt status and engaging in the money laundering of more than US\$24 million by diverting it to protest groups and criminal activities. In September 2005, the IRS conducted a month long audit of Greenpeace, declaring in March of 2006 that it could remain tax-exempt from federal income tax. On March 21st, 2006, the *Wall Street Journal* ran a story on PIW’s federal tax filing revealing that US\$120,000 of its US\$124,094 income in 2003/4 had come from ExxonMobil. A subsequent investigation by journalists at *Business Week* found that the PIW was itself prompted by the public relations

firm Dezenhall Resources to contact the IRS and accuse Greenpeace of fraud (*Business Week* 17 April 2006). The same *Business Week* article noted that Dezenhall were renowned for their work on crisis management and for their highly controversial clients, most notably Jeffrey Skilling during the collapse of Enron.

#### **vi) ExxonMobil's Promotion of 'Counter-science'**

A key tactic employed by ExxonMobil was the funding of a network of experts, all of which disputed the existence of climate change. The task of this network of Exxon sponsored NGOs was to produce what might be described as a 'counter-science' which was generally favourable to its sponsors (Beck, 1999). The role of counter-science in the present case is highlighted by the subsequent involvement of other important NGOs, most notably the Royal Society, which is one of the world's oldest and most august scientific communities. In September of 2006, the Royal Society sent a letter to ExxonMobil about its funding of various groups which deny climate change and attempt to undermine the existing scientific research. This letter criticized ExxonMobil both for the content of its own *Corporate Citizenship Report* and for its funding of various groups that have sought to undermine the public's perception of scientific research into climate change. The letter described ExxonMobil's report on corporate citizenship as 'not consistent with the scientific literature that has been published on this issue [i.e. climate change]' (Ward, 2006). The Royal Society criticized ExxonMobil in precisely the terms of the risk society (Beck, 1992, 1999), observing that the company was 'overstating the amount and significance of uncertainty in knowledge' and that there were misrepresentations of risk in its annual reports, particularly the subsection of its *Report on Corporate Citizenship* which purported to outline 'Uncertainty and Risk.' The letter goes on to criticize ExxonMobil on the grounds that ExxonMobil has been funding organizations that had been 'misinforming the public about the science of climate change.... some 39 [of these] organizations were

featuring information on their websites that misapprehended the science of climate change.’ The Royal Society described Exxon’s presentation of environmental issues variously as ‘inaccurate,’ as ‘misleading,’ and as a ‘denial of the evidence’ (Ward, 2006).

The relationship between the media, lobbyists, politics and the scientific community has been strained over this issue, and the scientists themselves have rarely been so outspoken on a scientific matter. In an open letter published in May of 2010, members of the US National Academy of Sciences framed this ‘debate’ over climate change in the following language: ‘We... call for an end to McCarthy-like threats of criminal prosecution against our colleagues based on innuendo and guilt by association, the harassment of scientists by politicians seeking distractions to avoid taking action, and the outright lies being spread about them’ (*The Guardian* 6 May 2010). This portrayal of the debate by the scientists themselves highlights the somewhat unscientific manner in which the debate is being conducted, showing instead the significant role that misinformation, distractions and threats have played in its development. Another important aspect of the promotion of a counter-science was the use of advertising in mainstream media such as the *New York Times*, where climate science was compared with meteorology, a supposedly uncertain science whose predictions were portrayed as being unreliable (Livesey, 2002). The crucial issue of the role of science in information warfare and its implications for the ways in which organizations seek to manage the perception of risks will be examined in further detail in the discussion section (See table 3 below for the ExxonMobil-Greenpeace dispute timeline).

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**INSERT TABLE 3 ABOUT HERE**

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In sum, both ExxonMobil and Greenpeace are employing information warfare strategies and counter-strategies. While ExxonMobil has been bankrolling a distributed



network of organizations and people, posing as experts on climate change and publicizing its own ‘counter-science’ in opposition to that of mainstream climate science, Greenpeace has been countering with an information campaign of their own. We will now identify the precise informational tactics that were employed by each organization and discuss the similarities and differences between the general strategic approaches of each organization before finally evaluating the extent to which we can understand this conflict as a form of information warfare.

### **Discussion: Information Warfare in Action**

The case study of this dispute that we described above involved a number of tactics that ExxonMobil and Greenpeace employed in their strategies to disseminate a particular understanding of the climate change debate at the same time as undermining the position of their adversaries. In terms of information warfare, these kinds of tactics are about the ‘remote guidance of confusion’ and about forms of war about knowledge of ourselves and the world around us (see Table 1). For ExxonMobil the primary target of their campaigns was the public perception of climate science, where the reputation of Greenpeace was a secondary but significant target of this campaign. The primary methods for accomplishing their aims were the use of advertising in the mass media and in their own corporate citizenship documents. The tactics of Exxonmobil included the following:

*Tactic I - The propagation and framing of confusion:* ExxonMobil funded the industry lobby group, the Global Climate Coalition, which framed the debate in terms preferred by the company. This lobby group was established to target the public’s perception of climate change and sow confusion about the relevant climate science in the media and in government.

*Tactic II – The creation of a science of denial:* ExxonMobil sponsored a diffuse network of NGOs all of which are in some part dedicated to climate change denial. This network is more than simply a lobby group and is associated with the promulgation of a ‘counter-science’ that drew on expert opinions from outside the realm of climate science for validation, notably from economics. This campaign has been described by prominent scientific groups, such as the Royal Society, as being an attempt to mislead and confuse the public.

*Tactic III – Corporate Citizenship Reports and Traditional PR:* ExxonMobil used its own public relations materials and corporate citizenship reports to continue its disinformation campaign. These reports contained statements denying the risks associated with climate change, again distorting basic scientific facts, where the company’s prime target was its own shareholders. In their 2005 *Corporate Citizenship Report*, ExxonMobil openly rejected the prevailing scientific consensus, stating that, ‘Opposition to the Kyoto Protocol does not equate to a lack of concern about the environment or the issue of climate change.’ However, after the intervention of the Royal Society on this issue there are no further direct references to the Kyoto Protocol in these reports in subsequent years. In addition to these reports that were circulated to shareholders and posted on the Web, ExxonMobil also sponsored a costly advertising campaign. Livesey’s (2002, p.140) analysis of a series of advertisements commissioned by ExxonMobil for the *New York Times* has shown that such tactics were used to ‘control meanings related to the issue of climate change’ against activist groups and in favour of the oil company. Its aggressive advertising campaign disseminated disinformation regarding the Kyoto Protocol in an attempt to confuse the terms of the debate. For instance one advertising campaign proclaimed, ‘Carbon dioxide: they call it pollution. We call it life.’

*Tactic IV- Discrediting Greenpeace:* ExxonMobil employed legal measures against Greenpeace in an attempt to discredit the NGO's status as a reliable source of information. Greenpeace was a secondary target of ExxonMobil's overall campaign targeting climate science, but as a key player in the public debate it was clearly important to undermine the credibility of this influential adversary. ExxonMobil did this by direct and indirect means, by suing Greenpeace on numerous occasions for 'logo abuse' (BBC, 25<sup>th</sup> June, 2002) and indirectly by prompting an IRS audit of Greenpeace.

We can see that the ExxonMobil information campaign has used a number of traditional tactics (such as lawsuits, PR campaigns in traditional media, political connections, social networks, and institutional insiders including people who can be made to look like insiders within the field of climate science) in combination with technologically-enhanced tactics (development of corporate/ NGO websites and net campaigns). We should also note that whilst its sponsorship of a network of apparently unrelated NGOs devoted to the denial of climate change was an innovative tactic, on the whole this campaign used traditional methods of propaganda. This campaign was designed less to present a fully developed scientific perspective on climate change than it was to confuse the public and undermine its understanding of the existing scientific consensus.

Like ExxonMobil, the primary target of the Greenpeace campaign was the public's perception of climate science. However, the Greenpeace campaign was much more explicitly targeted against ExxonMobil as its key adversary. The informational tactics of their campaign included the following:

*Tactic I: The propagation of imagery and mindbombs:* Greenpeace staged high profile events to create spectacular images that attracted media attention and highlighted environmental concerns. This was targeted at the public in general and at ExxonMobil

shareholders in particular. This campaign circulated images of environmental destruction in the media and at ExxonMobil shareholder meetings. The circulation of images, or ‘mindbombs’ played a prominent aspect of the conflict, particularly in the Greenpeace campaign. The campaign directly targeted the reputation of ExxonMobil and its brand, producing highly emotive parodies of the ExxonMobil public relations material and its corporate logo.

*Tactic II – Discrediting ExxonMobil:* In addition to the circulation of affective imagery, Greenpeace made significant use of slogans as a means of propagating their message throughout the alternative media and the mass media, such as naming CEO of Exxon Mobil as the ‘No.1 climate criminal’ in a variety of media channels. Greenpeace also developed reports spoofing the industry version of events and high profile protests at company shareholder meetings which gathered widespread coverage on the Internet and in the mass media.

*Tactic III – Forms of Hactivism:* Greenpeace made extensive use of alternative media in the spread of their own propaganda, both in the dissemination of scientific knowledge about climate change and in directed attacks on the reputation of ExxonMobil. Greenpeace launched a cyber-activist campaign that explicitly targeted ExxonMobil, which included an email campaign (see <http://archive.greenpeace.org/cyberstory/cyberactivism.htm>) and the development of a website, *Exxonsecrets.org* in order to reveal and thus discredit ExxonMobil’s own campaign. This latter tactic was specifically designed to counter the campaign of misinformation and confusion that was being employed by ExxonMobil. This may be seen as being a particularly innovative tactic in that it revealed “the map” on which its adversary’s campaign was based.

Greenpeace also made use of lo-tech tactics such as the traditional mass media and PR stunts in its campaign; however, with far less resources at its disposal, its campaign is characterized by a more sophisticated use of alternative media and cyberspace in its attacks upon the reputation and credibility of ExxonMobil.

These tactics demonstrate that prior to any ‘negotiations’ concerning the governance of climate change, such as the 1997 Kyoto Protocol or the 2009 UN climate summit at Copenhagen, there is an intense information warfare campaign being undertaken by key stakeholders in order to attack the frames of their adversaries and to promote and defend their own framing of this controversial issue. This exceeds the bounds of conventional framing identified in, for instance, the discursive politics and institutional entrepreneurship literatures referred to earlier (e.g. Clemons & Cook, 1999; Fligstein, 1997; Greenwood & Suddaby, 2006; Levy & Scully, 2007; Maguire et al. 2004; Maguire & Hardy, 2006; Phillips et al. 2004) in a number of respects. Most obviously we extend extant literatures in organizational theory by directing attention towards the explicit and hostile use of information as a disruptive weapon (Arquilla & Ronfeldt, 1997a; Terranova, 2007), but also with respect to the increasing use of informational networks and forms of hactivism that bypass the traditional mass media. We also emphasize such strategies as the promotion of a counter-science to confuse a given target by destabilizing information sources and thereby either challenging or defending incumbent hegemonies (Beck, 1992; Virilio, 2000).

In addition, our analysis extends existing work on frames within social movement organizational theory (e.g. Benford & Snow, 2000; Campbell, 2005). We do this by demonstrating that the ability to create a frame that resonates with the public is not just a matter of winning a democratic debate with superior arguments or by refutation of opposing positions by, for instance, presenting scientific evidence. As our case study illustrates, ‘framing contests’ can be highly combative (Carragee and Roefs, 2004), where the parties involved

utilize a number of disruptive informational tactics to improve their position and undermine that of their adversaries. In our case study, we show that informational tactics were used by both ExxonMobil and Greenpeace to build partisan frames and to attack the frames of one another. In such framing contests, science itself becomes both a weapon used to further organizational interests, and a target of deliberate deception, disruption, manipulation and even outright sabotage in a war of positioning. In debates over such issues as climate change, such tactics are rarely transparent, and form a shadowy and sometimes pernicious presence that can prove decisive in whether social movement organizations either succeed or fail to achieve their strategic objectives.

The informational tactics of ExxonMobil and Greenpeace share a number of commonalities as forms of information warfare, but they also exhibit some important differences. Both organizations make extensive use of communications networks in the pursuit of their goals, including the traditional media, such as newspapers, television and the business press and alternative media such as Internet websites, blogs and emails. Both organizations make appeal to the scientific aspect of the debate and seek to engage experts they consider to be relevant to support their respective positions. Both organizations have directly attacked the other's reliability as a credible source of information, not only by making reference to the scientific expertise, but also by directly attacking the reputation of the organization itself.

There are also a number of important differences between the tactics of ExxonMobil and those of Greenpeace. The Greenpeace tactics have tended to work through increased transparency of the scientific consensus, whereas the ExxonMobil tactics attempted to undermine the public's perception that such a consensus really existed. This issue of transparency has also been apparent in ExxonMobil's funding of a loosely connected network of NGOs with the common purpose of denying the existence of climate change. This tactic concerned the 'remote guidance of confusion' aimed at disrupting the counter-hegemonic

efforts of environmental NGOs to mobilize the public against the oil industry and the prevailing hegemonic order. The links between this network and ExxonMobil only became publicized in the maps that were developed for the Greenpeace website *Exxonsecrets.org*. In general, Greenpeace made far more use of non-mainstream media such as the mobilization of cyber-activists and Internet websites to disseminate information about climate science and to attack the reputation of its adversaries and their information sources. In contrast, ExxonMobil stuck to more traditional media outlets especially TV and newspaper advertising. Furthermore, whereas Greenpeace referred to the expertise of climate science, ExxonMobil tended to make little use of this field preferring instead to use experts from the network of NGOs that they funded, who were largely associated with the field of economics and politics rather than climate science. In Beck's (1992) terminology, they were engaged in the promulgation of a 'counter-science' in which the risks of their own operations were portrayed as being minimal. The consistent attempts to undermine the idea of a scientific consensus met with overt protests from several prestigious scientific bodies including London's Royal Society, the Union of Concerned Scientists and the US National Academy of Sciences.

The enlistment of different groups of experts and intellectuals is a particularly prominent aspect of this case study. Gramsci's (1971) early work on social conflict identified the crucial role that 'organic' intellectuals played in the formation of hegemony, where he described their role not only in terms of knowledge production but also as being organizers and 'permanent persuaders'. More recently, Terranova (2007) has observed that reference to intellectuals and high profile experts is a key tactic in modern hegemonic struggles and that these authorities may be drawn upon in the circulation of images and slogans in the formulation of information warfare campaigns. The ExxonMobil/Greenpeace case study provides a very clear example of this tactic. The role of the Royal Society has particular relevance within this analysis, since their intervention serves to highlight the fact that this

debate is not simply a technical disagreement between scientists, but that a ‘counter science’ is being produced by lobbyists rather than experts in pertinent scientific disciplines such as climatology, biology, meteorology and oceanography. The role of the counter-science is to bring in other possible explanations for the causes of the risks we face and thus dissolve responsibility for them amongst these competing explanations (Beck, 1992, 1999). ExxonMobil has had an uneasy relationship with climate change scientists, even those in its own employ. Some years after the industry lobby group, the Global Climate Coalition, was disbanded *The New York Times* uncovered evidence that showed that their own scientific advisors had counselled them that ‘the potential impact of human emissions of greenhouse gases such as CO<sub>2</sub> on climate is well established and cannot be denied’ (*The New York Times* 24 April 2009), but they chose to ignore this advice and focused only on those snippets of doubt that could be used in the effort to undermine public perceptions.

Recent findings published in the *Proceedings of the National Academy of Sciences* (Anderegg et al. 2010) have shown that the public perception of climate change is widely at odds with the scientific consensus, suggesting that the tactics of climate change sceptics such as ExxonMobil and its industry lobbyists have been broadly successful. Having said that, there is a great deal of national variation in the perception of this important issue, where Europeans tend to be less sceptical than those in the United States, but still with a significant proportion of public opinion at odds with the scientific consensus (*The New York Times*, 4<sup>th</sup> January 2007). The tactics of Greenpeace have met with only limited success. On the one hand they have been broadly successful in bringing the issue of climate change to the public’s attention, but on the other hand, the evidence from Anderegg et al. (2010) would suggest that the information campaign of ExxonMobil has been even more successful, at least when judged at this moment in time, where a large proportion of public have chosen to doubt the scientific consensus. When weighing up who might be the final victor in this struggle it is worth considering Levy’s



(2008, p.956) observation that ‘the long term nature of a war of position makes it difficult to evaluate the success of challenger strategies at a given point in time’. In the case of climate change, these strategies have profoundly affected the way in which the public debate about climate science has been framed and the way in which we orientate ourselves in the world around us. The different strategies, tactics and targets identified in the information warfare campaigns described above are summarized in Table 4 below.

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**INSERT TABLE 4 ABOUT HERE**

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Table 4 illustrates the different methods employed by each organization for the circulation of images and slogans to mobilize support for their respective positions, as well as reference to scientific expertise to legitimate their claims. Table 4 also highlights the means by which the information sources of each organization have been subject to attack.

This informational attack happens in two key respects. Firstly, it happens by means of attacks on the information itself with, for instance, the creation of a ‘counter-science’, which denies the existence of man-made climate change. Secondly, it happens by means of an attack on the reliability of the information source, such as Greenpeace’s development of the *Exxonsecrets.org* website to expose the network of lobbyists against climate change. The tactics used in the information campaigns of these two organizations are clear examples of ‘netwars’ inasmuch as they aim to ‘disrupt, damage or modify what a target population knows or thinks it knows about itself and the world around it’ (Denning, 1999, p.73). The findings of this case would support Terranova’s (2004, 2007) assertion that the network culture more resembles a battlefield than a democratic forum in which issues are decided by consensus. While it is true that a certain amount of negotiation takes place between the various parties

involved in this war of position, there also appear to be a variety of tactics used for the purposes of deception and disruption in the framing of the climate change debate itself.

## **Conclusions and Future Research**

Novel informational tactics are currently transforming organizational landscapes in diverse social domains, such as those that have been described in the present inquiry into the ExxonMobil-Greenpeace dispute, as well other fields such as the open source file-sharing communities, which have had profound effects on the music and software industries and the recent Wikileaks phenomenon whose affects have yet to be fully gauged. In this article we have sought to explain how certain organizations are reacting to the challenges posed by climate change. In doing so, we make an empirical contribution to our understanding of the climate change debate by developing a case study of the informational tactics employed by two high profile organizations in their competing attempts to influence the public perception of climate change. We also make a conceptual contribution by reworking the neo-Gramscian concept of a ‘war of position’ in terms consistent with emerging theories of information warfare. Our analysis goes beyond an emphasis on how hegemony is achieved through negotiations between different interest groups to incorporate the role of directed attacks using information warfare tactics against the sources of information that are drawn upon by these different interest groups in the framing of the climate change debate.

We do not claim that all organizations employ such information and disinformation strategies and tactics, but that such tactics are clearly evident in the ExxonMobil-Greenpeace dispute over climate change. The findings of this study suggest that ExxonMobil has embarked on a deliberate campaign of confusion and disinformation producing a counter-science to manufacture public uncertainty by funding a diffuse network of ideologically driven advocacy organizations, as well as other issues management, public relations, lobbying and legal tactics.

In contrast, Greenpeace has employed a counterstrategy of exposing the hidden networks funded by ExxonMobil in addition to continuing its own campaign to highlight environmental issues using diverse media including Internet websites, cyber-activism and the traditional media to plant their 'mind-bombs'. Each organization attempts to disrupt the positions of the other within their informational and semiotic business environment, at the same time as targeting the public's perception of climate change.

Our analysis opens up the question as to the extent that business organizations and activist NGOs employ informational tactics in pursuit of their strategic aims. Further research might explore the diversity of informational weapons that corporations and NGOs use not only to influence their various stakeholders, but also to frame relevant debates in their favour and to disrupt and disorientate the activities of their adversaries. With specific reference to the climate change debate, the impact of such informational tactics might also be investigated in terms of its wider impact on public perception and public policy. The present paper limited itself to an analysis of the informational tactics of Greenpeace and ExxonMobil; however, there were other important events in the fanning of this debate that have yet to be subject to rigorous academic analysis. For instance, a subsequent event of similar importance in the evolution of the climate change debate has been the 'Climategate' controversy regarding the theft, mischaracterization and dissemination of emails from the University of East Anglia's Climatic Research Unit in 2009, which were released into the blogosphere immediately preceding the Copenhagen climate summit in what appears to be a further attempt to attack and undermine the research being done by climate scientists (see Muir, 2010). Yet another incident in this debate has been the Heartland affair, in which climate scientist Peter Gleick solicited documents from the Heartland Institute in 2012 outlining their strategy for discrediting climate change science. Gleick then released these documents to the media and into the blogosphere. While the media focus of this affair has been the status of Gleick's ethical conduct in obtaining

the documents, the content of these documents outlines a multi-million dollar campaign of asymmetric information warfare waged by the Heartland Institute (Heartland also being one of the key organizations identified by Greenpeace in its *Exxonsecrets* website as having received funding from ExxonMobil between the years 1998 and 2006). The documents reveal, for instance, efforts to have climate change denial embedded in school curricula in the United States (see Gleick, 2012). Controversies involving the Heartland Institute's information war against climate change science also include a recent advertising campaign claiming, "most prominent advocates of global warming aren't scientists. They are murderers, tyrants, and madmen" (Heartland, 2012).

An editorial in the scientific journal *Nature* has stated pointedly that the climate change debate has become a 'street fight' involving tactics such as those that we have outlined in this article, which are often incompatible with traditional notions of scientific inquiry (Lewis 2010, p.7; *Nature* 11<sup>th</sup> March 2010). Such informational attacks, we argue, are becoming prominent features of new organizational landscapes. Extending the neo-Gramscian perspective on social movement theory drawing on concepts from information warfare implies a privileging of ends over means where 'anything goes' including a willingness to distort information, discredit opponents, deceive, exaggerate, hack into computers, mobilize supporters, use satire and perhaps even methods of deliberate sabotage such as crashing websites, disseminating viruses and so on, all of which warrant further investigation in organization studies.

Taking a somewhat different tack, this kind of approach might also be fruitfully applied to areas of study that are concerned with intangible resources such as corporate brands like those of ExxonMobil, Greenpeace, the IPCC, the CEI and other 'players' discussed in this article. In the analysis presented here we have only touched on the semiotics involved in how these organizations have sought to manipulate their business environment, choosing instead to focus upon the various informational tactics that each has employed; further research could

investigate whether particular semiotic strategies are linked to particular forms of information warfare (the work of Terranova, 2007 has already made some moves in this direction). With the increasing significance of information technologies such as the Internet in newly emerging organizational landscapes, we are likely to see much more of these kinds of strategies and tactics, from both businesses and NGOs, in the future.

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**Table 1: The doctrine of information warfare**

<b>Use of Information as a Weapon</b>	<b>Definition of Information Warfare</b>
<i>Confusion</i>	‘Information warfare is ... not just the guidance of missiles using ‘electronic warfare’ techniques, but the remote guidance of confusion.’ (Virilio, 2000a, p.49)
<i>Disruption Damage Manipulation</i>	‘Operations [of cyber war] will attempt to disrupt, damage, or modify what a target population knows or thinks it know about itself and the world around it.’ (Denning, 1999, p.73)
	‘It [netwar] means trying to disrupt, damage, or modify what a target population “knows” or thinks it knows about itself and the world around it.’ (Arquilla & Ronfeldt, 1997b, p.28)
<i>Knowledge of self and adversaries</i>	‘Both netwar and cyber war revolve around information and communications matters, at a deeper level they are forms of war about ‘knowledge’ - about who knows what, when, where, and why, and about how secure a society or a military is regarding its knowledge of itself and its adversaries.’ (Arquilla & Ronfeldt, 1997b, p.27)
<i>Disorganizing</i>	‘... radically different models must be considered that focus upon the objective of systematically disorganizing the enemy.’ (Arquilla & Ronfeldt, 1997b, p.39)
<i>Knowledge of self and adversaries</i>	‘Netwar generally involves seeking “top sight” (total intelligence) about one’s own and the opponent’s situation, while keeping that opponent in the dark about oneself and about its own situation. Netwar means affecting what the opponent knows, or thinks it knows, not only about its challenger but also about itself and the world around it.’ (Ronfeldt & Martinez, 1997, p.373-374)
<i>Shock Surprise Disorientation</i>	‘In some cases we may have to introduce shock, surprise and terror in an adversary’s external world... to fuel the nightmares and disorientation sought in the enemy’s internal world.’ (Szafranski, 1997, p.408).

**Table 2: Exemplar Dossier: the Competitive Enterprise Institute (CEI)**

▶ Description	▶ Funding	▶ Key Quotes	▶ Key Deeds
<p>Founded in 1984, CEI is a Washington-based conservative think tank whose research on public policy reflects the principles of free enterprise, individual liberty and limited government" CEI is at the center of the global warming misinformation campaign. With more than a \$3 million annual budget ... Known corporate funders in addition to ExxonMobil include the American Petroleum Institute, Cigna Corporation, Dow Chemical, EBCO Corp, General Motors, and IBM. Source: (<a href="http://www.disinfoed.ia.org/wild.php?title=Competitive_Enterprise_Institute">http://www.disinfoed.ia.org/wild.php?title=Competitive_Enterprise_Institute</a>)</p>	<p>2003 \$440,000 ExxonMobil FoundationGeneral Operating Support Source: ExxonMobil 2003 Worldwide GivingReport</p> <p>2004 \$900,000 ExxonMobil FoundationGlobal Climate Change Outreach Source: ExxonMobil 2004 Worldwide GivingReport</p> <p>2005 \$180,000 ExxonMobil Corporate GivingGeneral Operating Support Source: ExxonMobil 2005 Worldwide GivingReport</p>	<p>"As the United Nations prepared for an international conference in Kyoto, Japan to craft an international treaty to suppress the use of fossil fuel energy, CEI's work demonstrated why people have more to fear from global warming policies than from global warming itself" Source: CEI 1997 Annual Report</p> <p>"Although global warming has been described as the greatest threat facing mankind, the policies designed to address global warming actually pose a greater threat.... and the negative impacts of predicted warming have been vastly exaggerated.... CEI has been a leader in the fight against the global warming scare" Source: CEI website - global warming <a href="http://www.cei.org/sections/subsection.cfm?section=3">http://www.cei.org/sections/subsection.cfm?section=3</a></p>	<p>Filed a lawsuit against President Clinton for expanding the scope of and increasing spending for, a report on climate change by the U.S. Global Change Research Program. 3 October, 2000 Source: "Lawmakers, Groups Sue Over National Assessment on Climate Change," Greenwire, 10/5/2000</p> <p>Filed a second lawsuit against the U.S. government in August of 2003. Citing the recently enacted Data Quality Act, CEI demanded that the report on climate change called the National Assessment not be disseminated by the government. The Bush administration settled the lawsuit by adding a disclaimer to the web site where the report is available, stating that it has not been reviewed under the Data Quality Act. Source: "Earth Last," The American Prospect, 5/7/04</p> <p>Source: <a href="http://www.exxonsecrets.com">www.exxonsecrets.com</a></p>

**Table 3: ExxonMobil-Greenpeace climate change dispute timeline**

1989	1998	2000	2002	2003	2006	2007	2008	2009
ExxonMobil joins the Global Climate Coalition in response to the founding of the IPCC. launch lobbying campaign.	ExxonMobil founds the Global Climate Science Team. Funds a network of advocacy groups against the 1997 Kyoto Protocol.	ExxonMobil Gives more than \$4 million to political campaigns during election cycle. Gains seat on the Bush Administration's Energy Task Force	PTW prompts IRS audit of Greenpeace	ExxonMobil files legal injunction against Greenpeace	Climate Change Denial TV ad campaign launched by ExxonMobil. Funded Competitive Enterprise Institute	Rockefeller shareholder revolt over ExxonMobil stance on climate change. Allegations that Exxon funded AIE was offering \$10,000 cash to scientists to dispute the IPCC Report.	ExxonMobil shareholder revolt over ExxonMobil stance on climate change. ExxonMobil states it will discontinue funding climate change sceptics	Postscript 'Climategate' prompted by hacking of East Anglia Climatic Institute. ExxonMobil still funding climate change sceptics.
<b>ExxonMobil</b>								
1988	1997	2001	2002	2003	2004	2005	2007	2010
Founding of the Inter-governmental Panel on Climate Change (IPCC)	Kyoto Protocol on reducing Greenhouse Gases	Greenpeace writes to Directors of ExxonMobil about stance on climate change	Greenpeace Publishes 'Denial and Deception' report alleging disinformation campaign by ExxonMobil	Greenpeace 'spoofs' ExxonMobil Annual report. Greenpeace disrupts a Dinner in London where ExxonMobil CEO is speaking.	Greenpeace Launches Exxonsecrets.com website documenting ExxonMobil's disinformation campaign.	Greenpeace cleared of wrongdoing by IRS audit	Dr. James Hanson of NASA testifies to Congress that ExxonMobil's disinformation campaign compares to the tobacco industries campaign to deny smoking causes cancer	Post Script: Greenpeace releases report claiming oil industries funnelled more than \$48 million to climate change sceptics from 1997-2008
<b>Greenpeace</b>								

**Table 4: Comparison of Information Warfare Strategies and Tactics**

	Greenpeace	ExxonMobil
Strategy	<i>Campaigning to protect and conserve the environment through the deployment of 'mind bombs' – the deployment of powerful images through the world's media.</i>	<i>A disinformation campaign to manufacture uncertainty through the creation and dissemination of a 'counter-science'</i>
Tactics		
<b>Use of Networks</b>	<ul style="list-style-type: none"> <li>• Lobbying governments</li> <li>• Direct action by activists</li> <li>• Disruptive image events</li> <li>• Army of online cyber-activists</li> </ul>	<ul style="list-style-type: none"> <li>• Funding network of climate denial NGO network</li> <li>• Lobbying governments</li> <li>• Setting up arms-length PR companies</li> </ul>
<b>Attack/Defense of Information Sources</b>	<ul style="list-style-type: none"> <li>• Exposure by means of Exxonsecrets.org website</li> <li>• Use of Internet websites to disseminate information about the polluting operations of</li> </ul>	<ul style="list-style-type: none"> <li>• Employment of a network of counter experts that deny the evidence of the scientific consensus</li> <li>• Publish misinformation in</li> </ul>

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	ExxonMobil	annual reports and corporate PR
	<ul style="list-style-type: none"> <li>• The deployment of powerful images through the world's media</li> <li>• Exploiting cyberspace to circumvent mainstream media</li> </ul>	<ul style="list-style-type: none"> <li>• Finance advertising campaigns denying climate change using mainstream media</li> </ul>
<b>Attack/Defense of the Reputation of Sources</b>	<ul style="list-style-type: none"> <li>• Parodies of ExxonMobil PR material and corporate logo</li> <li>• Staging spectacular events, such as open confrontations and public protests</li> </ul>	<ul style="list-style-type: none"> <li>• Use of litigation against Greenpeace</li> </ul>

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