

Climate changes and leadership effectiveness: A sustainable leadership approach

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Abstract. The purpose of the research is to explore how climate change and environmental pollution influence leadership effectiveness. The paper also aims to identify what is the problem, and examine what leadership competencies and leadership styles are needed to address these issues. Literature indicates that conventional leadership cannot effectively deal with currently complex and interdisciplinary issues of environments. This research identified that environmental leadership, climate change leadership and sustainable leadership could be a solution. However, from long-term perspective, sustainable leadership could be a better approach towards environmental issues, because sustainable leadership model can cover their area besides their limitations. The applied methodology is critical literature review and case study based research. The paper contributes to understanding that sustainable leadership could be a leadership style which can contribute to an effective mitigation of the influence of climate change and environmental pollution.

Keywords: Leadership, effectiveness, climate change, sustainability.

INTRODUCTION

Over the last several decades, there has been a dramatic increase in the discussion of the leadership effectiveness. It has commonly been assumed that leadership effectiveness plays a crucial role in the maintenance of firms' developments in business world. In addition, recent work by historians has established that 'leaders can actually create a sort of spiritual values and practices which could motivate the followers to create a positive inspire trust, promote work relationships and achieve organizational goals' (Reave, 2005). In this case, one possible implication of this is that effective leadership has a positive impact on firms' developments, such as improving productivity, sustainability. In spite of the fact that effective leaders can bring benefits to firms, there are still some shortcomings within current business world. Previous research has established that there has been a considerable challenge towards the traditional business

model due to the social issues, environmental pollution and climate change (Harris *et al.*, 2007). The key problem will probably be some companies focus on pursuing their interests, meanwhile, by negatively undertaking social responsibilities. For instance, the environment is being disadvantaged by industrial pollution and climate change. In order to maximize super-normal profits or slash costs, a plenty of companies are abusing natural resources without planned industrial growth and efficient waste disposal. As a result, such climate change, water pollution, air pollution and global warming caused by such behaviours would last for a long time. To date, previous studies have indicated that what was really important was not that companies were 'assuming a responsibility', but that companies were responding to the social environment (Ackerman and Murray, 1973). This means when leaders make decisions, they should

consider that financial performance is not the only thing they do for themselves, also they have to be responsible for society. Since the leadership effectiveness would highly affect firms' development, it is necessary for leaders to be aware of the importance of creating a sustainable business model nowadays.

The purpose of the research is to explore how climate change and environmental pollution influence leadership effectiveness, identify what is the problem, and examine and figure out what competencies of leader or what kind of leadership can address these issues. The applied methodology for this study is a critical literature review including review including review of relevant to the examined subject documents and reports as well as brief analysis of a case study. The work applies an explanatory approach following a critical synthesis of literature based on secondary research and empirical studies.

The structure of this study is as follows: after introducing the background, the first part starts with a literature review of leadership and effectiveness, and then identifying current situation about environment issues, followed by several useful leadership practices or model, before a case study of Starbucks Coffee to show how sustainable leadership address environmental issues effectively. Finally, it comes to discussion and conclusion.

LITERATURE REVIEW IN LEADERSHIP

Early leadership researches focused more on what are given when they were born, not acquired (Carlyle, 1888; cited by Gallagher, 2012), such as the theory of great man. Scholars concerned more with the trait of leadership in the early 20th century. For example, Stodgill (1948; cited by Gallagher, 2012) claimed that some individuals have their own traits which are relative to leadership, such as, assertiveness.

However, since the late 20th century, more research tended to discuss about the ideas of leaders and followers, which is a process involving both individuals and groups in addressing the intractable issues. For instance, Stodgill and Bass (1990; cited by Gallagher, 2012) outlined that group relationships is a process interacting between members of a group by sharing their perceptions and expectations about certain topics. Later, based on the ideas of Stodgill and Bass (1990), Rost (1993; cited by Gallagher, 2012) defined that leadership is as a two-way influence relationship between leaders and subordinates to reflect their respective voices by the process of change.

House (2004, p.5) thought leadership is 'the ability of an individual to influence, motivate, and enable others to contribute toward the effectiveness and success of the organizations of which they are members'. Yukl (2006, p.8) argued that leadership is 'the process of influencing

others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives.

In short, leadership could be defined as a process by which or an ability to influence others to achieve a common goal (Northouse, 2010).

Leadership effectiveness

Leadership effectiveness refers to the degree of leaders influencing and motivating followers (Cicero *et al.*, 2010), which plays a significant role into facilitating their followers towards attaining a shared objective (De Cremer and Van Knippenberg, 2004).

Also effective leaders are good at identifying and utilizing both followers' competencies and limitations in the process of the attainment of organizational objectives (Manamela *et al.*, 2016). If leaders are effective it means that leaders integrates perspective of employee into the process of achieving the common goal after enough influencing and motivating employees and they work well together, then finally achieve their goals by adapting external context (Solomon and Steyn, 2017).

Some research indicated that, in a simple way, leadership effectiveness could be examined through the perception of followers and the performance of organizations, based on the above abilities of leaders. Further, employee satisfaction might have relationship with individuals' perception (Solomon and Steyn, 2017).

Current situation of environment

Taking into account increased global population, further industrialization and globalization nowadays climate change and environmental pollution have been posing a serious threat on survival and health of human being, and even entire ecosystem, such as, global climate warming, sea level rise, rare species extinction and so on. Therefore, environmental issue should be regarded as a priority challenge to be addressed by organizations (Gallagher, 2016).

However, the reality is that not all organizations run business in environmental-friendly way. For instance, some research indicated that most of small and medium-size enterprises (SMEs) adopted passive attitude or wait-and-see for environmental issue (Boiral *et al.*, 2014).

To mitigate the effect of climate change and environmental pollution, no one is an exception, as well as organizations. So, it is of critical importance to be examined how leaders of organizations play a critical role in the campaign about climate changes Thus, new thoughts, such as, environmental leadership (Boiral *et al.*, 2009; Gallagher, 2012; Boiral *et al.*, 2014), climate change leadership (Gallagher, 2016) and sustainable

leadership (Avery and Bergsteiner, 2011) are really concerned and argued by scholars and the public. The following parts will present environmental leadership, climate change leadership and sustainable leadership respectively.

Environmental leadership practices

Boiral *et al.* (2009) offered that environmental leadership, at least, has the ability of wrestling with the complex issues of environment, incorporating contradictory view, understanding and addressing the perspectives of all stakeholders and changing organizational practices in deep. Callagher (2012, p.5) stated that environmental leadership is 'a process by which Earth's inhabitants apply interpersonal influence and engage in collective action to protect the planet's natural resources and its inhabitants from further harm'.

Boiral *et al.* (2014) identified that key values and abilities of environmental leadership, which are a comprehensive perspective, long-term focus, integrating conflicting goals, collaborating with stakeholders, addressing complexity, and collaborative learning (Gallagher, 2012). This finding seems to be an evidence to confirm the ideas of Boiral *et al.* (2014). The following points will be mainly illustrated.

Vision and focus

Fighting against climate change and environmental problem is a collective and long-term action. Therefore, a comprehensive perspective and long-term focus are useful to short-term, middle-term and long-term strategies (Boiral *et al.*, 2014).

Integrating conflicting goals

It is clear that there are a lot conflicts between environment goals and economic objectives. Boiral *et al.* (2014) said that the constraints of economy are the major barriers for environmental initiatives. Proactive SMEs in the case of Boiral *et al.* (2014), is a clear evident that top managers adopted win-win principle to integrate environment goals and economic objectives so that they are successful.

Collaborating with stakeholders

It is especially true that when considering the fact that environment initiative is a collective action. Maximizing the collaboration with stakeholders can to an extreme extent slow the effect of climate change and environment pollution.

Complexity management and collaborative learning

Climate change and environment pollution are really complex and interdisciplinary issues. If environmental leadership want to deal with them effectively, they need a collective learning process by, to an extreme degree, decentralization and employee engagement to figure out win-win solution (Boiral *et al.*, 2014).

Climate change leadership practices

Gallagher (2016) highlighted that climate change leadership need pay more attention on three core practices, which are securing and maintaining top leader support (Gallagher, 2012), embedding the change to cope with environmental issues within the organizational culture, and collaborating with those firms which have same value . The next will elaborate these three practices.

Top leaders support

First of all, research indicated that the support of top managers plays an important role in innovation as for transformational leadership (Gallagher, 2016). Also, Schein (1992) stated that the communicated beliefs of leaders of organizations could have a strong relationship with the change and innovation of organizations. For instance, it is especially true when considering the fact that most of small and medium-size enterprises (SMEs) cannot take more action in the aspect of mitigating the influence of climate change and environmental pollution, without top managers support (Boiral *et al.*, 2014). Finally, the communicated beliefs of top leaders, to some degree, can facilitate other organizational leaders to enact change within their own firm.

Embedding change

Gallagher (2016) said that embedding sustainability into the culture of organizations play a significant role in organization change, which have been proved by the fact that companies which are adopting the management practices of environmental sustainability are successful by positive activities, such as, engaging in dialogues with ones who are reluctant, workshops and codes of conduct, etc.

Collaboration

Climate change and environmental issue are a common topic for global citizenship, not just one single or an organization, it is a collective action. Therefore, climate

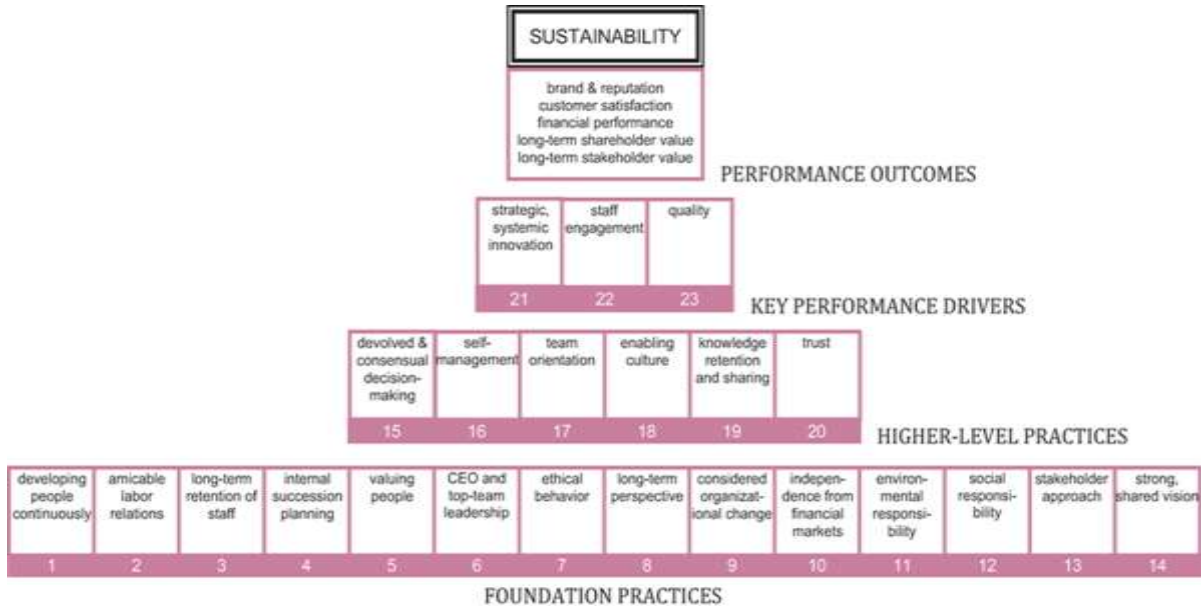


Figure 1. The sustainable leadership pyramid. Source: Avery and Bergsteiner (2011:8).

change leadership should share experiences of success and failure to let more individuals and organizations to know and work together in order to more effectively address the issue of climate change and environment pollution in future (Gallagher, 2016). For example, collaboration with the coalitions of industry sector, business to business dialogues, and joint statements from trade associations, etc. In addition, collaborative action on the issue of climate change and environment pollution can enhance the reputation of organizations (Gallagher, 2016).

Sustainable leadership models

Binti and Binti (2016) outlined that sustainable leadership is a capability of influencing and motivating individuals by embedding the sustainable knowledge into the core culture and value of their organizations, and then impacting on from organizations, finally to society, taking the experience and lessons from the past into consideration. As a consequence, the improvement of sustainable leadership can run continuously as a close circle from now to future. There are a lot of theories and practice of leadership of sustainability but here will focus more on the highlighted ones, such as, seven principles (Hargreaves and Fink, 2006), the Pyramid principle (Avery and Bergsteiner, 2011), and the Cambridge sustainability leadership model (Visser and Courtice, 2011).

First of all, seven principles was drawn on from the education system by Hargreaves and Fink in 2006, which includes depth, length, breadth, justice, diversity, resourcefulness and conservation concepts in all.

Hargreaves and Fink stressed that sustainable leadership should be embedded into the culture and value of organization to make sure it reaches each employee in all levels. Although there is the limitation from this principle because of education sector, organizations can learn a lot from this seven principles because it seem to be general sustainability and not pay only attention on environmental and social issues (Kantabutra and Saratun, 2013).

Secondly, the Pyramid principle include 23 practices of sustainable leadership, which is categorized into three group, in turn, key performance drivers higher-level practices, and foundation practices, from top to bottom. It seems that the goal of sustainability can be carried out by three key performance drivers which are strategic systemic innovation, staff engagement and quality underpinned by high-level practices above foundation practices, which includes 14 practices, such as, environmental responsibility, social responsibility, long-term perspective and ethical behavior, etc, which are all useful practices to address environmental issues. Avery and Bergsteiner (2011) presented that the pyramid can dynamically work in all directions, no matter bottom-up or top-down and the performance outcomes of sustainability can facilitate the interaction between each layer (Figure 1).

Finally, Visser and Courtice (2011) mentioned that the Cambridge Sustainability Leadership Model has been drawn on the research implemented by the University of Cambridge Institute for Sustainability Leadership (CISL) in 2010 (Figure 2). This model includes three components, which are context (external and internal), characteristics (traits, styles, skills and knowledge) of individual leaders and leadership actions (internal and

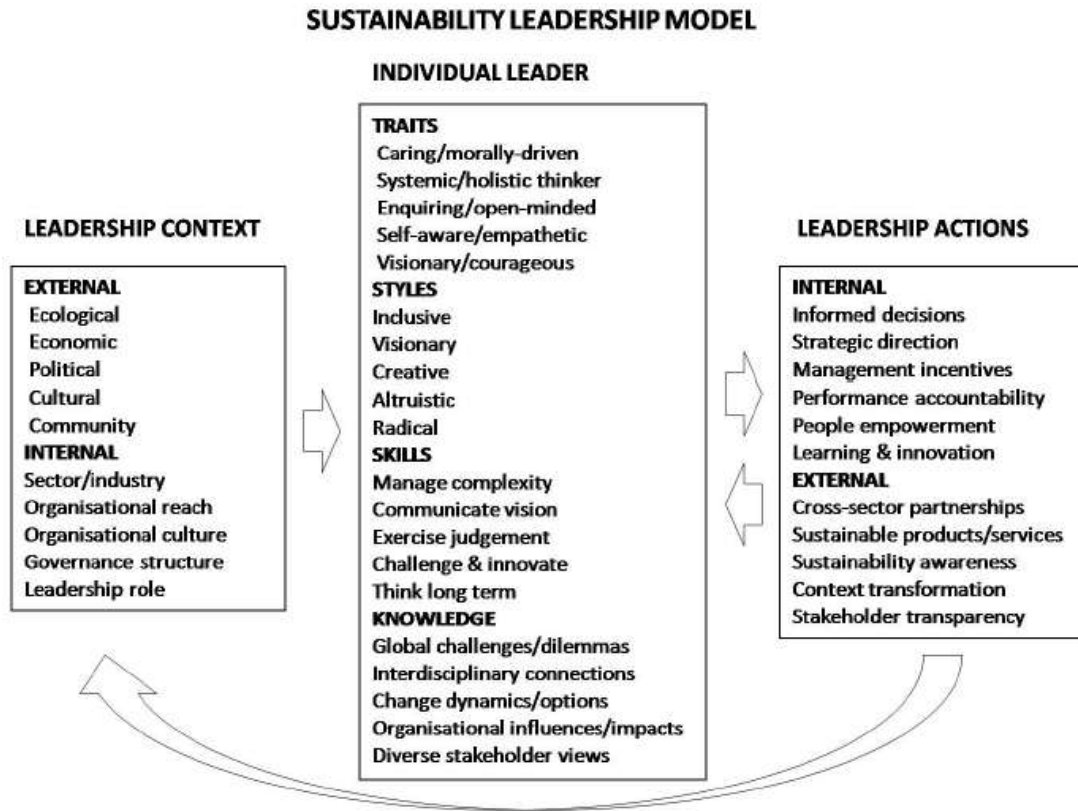


Figure 2. The Cambridge Sustainability Leadership Model. Source: Visser and Courtice (2011:5).

external). Visser and Courtice (2011) stated the model integrates almost all of factors which contribute to the sustainable leadership. However, there are still some paradoxes.

Taken together, it is clear that current situation of climate change and environmental pollution is challenging leadership and leadership effectiveness. To address these issues effectively, leaders are required to have specific competencies and knowledge, such as, environmental leadership, climate change leadership, and sustainable leadership.

Boiral *et al.* (2014) demonstrated that by a comprehensive perspective, long-term focus and collaborative learning, environmental leadership can develop the ability to integrate contradictory goals, address complexity and collaborate with stakeholder, in order to mitigate the process of climate change and environmental issues. However, the reality is that there is still passive SME struggling with financial crisis and limited resource.

Gallagher (2016) outlined that climate change leadership can take environment initiatives action by embedding the change culture into organizations to involve employees and sharing stories of success and failure of environment initiatives to collaborate with stakeholders, under the support of top leaders. Without top managers support, it will have no positive impacts on

mitigating the influence of climate change and environmental issues.

However, no matter which model or principles, sustainable leadership, based on the theory of triple bottom line (society, environment and economy), is an capability of influencing and motivating individuals by embedding the sustainable knowledge into the core culture and value of their organizations, and then impacting on from organizations, finally to society, integrating the experience and lessons from the past.

In short, from long-term point of view, sustainable leadership could be a better solution to effectively address climate change and environmental issues, given this challenge of current situation of climate change and environmental issues, because the sustainable leadership model can cover the area of environmental and climate change leadership besides their limitations.

CASE STUDY: STARBUCKS

Starbucks is one of the most well-known coffee company which was founded in the U.S. in 1971. The company ranked as the fifth most admired company in the world (Fortune, 2016). As a large coffee house chain, Starbucks has probably been established for half a century. Since the establishment of 'Starbucks Empire',



Figure 3. Coffee and Farmer Equity (C.A.F.E.) Practices. Source from: Starbucks Coffee Company, 2017.

the leaders and pioneers have been focusing on operating their own business in a more environmental-friendly and sustainable way, the purpose of which is to tackle the environmental problem and reduce wastes during their producing process. In addition, the company has been trying to create a sustainable business model in a long term by undertaking social responsibilities. Although Starbucks operates a huge number of branches worldwide, it still makes a contribution to care about environmental issues.

There are some effective decisions made by Starbucks' leaders, concerning about the environment protection. First of all, in order to deal with climate change and a variety of environmental pollution, Starbucks' leaders pointed out a principle called C.A.F.E. practices (Figure 3). The practices include guidelines in four key areas: quality, economic accountability and transparency, social responsibility and environmental leadership (Starbucks Coffee Company, 2017). What this practices concern with is just same as the model of sustainable leadership which takes social and environmental issues, as well as profit and quality.

For instance, most customers are actually frustrating to recycle paper cups. According to this, Starbucks has been working on separating these cups from any other general wastes, then using recyclable materials to design and make cups models in order to minimise the harmful wastes in our environment. Specifically, the firm advocated leading the whole industry to use recycled cups and packaging, approximately 4 billion cups are globally reused by Starbucks each year (Smithers, 2017). Moreover, Starbucks has attempted to reduce its footprint on energy using and climate change. In a way, climate change can actually hurt agriculture for a long time, it might cause soil erosion. As a consequence, Starbucks worked with Conservation International (environment

protection institution) to provide climate-sustainable practices (Starbucks Coffee Company, 2017). This reveals that Starbucks paid attention to operate its business in a more sustainable and ethical way, that can benefit individuals and the social environment.

Secondly, Starbucks' leaders have been looking forward to launch a 'cocoa practices', producing an ethically sourced cocoa for all customers. The company is committed to improve the criteria of cocoa beans to reduce agrochemical use in a lower level to make sure that these beans would be verified in good quality. This is exemplified in the work undertaken by the cocoa beans farming communities in Africa, a fixed group of farmers collaborating with Starbucks for a long period of time. They ethically sourced cocoa to contribute positively to environment and to those cocoa farmers. There are several advantages that the company can benefit from such practices. On the one hand, it may avoid to waste of natural resources on account of fixed suppliers. The company is not only focusing on the productivities, but also concerning about reducing harmful agrochemical influences on the soil. In a way, it is actually a smart way to protect and maintain the soil due to the fact that it offers a great opportunity for farmers to constantly produce in a long run. On the other hand, these cocoa will ultimately be attend up in the Starbucks products due to the fact that the raw materials and original supply chain are well-qualified. Starbucks would make more profits to provide a boost to consumption.

Thirdly, the proportion of energy usage could also be seemed as an important component into business consideration of climate change, and plays a key role in business operations. Data from the World Resources Institution Protocol shows that more than 80 percent of emissions were generated from business stores, offices, and manufacturing processes (World Resources Institute,

2017). These emissions might have a negative impact on the quality of urban air. Another significant analysis and discussion on the subject was presented by Bates *et al.* (2008), 'water management and have an influence on greenhouse gas (GHG)'. This means saving energy might make an effort to prevent the generation of greenhouse gas. The evidence presented thus far supports the idea that renewable energy and conserving energy have been focused as a key factor for most firms' concerns to maintain and protect our environment in a long run. There is some evidence made in support that Starbucks has also tracked the business environmental footprint by investigating greenhouse such as gas emissions (GHG) from 2014 onward. Additionally, leaders pointed out a 'climate strategy' which is to save energy that being used both inside and outside the company as much as possible. For instance, water is one of the most fundamental natural resources and ingredients for a coffeehouse chain. Basically, Starbucks installed a large number of filter fixtures to supervise and monitor the water consumption in every store. The main advantage of doing this is that the company can have an accurate record to identify when and where surplus water being used. Because water is absolutely a precious resource in terms of its non-renewable characteristics. After that, the leaders are able to contribute a water-efficient model to make any changes of decisions and negotiate with employees in day to day operations. In addition, Starbucks also focused on the water the sell to customers, the company built a platform to sell an ethical water brand called One Water® in European areas. The total profits they made from One Water were used to help those water poverty in the world (One Difference UK, 2017). What Starbucks did illustrates that the company has partly committed to discretionary responsibility to create an energy efficient business model to prevent the possibilities of wasting energy to deal with climate change.

In another word, Starbuck case study is good evidence that sustainable leadership can play a significant role in environment issues because Starbuck not only consider the finical profit, but also care with social and environment issues.

LEADERSHIP AND STRATEGIES IN CLIMATE CHANGE IMPLEMENTATION

Climate change is undoubtedly one of the greatest challenges facing the world today (Oberthür and Roche Kelly, 2008). According to the Intergovernmental Panel on Climate Change (IPCC), "scientific evidence for warming of the climate system is unequivocal". The National Aeronautics and Space Administration (NASA) Global Climate Change states that the average surface temperature of the earth has risen by 1.1 degree Celsius with the hottest year ever on record as 2016.

This change in temperature was caused by an increase

in carbon dioxide and other man-made gas emissions into the atmosphere. In addition, ice sheets with the Antarctic and Greenland have massively reduced by about 152 and 100 cubic kilometers of ice respectively. Decreased snow cover has also been recorded in places such as the top of Mt Kilimanjaro and the Northern Hemisphere over the past 50 years. The IPCC further provides projections on average earth temperature rise under different scenarios (see *Appendix A*):

"continued greenhouse gas emissions at or above current rates would cause further warming and induce many changes in the global climate system during the 21st century that would very likely be larger than those observed during the 20th century."

The paper shall begin by looking at the global policies that have been adopted in order to tackle climate change. In his article, Yukl (2012) asserts that leadership implies influence of both individual and collective efforts to achieve a common goal within an organization. It is therefore responsibility of the leaders- both political and corporate to shape, influence and strategize in order to comply with climate change policies and ultimately ensure a sustainable global environment. The paper shall then look at leadership styles and strategies leaders can take to achieve this.

Climate change has been identified as a global crisis, and the facts and evidence are present and recognized worldwide. There is therefore a need to investigate the overall response – both required and received - from leaders in terms of climate change policy implementation. The ideal leadership types for climate adaptation must therefore be understood and communicated for those with the influence to be able to combat this phenomenon in the most effective way. It is also essential to present strategic decisions that have been or are currently being made to curb climate change impacts all over the world. Considering the above, we try to address the question 'How can leadership enhance compliance to climate change policies?'

Given the importance of the global fight against climate change and the various global policies that have been adopted; it is also important to analyze the efforts being made by the current political and corporate leadership in achieving this goal of compliance with climate change policies. It is important that this issue is tackled early and by good leaders. Lack of good leadership and lack of values in leaders according to researchers is one of the reasons for the lack of preparedness for the 2008 global financial crisis (Renand, 2014). The authors of this paper recognize the importance of leadership in ensuring good management of a global crisis. Leaders that are able to adapt to changing circumstances is what is needed, hence the study of leadership and decision making that is suitable in a world where managing climate change is

growing to be increasingly important.

Global policies and legislation

As illustrated above climate change is a global problem and it is therefore not surprising that negotiations on climate change have been on-going for decades. There are certain international laws and international initiatives in place to tackle climate change. The most popular of them is the United Nations Convention on Framework for Climate Change and its Kyoto Protocol. More recently, a more worldwide accepted legally binding document was signed by majority of states known as the Paris Climate Change Agreement.

United Nations Framework on Climate Change (UNFCC) and Kyoto Protocol

The UNFCC was adopted by the United Nations General Assembly in 1992. It entered into force on 21 March 1994 and 172 countries have since ratified the Convention. The UNFCC is a comprehensive document that is legally binding on states and whose main objective is to reduce human interference that has been resulting in global warming. While this law exists and is active, there has been criticism and concern that the UNFCC did not provide for proper mechanisms to ensure global reduction of carbon emissions.

The Kyoto Protocol, which is a protocol to the UNFCCC was developed in 1997 as a result of further global negotiations. The Kyoto Protocol set a target for the cut of carbon emissions worldwide by specific dates. The Kyoto Protocol worked by categorising, developed and developing countries into two groups. There is the understanding that young democracies ought to be allowed emit carbon into the air, as such countries did not develop as much during the industrial revolution period. Thus, countries like China, which is the world biggest carbon emission producer, is categorized as a developing country hence not subject to carbon emission cuts despite being the biggest producer. The UNFCC has also not been ratified by the USA.

Paris climate change conference

As a result, negotiations continued. In 2016, at the 21st Conference of the Parties (or "COP") to the United Nations Framework Convention on Climate Change parties adopted the Paris Agreement. This first of its kind Climate Change deal has been adopted by 190 countries is recognized as it is the first time in the world that a document brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so. It is seen as a new course

in the global fight against climate change. Parties that signed the Paris Agreement agreed to limit temperature rise to as low as possible, below 2 degrees Celsius and to further limit it to 1.5 degrees Celsius in this century.

In addition to the Kyoto Protocol, this agreement is important as it shall set goals, appropriate financial flows, a new technology framework and an enhanced capacity building framework will be put in place in order to ensure all countries meet their objectives and the global objective. Other important initiatives of the Paris Agreement that are worth noting are:

- Introduction of "***nationally determined contributions***" (NDCs) which is a new requirement that each country is required to determine in order that the collective efforts towards a sustainable environment are better monitored.
- A requirement that all Parties report regularly on their emissions and on their implementation efforts.
- Global stock of collective efforts that shall be done every 5 years in order to ensure that there is collective progress towards the Paris Agreement's goals.

The Paris Agreement was praised for its success as the USA, the world hegemony signed and adopted the agreement. However, on 1st June, 2017 the current President Trump announced that he will be withdrawing from the Paris Agreement. The Paris Agreement at its adoption was also viewed as successful when it.

Other initiatives

United Nations Global Compact:

There are several other initiatives that deal with climate change. Of particular relevance is the United Nations Global Compact which is a "*call to companies [worldwide] to align strategies and operations with universal principles on human rights, labour, environment and anti-corruption, and take actions that advance societal goals*". Its membership is comprised of over 9,000 companies worldwide from developed and developing countries.

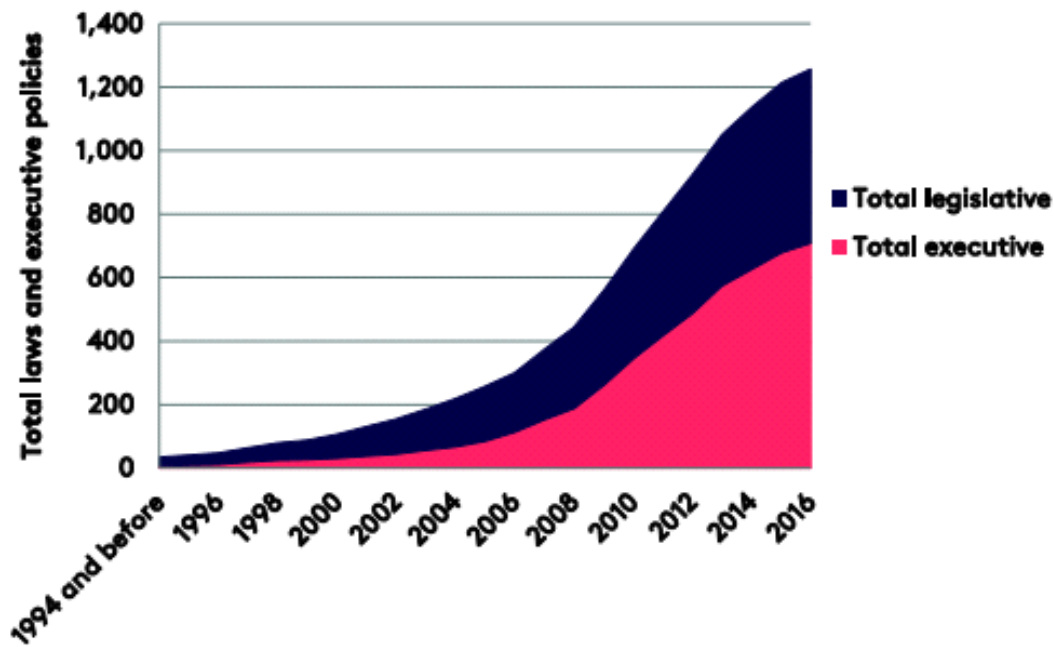
The United Nations Global Compact is an initiative which "*provides a universal language for corporate responsibility and provides a framework to guide all businesses regardless of size, complexity or location*". It is guided by ten universally accepted principles which include environmental principals. Principles 7, 8, and 9 (Table 1) are the specific environmental principles that are relevant to climate change. These principles listed below aim to create a sustainable environment through working with companies:

Country legislation and policies

In addition to global policies, most governments have adopted national policies that they require companies

Table 1. United Nations Global Compact Principles.

Principle 7	Businesses should support a precautionary approach to environmental challenges
Principle 8	Undertake initiatives to promote greater environmental responsibility
Principle 9	Encourage the development and diffusion of environmentally friendly technologies.

**Figure 4.** Country legislation and policies increase in the last decade.

registered in their region to adhere to (Figure 4).

DISCUSSION

Types of leadership that are applicable

Whether it is in the private or public sector, the leaders of institutions and companies play a key role in ensuring the adherence to the climate change policies discussed above as well as the Paris Agreement goal. Effective leadership in climate change policy implementation requires a firm grasp of the unique characteristics of the climate change policy environment. These include:

- The highly vital role played by government and public policy in climate change implementation.
- The uncertainty associated with climate change, i.e. the speed at which climate change must occur (when rivers will dry up), as well as the impacts of various climate change policies.
- The need for feedback mechanisms and anticipation of long-term consequences of the policies to be adapted within the community or organization – the need to see the “bigger picture” during policy implementation.

- The need for co-ordination and co-operation amongst different levels, sectors and actors in implementation of climate change policies.

Types of leadership

According to Meijerink *et al.*, these unique characteristics form the main challenges that climate change leadership must address. Whilst both private and public actors exist in climate change policy implementation and adaptation, today, public policies are crucial to climate adaptation. Taking this into account, the relevant leadership modes that were discussed as relevant in ensuring effective “climate adaptation” include ideational leadership (IL), leadership for connectivity (catalytic, collaborative and integrative leadership), complex leadership (to deal with the uncertainty) and sustainability leadership.

Ideational leadership

Ideational leadership is most desirable in environments where legislation is implemented by those with top authority such as cabinet ministers (Meijerink and Stiller, 2013). The key tasks performed by ideational leaders

involve persuasion of followers to change the status-quo and transition to a new way of doing things (Goldfinch and Hart, 2003).

Connectivity in leadership

Connectivity in leadership is also required due to the connection amongst different levels, practitioners and actors in the climate adaptation environment ((Meijerink and Stiller, 2013; Sullivan *et al.*, 2012). Four tasks were identified for catalytic public leadership to be successfully achieved; “Problem framing”, identification and uniting of the key stakeholders, stimulation of development of plans of action and momentum maintenance and trust building. Collaboration and integration are also required for effective climate adaptation, which is done through tasks such as capacity building, stakeholder engagement, and implementation (Crosby and Bryson, 2005).

Complexity leadership

To tackle the problem of uncertainty within the climate change policy environment, complexity leadership must be employed (Avolio *et al.*, 2009). Complexity leadership theory, according to Uhl-Bien *et al.*, includes enabling, administrative, and adaptive leadership (Uhl-Bien *et al.*, 2007). Under this, there is need to process information under a new environment from the traditional leader-follower situation. This is because majority of the information is not being managed by people who are official leaders. A prime example of good climate leadership demonstration includes the clean power plan introduced during the Obama administration (see *appendix* for more information).

Sustainability leadership

Sustainability leadership is a potential solution to the long-term perspectives and need for feedback issue within the climate change policy adaptation and implementation environment. Meijerink *et al.* propose the eco-leadership theory (ELT) and the theory on leadership in social-ecological systems (Meijerink and Stiller, 2013). Whilst quite new, the ELT is based on six principles (Allen *et al.*, 1999). These principles are illustrated in Figure 2 in the *appendix*.

Astrom performed a qualitative and contextual analysis on annual reports drafted by the United Nations Environment Program (UNEP). This was done to assess the modes of and consistency in leadership used to tackle and implement climate change policies on a global scale (Astrom, 2017). These include structural, idea-based, instrumental and directional leadership (Karlsson *et al.*, 2011).

Astrom used three guiding questions for each mode of leadership to critically analyse UNEP’s consistency in climate leadership. UNEP reports of the years 2005, 2010 and 2015 were analysed within this report. The gap between the years was to test for consistency within the UNEP leadership and policy framework, as consistency is key for credibility gains and consequently strong leadership (Astrom, 2017; Wapner, 2000).

The findings demonstrated a consistency of the UNEP through the analytical framework that was used. Astrom makes the important observation that climate change is a “collective problem” (Olson, 1965), and thus strong leadership is required at all leadership levels and organizations. Astrom’s analysis produced findings that are not unlike the leadership connectivity type put forward by Sander *et al.*

Example of a political leader in implementing climate change policies: The Clean Power Plan

The Clean Power Plan is a policy document that provided carbon emission reduction targets and guidelines for power plants within the US. This plan was first proposed by the Environmental Protection Agency (EPA) in 2014, with an aim of reducing climate change plans.

The overall aim of this plan is to cut down greenhouse gas (GHG) emissions by 32% by 2030 from the power sector. This plan was unveiled on 3rd August 2015, with former US president Barack Obama stressing that “there is such a thing as being too late.”

Businesses such as eBay, Nestle and General Mills hailed this plan as the strongest action on climate change taken by a US president to date. The plan solidified the leadership role taken by the US to implement the changes required not to exacerbate climate change impacts.

Through the unveiling of the clean power plan, Barack Obama displayed his commitment to safeguarding the planet for future generations to come. In addition, Barack Obama cemented his position as a climate leader, displaying ideational and catalytic leadership – using his influential position to draft policy to guide major contributors to GHG emissions to reduce their impact.

However, in an unfortunate turn of events; the current President Trump signed an executive order to undo former President Obama’s initiative.

Climate change policy adoption strategies

The types of leadership styles that if adopted would be more likely to ensure that leaders across all spheres; political and global ensure climate change is tackled in the long run have been discussed above. Various authors have suggested various strategies that leaders can adopt.

Climate change is already affecting leadership decision making and various researchers have studied the effective strategies leaders have applied in adopting climate change policies. This section shall discuss what various authors have discussed as the best strategic decisions.

Berkhout *et al.* (2006) discusses the following strategies that are important in ensuring climate change adaptation by companies:

- Changes to the commercial strategy of the firm (commercial adaptation);
- Changes to technologies used to provide products or services (technological adaptation);
- Changes related to financial management systems (financial adaptation); and
- Changes in research and development (information and monitoring of climate stimuli and search processes for adaptation measures).

These strategies they were summarized in a way that they captured case studies of actual company approaches to adapting to climate change. In the corporate world, there has been a shift in how businesses are run due to climate change particularly with emphasis on mitigation of greenhouse gas emissions and "adaptation to the physical effects of a changing climate".

Hoffman (2017) takes the view that climate change poses market risk and discusses ways that companies through their leaders can respond to mitigate that risk. He specifically states that the responses that leaders ought to implement should come from the market and argues that "*if the market does not lead the way toward solutions for a carbon-neutral world, there will be no solutions*". He discusses several strategies which can be implemented by leaders. These strategies are not all necessarily for climate change conscious companies only but if used would be suitable for the particular company.

Regulatory compliance

This begins with business leaders needed to be fully aware of the climate change policies that have been stated above. They need to be aware and up to date with the policy standards at the international and regional levels and whether their governments have adopted the policies. It is important as these shall be adopted by the governments and leaders ought to monitor them early in order to plan for their implementation at the earliest opportunity as governments would normally set standards and deadlines that governments will impose on them.

Ensure the climate change investments deliver financial returns

Like in any other business, when it comes to climate

change investments, companies will invest where there is a good rate of return. Therefore a good strategy that leads a company is to use its Research and Development to look at the best ways to ensure returns on a climate change investment and effectively

Furthermore, climate-change- and energy-related investments are generally required to compete for capital with other projects. This is important as, in the absence of an explicit preference or dedicated budget for climate-change- or energy-related investments, companies tend to prefer investments that enable business growth.

Reward structures

It is normal in businesses to motivate managers and employees by rewarding them with bonuses depending on their yield. Like any other issue, if business leaders would like their managers to perform, perhaps it would make sense rewarding them for behavioural changes and results (Sullivan and Gouldson, 2016).

Active top leadership

Gallagher (2016) interviewed several leaders who have led companies in adaptation of climate change policies and summarized their advice and important practices into three categories namely "securing and maintaining top leader support, embedding the work within the organizational culture, and collaborating with like-minded companies". The study shows that the interviewees agreed that top leadership is important in the process of implementing climate change policies (Gallagher, 2016). If the leader is not actively involved in implementing climate change policies, it would be difficult to have a motivated staff. Gallagher (2016) states verbatim what one of his interviewees said i.e. "when it comes to advocating for a price on carbon, "the personality of CEOs matter." Without an active CEO it would be difficult to achieve the goals that will have been set by the company.

Embedding the importance of sustainability

Haugh and Talwar (2010) state that "learning about sustainability is a companywide necessity that should not be restricted to the discourse of leaders and senior managers". Whilst leaders ought to begin the initiative, a result of behavioral change by climate change adaptation in a company can only be successful if you involve the staff across all parts of the business. This can be done through raising awareness of the importance of climate change adaptation as a business through workshops, dialogue, employee volunteer opportunities. When you raise awareness you increase not just knowledge about climate change policies but also their interest in fighting

for the environment alongside (Haugh and Talwar, 2010).

Collaboration

Collaboration here refers not just within the organization but outside the organization as well. Collaboration can be attained by joining initiatives such as the UN Global Impact initiative above in order to liaise with other companies and work towards a global objective. A good corporate leader would also collaborate with the Government and keep in time with the targets set out by their governments. Collaboration is also important with consumers.

Example: ExxonMobil

ExxonMobil is the world's largest oil company and the US largest producer of gas and is therefore a huge contributor to the increase in carbon emissions (Crooks, 2017). They therefore have a moral duty towards the world as well as the legal responsibility to the best of their ability to adhere to climate change policies. ExxonMobil CEO Darren Woods wrote a letter to President Donald Trump urging him to not withdraw the US as a party to the Paris Agreement. This speaks volumes of him as a leader taking charge.

ExxonMobil is taking action by: "reducing greenhouse gas emissions in its operations, helping consumers reduce their emissions, supporting research that leads to technology breakthroughs and participating in constructive dialogue on policy options". (ExxonMobil, 2017). They have laid out strategies in their *ExxonMobil 2017 Outlook for Energy: A View to 2040* (ExxonMobil, 2017).

Their climate change risk management strategy includes four components:

- developing technology solutions - by bringing together engineers, executives and scientists to do so.
- mitigating emissions in their operations
- providing solutions that reduce greenhouse gas emissions for customers and engaging on climate change policy.
- pioneering scientific research to discover innovative approaches to enhance existing — and develop next-generation — energy sources.

ExxonMobil in its desire to adhere to climate change policies has adopted many of the strategies discussed above. CEO Darren Woods is active as top management in assuring commitment to the Paris Agreement and compliance with climate change policies. They are also active in research and development, technological and financial adaptation, regulatory compliance and collaboration with consumers as well as attempting to

reach out to the President to collaborate with the government in ensuring compliance with climate change policies.

CONCLUSION

The purpose of the paper was to explore types of leadership styles and strategies that can be used in order to improve compliance by them which have been done. As has been illustrated, climate change is a problem that ought to be solved quickly. Ultimately, despite all the leadership styles available and the strategies that can be implemented, there is one thing that leaders can do. That is simply act early- act now. The conclusions which stem from this study indicate the role of leadership (political or corporate) is of great importance in order climate changes to be addressed; leaders, through their decisions and policies, can contribute to minimizing the adverse effects of climate changes.

RECOMMENDATIONS

1. Further research on competencies required for effective climate change adaption leadership – both within the political and business environments.
2. More research on political relations impact on leaders.

The research has investigated how the climate change and environmental pollution affect leadership effectiveness and found the conventional leadership cannot deal with currently environmental issues. It is especially true when considering the fact that there is a growing trend of maximizing profits because some business leaders are not making effective decisions and concerning about environment. For example, some companies are actually operating their business in an unethical and unsustainable way without considering any social issues. They do not have a planned strategy for a sustainable development. In contrast, these firms generate a huge amount of harmful pollution either for the environment or for individuals. This shows a need to be explicit about exactly what is meant by the term 'corporate social responsibility'. It refers to businesses commitments to ethical, legal, discretionary, and economic responsibilities (Carroll 1979:500; 1991:283). Firms should be aware of that financial performance is not the only thing they expecting, also they have to be responsible for society and environment. In general, therefore, it seems that these obligations are necessary to be achieved to balance the weight between firms' economic goals and social issues. To date, previous study shows that those companies which are insensitive to the environment and to social implications will not survive in the long run (Ranganadhan, 2012).

As previously stated, the investigation of Starbucks

case study has shown that environmental protection has been seemed as a key factor which Starbucks has been trying. Such as the ethical cocoa supply chain, preserving water, managing waste and recycling cups. Basically, these ethical decisions what the leaders made could reduce any harmful pollutions to deal with climate change. Moreover, the company would have a better reputation to attract more consumers in a long term. The reason is Starbucks being responsible for customers' and provides verified high-quality products and treats consumers as priority in sustainable way.

The study has some limitations because the paper only explores and examines a certain number of literatures and these literature is heavy relying on what we subjectively search. In addition, literature chose are more on business field, not all area. Therefore, future research could focus more on non-business area to review

In general, although this research have limitations and sustainable leadership still have some problem in the reality, sustainable leadership could be a solution to make leader effectively mitigate the influence of climate change and environmental pollution, based on the early mentioned.

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