Addressing Anthropogenic Climate Change:

How Contemporary Latent Neoliberalism is Getting in the Way

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Abstract

Addressing Anthropogenic Climate Change:
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This paper takes an exploratory approach to examining Anthropogenic Climate Change (ACC) and the system involved in addressing this issue. It starts by asking 'What needs to be done to address ACC,' and then similar to peeling away layers of an onion, goes deeper, shifting to two linked questions: 'Why do we seem to be slow to respond to what is possibly the greatest threat of our time'; and, 'Why do we seem to be getting in our own way?'   Through a layered approach, the paper identifies the actors within the system, the relationships, and the underlying ideology. Initially, the paper focuses on an objective viewpoint, and then peels that objectivity back to look at the realities and context in relation to each actor's roles, influences, and challenges. Using a causal layered analysis and a systemigram, the paper works to show why the pace of change remains slow despite the growing crisis and despite overtly expressed interest in change from the three main actor groups: the public, government, and industry. What it finds through the analysis is that aspects of neoliberalism, called 'contemporary latent neoliberalism' (a focus on free-market capitalism, light-touch government, a hidden ruling elite, and social/environmental issues subordinate to all else), are at the heart of the problem, creating strong resistance and slowing the progress on addressing anthropogenic climate change. Ultimately, the current system is flawed. The majority of influence and power comes from individuals and organizations that profit from lines of business that contribute to climate change, and whose profits would be negatively affected by strong rapid efforts to address ACC. Governments are unable to step in to hold these actors to account as they are designed to follow market forces, and the public is unable to effect real change as they have the least amount of influence. For real change to occur, the system has to shift in some way.

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Introduction

The Focus

In recent years, there has been an increase in extreme weather events such as hurricanes, increased forest fires, and extreme temperatures, as well as rising sea levels and melting ice shields. This increasing anthropogenic climate change (ACC) – meaning it is directly related to human activity – is a major cause for concern. Moreover, these and other effects will only continue to increase in frequency and intensity as the situation worsens and the earth's surface temperature continues to rise. In fact, according to some sources we only have approximately 10 years to address this issue before we lose our ability to make significant change.

This crisis is not new, as scientists have been ringing alarm bells for decades. These warnings, however, have not been heeded to the extent that they should have been, and the result is that we have missed precious time to alter this trajectory.

This is not to say that there have not been some efforts and that there is not an interest in making change. The push to 'go greener' has been growing for years, and it is getting louder. In recent times there have been numerous innovations across a broad array of areas to address aspects of climate change. Governments around the world have committed to agreements representing a collective effort to address this urgent need. Sustainable energy solutions have been created by industry, and much of the public are shifting their behaviour and taking to the streets to demand further action. The issue is that to-date these efforts and expressed intents have not been equal to the task and this problem has not only not faded, but it has gotten much worse. Climate change has now become a crisis that can no longer be ignored or pushed aside. Radical and timely action is needed.

What this paper aims to do is take an exploratory approach to examining ACC and the system involved in making change, or resisting change. It begins by asking the question 'What needs to be done to address this issue,' taking a broad and an objective as possible view of the actors involved in the system. It then, similar to peeling away layers of an onion, goes deeper, with the central question shifting to two linked questions: 'Why do we seem to be slow to respond to what is possibly the greatest threat of our time'; and, 'Why do we seem to be getting in our own way?' Peeling back the objectivity and looking at system and the predominant ideology, as well as the realities of the actors, their roles, influences, and challenges, the paper is able to show why the pace of change remains slow despite the growing crisis and despite overtly expressed interest in change from the public, government, and industry. Simultaneously, like building the layers of a cake, the paper starts with a base systemigram and adds each layer to create a visual of the system and its challenges. What it finds

through the analysis and systemigram is that contemporary latent neoliberalism is at the heart of the problem, creating strong resistance and slowing the progress on addressing anthropogenic climate change.

Essentially, if the majority of influence and power comes from individuals and organizations that perpetuate the idea that market forces and shareholder value are paramount to everything else – and who are often tied directly to industries who profit greatly from lines of business that contribute to directly to climate change – then any actions to make the urgently needed progress on ACC that run counter to the market interests of these powerful bodies are met with resistance. Further, if governments are designed to be light-touch – only there to protect market interests – then no amount of push from the public or other actors for urgent change can really have the desired effect. Absent a strong profit motive, or a major shift in the system, things will continue at the current pace.

The Approach

As this is a large undertaking, as noted above, a layered approach has been used to both understand the issue and uncover the challenges. These layers are represented by the sections within the paper.

The first section looks at gaining a comprehensive understanding of the issue of anthropogenic climate change: its history; why it matters; and, where we are now. This is an important discussion that sets the stage for the rest of the analysis. Section 2 then focuses on identifying who the major players are in making change, taking an objective look at their expected roles in addressing this issue. The finding here is that the three main actors of government, business, and the public all have been, and continue to, express concerted interest in making real change. However, if this is the case, then why have we ended up where we are, with scientists warning of irreversible damage taking place in just over a decade without extreme action? This is where the original question is reframed to look at what is getting in the way of progress. This is also where the first and most basic version of a systemigram is introduced.

Following the reframed question, out of necessity section 3 shifts direction. Stemming from the analysis thus far, it becomes clear that there is a need to take an essential look at the structures and ethos underpinning western society. To do this, the paper uses a Causal Layered Analysis (CLA) tool to organize the findings of the research and analysis.   What emerges is that there are aspects of neoliberalism embedded throughout the system that are affecting the ability to aggressively address climate change. With this revelation, the next step in this section is to take a comprehensive look at the ideology itself. Here, the paper examines neoliberalism in detail, looking at its history and how it is variously defined. The paper then goes one step further and identifies a new term to identify the aspects of the ideology that seem to persist today and that are most relevant in the rest of the analysis. This term is 'Contemporary Latent Neoliberalism' and it has 4 main components:

- A Focus on Free-market capitalism
- Light-touch by government
- The Hidden Ruling Elite
- Social Issues (including the environment) as secondary to all else

To bring the discussion back to the original focus, this section ends by revisiting the driving research questions.

Using the CLA and the understanding of neoliberalism, Section 4 gets back to the building of the systemigram by identifying the secondary actors. These are the actor groups that also have a role to play in addressing climate change through their interaction and influence on the three main actors. These include: Financial Institutions and Economic Influencers, Think Tanks, the Scientific Community, the Academic Sector, Environmental NGO's, and the Media. This section also identifies two additional aspects that must be included, given their effect on the system, which are Social Media and Dis/Misinformation. A second version of the systemigram is then presented showing these new actor groups and aspects. A key consideration here is that, up to this point, the analysis has not yet looked at the reality of how relationships and actions of this actor group are overlaid upon the contemporary latent neoliberal forces. This is by design, as it allows the reader to get an objective sense of what is in place.

The next section, Section 5, peels back and highlights how these influences are truly counter acting the momentum of change. In this discussion portion, the paper revisits the actor groups as well as additional influences, adding essential context and noting some specific realities. It identifies that governments are constrained by the system in that they are unable to apply more than a light-touch to make change, instead relying on and working with market forces to set the pace. It highlights how big business sectors such as big oil and gas, and even big pharma, are duplicitous in their efforts, showing that they are expressing a desire to make significant change, and taking some actions in this regard, while simultaneously taking larger steps in the opposite direction. This discussion also notes the level of influence from the financial elite, who are those tied to big business or economic organizations who drive policy decisions, as well as the large impact that disinformation efforts by think tanks have had on the progress to date. In addition, Climate agreements are examined in this section and found to be less effective than intended, especially the Paris Agreement, as it lacks any true accountability mechanisms.

In terms of what one would think would be positive forces for change, such as the scientific community, environmental non-government organizations (ENGO's) and even the public, this paper finds that there are barriers in their way. Objective fact is being challenged by disinformation in many places, and this is true of climate science as well. Today's influential ENGO's are working to affect change, but they lack a consistent approach and vision, struggle to have real influence on the larger stage, and ultimately still look to market forces to drive the change. While a large portion of the public is rising up, with climate strikes happening around the globe and efforts being made on a personal level, members of the general public lack the requisite ability to really effect major change on their own, as they must weed through the dis/misinformation to try to find truly sustainable, financially feasible, and/or a sufficiently available solutions. Before closing with the final version of the systemigram representing the findings of this analysis, this section highlights, very specifically, how the problem of climate change is getting worse, thus bringing the discussion back to the original issue at hand.

The Findings

Finishing off, the final section of this paper is the conclusion, where the insights gained through this analysis are summarized, and opportunities for further study are outlined. The end goal of this paper, however, is not to identify a fully flushed out solution, process, or framework. Rather, throughout this system analysis, the aim is to uncover and explain a new insight and way to look at the problem. The hope is that this study pushes the discourse further and opens up new options and approaches to addressing the issue.

The central resulting insight is that the largest and most urgent obstacle getting in the way of rapidly addressing anthropogenic climate change within the timeframe needed may actually be the current global economic '*system*' itself, due to the aspects of Contemporary Latent Neoliberalism that constrain it. Through the completed systemigram we can see this clearly, evident in the many ways that these counter-productive forces are adding considerable resistance to otherwise powerful intentions. What is ultimately the most important consideration, as a result of this analysis, is if our global society is unable to recognize and act upon the necessary changes before we reach 'the point of no return,' a*nd thus are no longer able to have any impacting effect at all …* the potential consequences stretch toward cataclysmic effects on our world and our way of life.

Methodology

Several research methods were used in the development of this analysis and resulting paper. These include not only primary and secondary research methods, but also the use of two design thinking tools: The Causal Layered Analysis (CLA) and a Systemigram.

The primary research conducted included the development and deployment of an anonymous online survey, person-to-person interviews, as well as attending a relevant panel discussion. The secondary research involved a comprehensive literature review, as well as a popular media search. As this is an extremely high-level examination of a broad topic, the literature and popular media reviews were essential to identifying previous studies and data that could inform the exploration. These methods not only provided a rich dataset for the analysis, but they also assisted greatly in populating the CLA tool and in laying out the systemigram.

The primary research was equally essential but provided different and perhaps more focused insights. Through the survey, it became possible to get a sense of the how the pubic feels about the issue of climate change, what they feel their ability to effect change is, what barriers exist, and who they feel is responsible for driving change.   Although the number of responses represents a small sample size, it was possible to examine the results alongside other data sets found in the literature review. The person-to-person interviews, although not specifically with representative leaders from any one actor group, assisted in directing the research into new areas, and yielded insights to barriers to innovations they see in their industries. These could then again be looked at in addition to the findings from the literature review. The event also broadened the thinking around issues of climate change and provided some direction for the secondary research.

Each of these tools and methods are outlined in more detail below.

Design Thinking Tools

The findings from both the primary and secondary research elements were both used to populate the two design thinking tools.

The CLA, although often used as an alternative futures tool, was used in this paper to create an understanding of the litany, structures, worldviews and myths and metaphors that underpin contemporary western society with regards to addressing climate change. The literature review and popular media search were specifically helpful in this regard. This particular tool is explained in more detail in Section 3.

The systemigram, which follows the structure of the paper, was created to help provide a visual to map and explain how each of the actor groups related to the issue of addressing climate change interact, as well as how the contemporary latent neoliberal aspects are adding resistance to the momentum of progress. This visual mapping is revealed in layers at 3 different points. The first instance shows the three main actor groups who have a key role in addressing the issue at hand, along with an icon in the centre representing the forward momentum on addressing climate change. The second layers in the next level of actor groups and additional aspects along with some of their basic relationships and interactions. The third instance is the final image, complete with all actor groups, aspects, relationships and resistant forces stemming from the constructs of contemporary neoliberalism. Through this layering approach, the paper is able to bring the reader along in the discussion and analysis, providing essential points of reference. Both design thinking tools were created using Adobe Illustrator.

Primary Research

As noted, the primary research for this project included a brief anonymous online survey, as well as expert interviews, and the attendance at the climate related event, each outlined below.

Survey

The survey *'Exploring the intersections among government, corporations/organizations, and the public; and concerns around climate change'* was launched on January 22, 2020 and was made widely available for just over a one-month period, ending on March 6, 2020. The survey was focused on residents of Ontario, Canada over the age of 18.

This online survey was developed using the online tool TypeForm, and launched via invitations on Facebook, Twitter, LinkedIn, and select emails. The invitations were designed to specify that participation was optional, and that respondents could withdraw at any time. Further, they specified that the survey was anonymous, and that data would only be used for the purposes of this paper's research.

Within this tool there were two sections: The first focused on the demographic aspects of respondents to recognize any possible trends within any groups, while the second focused on questions regarding the climate. The initial questions in the latter section sought to sort the respondents by their perspective on climate change, and then logic flows were built into the survey framework to direct questions in keeping with their answer. For instance, if the respondent answered that they did not believe in climate change, they were not shown questions that delved into the details of the climate crisis as that would not be applicable.

The aim of this survey was to gain a better understanding regarding the public's perspective on climate change, and if possible, to identify ways to utilize innovation and design strategies to address this area of concern.

As of March 6, 2020, the survey had 94 responses from across Ontario, mainly focused in the Southern region.

Interviews and Event

The interviews conducted for this research took place in March of 2020. Three were conducted in total, one in person, and two conducted via phone. The requests for interview were made in person initially and then followed up via email. In advance of the interviews the individuals were provided with a sample set of questions, along with a consent form outlining what to expect. These interviews were then conducted in an open-ended format, with the sample questions acting as guides to the conversation but allowing the interviewees to speak more freely and offer their own additional insights. As part of the consent form, interviewees were informed that they were free to withdraw at any time.

The interviews typically took just under an hour, with one limited to 30 minutes due to the interviewees time constraints. Each one offered valuable insights into the issue of climate change relating to their industries and aided in directing additional research.

It should be noted that the individuals interviewed also participated in the climate event that was attended. This was the *DesignMeets: Climate Action Panel Event* held on February 27, 2020 at Sidewalk Labs location in downtown Toronto, Canada. This event was of value as it brought together individuals from across a spectrum of industries, each with a unique perspective on, or role in, addressing climate change. Speakers were each given five minutes to present and then they participated in a panel discussion where the attendees could ask questions. Specifically, the speakers included the event included Hélène St. Jacques, founder of Informa Market Research; Paul Dowsett, founder and principal architect at Sustainable; Jon Dogterom, senior VP of venture services at MaRS, Victoria Haldane, PhD student at the Institute of Health, Policy, Management and Evaluation at the University of Toronto; Dr. Shashi Kant, founding director, Master of Science in Sustainability Management Program, UTM; Tina Soldovieri, founder of Roncy Reduces in Toronto; and Jennifer Harmer, energy consultant at RWDI.

Secondary Research

Although this is discussed last in this section, the secondary research was of primary importance. Over 140 resources are cited as part of the literature review and popular media search, including books, papers, journal and online articles, as well as some specific datasets. The resources covered topics from Climate Change, Neoliberalism, Economics, Politics and Government, and Environmental innovations.

The initial question

With climate change being one of the more important issues facing the world today, we must work to gain a deeper understanding of its effects and the urgency to make change. In this vein, this paper starts out by asking an initial question:

What is Anthropogenic Climate Change and what needs to be done to address this issue?

Understanding the Issue of ACC

Anthropogenic Climate Change

We, and our planet, are truly in uncharted territory as we are experiencing perhaps one of the wickedest of 'wicked' problems. Among other challenges facing us today, Anthropogenic Climate Change is one of the most pressing and most difficult (Hansen, Furlow & Goddard et al. 2019). This is the theory that refers specifically to the long-term increase in the temperature of the earth's atmosphere as a result of human activities such as human industries, transport, and livestock farming ("Man-made", n.d.). This increase is considered to be a result of what is often called Greenhouse Gases, which are made of molecules that absorb electromagnetic radiation, such as the light reflecting from the planet's surface, and remit it as heat. These gases include methane, carbon dioxide, water, and nitrous oxide (McRae, 2019).

According to Mike McRae in '*What is Anthropogenic Global Warming?*' carbon dioxide levels have steadily risen over the past two centuries, largely due to the burning of fossil fuels for electricity, transportation, and smelting. The current levels are approximately 415 parts per million (ppm), up from pre-industrial levels of around 280 ppm (McRae, 2019). Further, we have seen an average global temperature increase of just over one degree in the last half century, but according to the United Nation's Intergovernmental Panel on Climate Change (IPCC), if current emissions trends continue without change we could likely see an increase of four degrees by the end of this century (McRae, 2019; Constantinescu, 2019; "Temperatures", 2019). The image below shows this worst-case scenario along with some of the effects of potential policy changes.
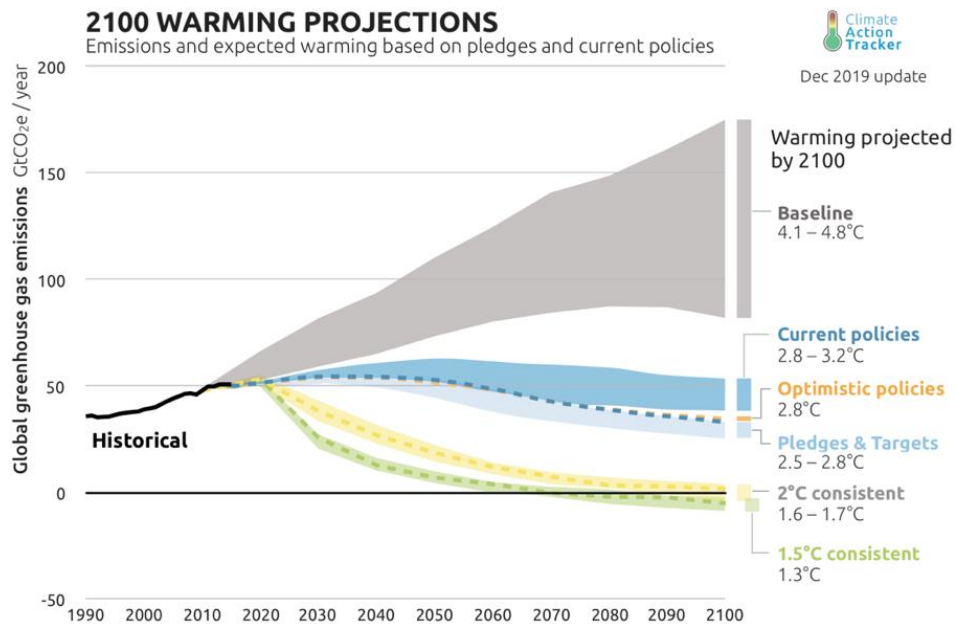
Figure 1: 2100 Warming Projections updated December 2019, showing current and possible alternative trajectories of climate change. From Climate Action Tracker's "Temperatures." [Image].   © *Climate Analytics and NewClimate Institute*

Why does this matter?

When these gases get trapped in our atmosphere and then translate into heat, the earth stores this heat resulting in a rise in global surface temperature for both land and sea (IPCC, 2014). These rises in temperature affect the global ecosystems and cultures, and the resulting impacts and adaptations create cascading effects. Extreme weather events such as heat waves, extreme precipitation, and coastal flooding, which are already happening more frequently, could increase in occurrence and intensity (IPCC, 2014, IPCC, 2018; Constantinescu, 2019; Council of Canadian Academies, 2019).

Physical systems or ecosystems may experience abrupt and/or irreversible changes. We are already seeing this with coral-reefs and arctic ecosystems: as warming of the oceans kills parts of the coral-reefs, the fish that depend on them are impacted (IPCC, 2014. In areas such as the Arctic and Greenland there has already been a substantial reduction in the thickness of the ice. This, combined with the reduced amount of snow storage on land, then contributes to the rise in sea levels (Constantinescu, 2019, IPCC, 2018). Further, as carbon dioxide is absorbed by seawater over time it causes a reduction in the pH of the ocean resulting in acidification (Kennedy, 2010).

Freshwater resources are also at risk. As greenhouse gases rise, water scarcity will worsen for populations at risk with increased drought, while in other locations, high levels of water are projected with increased incidents of flooding. Climate change will also impact water quality and pose risks to drinking water, even with conventional treatment, due to increased temperature, increased sediment, nutrient, and pollutants from heavy rainfall (IPCC, 2014).

For Humans, continued greenhouse gases and surface temperature increases without mitigation will mean lower food security with issues around food access, utilization, and price stability. There is also a high likelihood of disruption to agricultural incomes as shifts are seen in production of food and non-food crops around the world (IPCC, 2014; IPCC 2014; Extreme Carbon Inequality, n.d.)

Essentially, if we continue on the current path without addressing this issue and reducing the pace of global temperature rise, we will see dire consequences around the globe, with the largest impacts felt by poorer and marginalized populations (IPCC, 2014: IPCC, 2018; IPSOS, 2020). In fact, there are already a number of impacts being seen and felt across the globe: in 2019, Australia caught on fire; Indonesia is planning to move its capital city from Jakarta, which is being swallowed by the sea; there have been 17 of the hottest years on record in the last 18 years; the Antarctic ice loss has tripled over the last decade; and the acidity of our seas has increased by around 30% since the Industrial Revolution (IPSOS, 2020)

How long have we been aware of this?

Scientist have been raising concerns around this issue of climate change for many decades. It was in the 1930's that at least one scientist, Guy Stewart Callendar, began claiming that carbon emissions might be having a warming effect on the planet, but it wasn't until the 1980's that scientists began really sounding the alarm after 1988 was the hottest summer on record at that time. Following that, the Intergovernmental Panel on Climate Change (IPCC) was established under the United Nations to focus on this issue from a scientific point of view. (Climate Change History, 2020)

The first agreement to address this growing issue was the Kyoto Protocol in 1997, which called for reducing emissions of six greenhouse gases in 41 countries plus the EU. The U.S pulled out of this deal, however, in 2001 due to what it cited as fundamental flaws. That year the IPCC issued a third report, warning of very damaging future impacts, and in then 2006 former Vice President Al Gore unveiled his film '*An inconvenient Truth'* ("Climate Change History", 2020). Political debate around the importance of this issue would continue though, and although this concept was topical in 2010 (IPSOS, 2020), future president Donald Trump came out in 2012 stating the concept was a hoax by China designed to make U.S. manufacturing non-competitive. ("Climate Change History", 2020)

A few years later, in 2016, NASA and the National Oceanic and Atmospheric Administration (NOAA) found the earth's surface temperature to the be warmest on record since record keeping began in the 1980's (Climate Change History, 2020). Since that time, this issue has continued to be of high importance to many countries around the world.

Where are we now?

Despite having known about this for decades, and experiencing some of the ill effects already, it seems the efforts taken to date have not been sufficient. Now more than ever we face a growing urgency to address this issue.

At the March 2019 United Nations General Assembly's Seventy-third Session, a high-level meeting on climate and sustainable development, the focus was on protecting the global climate for the present and future generations in the context of the economic, social and environmental dimensions of the 2030 Agenda for Sustainable Development. The General Assembly's President Maria Fernanda Espinosa Garcés (from Ecuador) warned that "We are the last generation that can prevent irreparable damage to our planet," adding that there are 11 years left to prevent catastrophe. This was echoed by the Secretary-General who stated that there was just over a decade to stop the irreversible damage ("Only 11 Years Left", 2019).

In line with that thinking, according to the IPCC, if we want to significantly mitigate the damage, there is a need to limit the trajectory of this rise in the earth's temperature to 1.5 degrees Celsius, or even two degrees, through a 50% reduction in carbon emissions by 2030, and continue to a net zero carbon by 2050 (Roberts, 2019).

This calculation underpins the landmark agreement aimed at combating climate change that was signed on 12 December 2015 in Paris. Here, the parties to the United Nations Framework Convention on Climate Change (UNFCCC) agreed to accelerate and intensify the actions and investments needed for a sustainable low carbon future. The Paris Agreement, as it is called, 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. As such, it charts a new course in the global climate effort ("What is the", n.d.).

An Objective Look at Who's Involved in Addressing ACC

To understand how this issue of climate change has been able to reach the epic point that it has, despite our awareness of its importance, this paper is using a systems approach. By building a systemigram that maps out the actors, aspects, and relationships, the goal is to identify what might be causing this delayed reaction to what may be the most important challenge in front of us today.

Starting the Systemigram: Main Actors Involved in Making Change

Having established an understanding of the issue of Anthropogenic Climate Change, and why there is a need to reduce the trajectory of the surface temperature rise to only 1.5 degrees Celsius, we can begin to look at the first layer in the systemigram. This layer involves identifying who the major players are in this system, and taking a very surface level, objective look at their perceived roles in driving and effecting change.

From the research and analysis, this paper has identified three primary actor groups, which include Government (a State actor), Business, and the Public (Non-State actors).

Government

To begin, we first look at the state actor of 'government', which we see from the previous section is essential in addressing this issue. This is a broad category, however, and can be further broken down into two separate but linked sub-sets. These are the bureaucratic government which handles the day to day aspects; and, the political actors/parties that are voted in. To identify the difference between the two we look to a simplistic definition outlined in *'Bureaucrats and Politicians: A Report on the Administrative Elites Project.'* This identifies that the bureaucratic aspects of government administer and implement, while the political aspects set policy and make decisions (Aberbach et al, 1991). This simple definition assumes no overlap, which may not be completely accurate, but for the purposes of this paper it works to outline the necessary distinctions for the systemigram.   Political actors are identified specifically as they play a key role in this issue. They are the bodies that can sign on to climate focused agreements and accords; set mandates within their alliances, countries, states, provinces, etc.; and drive the creation and implementation of regulations and

possible avenues for enforcement such as sanctions or fines (De Roeck, 2019; Gertz & Kharas, 2019).

As noted previously, in 2015, the Paris Agreement – which is considered a landmark agreement that represents a global response to the threat of climate change by lowering carbon levels to reduce the global temperature increase – was signed by 55 parties to the UNFCCC. Since then, as of March 2020, that number has risen to 189 parties of the total 197 member nations ("Paris Agreement", n.d.). This represents a large-scale commitment by countries around the world to tackle this issue. This, however, is not the first agreement to be signed. Previously, there was the Copenhagen Accord in 2009, and before that the Kyoto Protocol that was adopted in 1997 and enforced in 2005 (Bäckstrand et al, 2017; Constantinescu, 2019). Governments around the world have, at least on the surface, have committed and re-committed to addressing this issue on a global scale.

Within specific countries there are examples of these types of commitments as well. For instance, in Canada, there is a continued effort with the incremental implementation of its 'Pan-Canadian Framework on Clean Growth and Climate Change' – its overarching strategy for reducing emissions, adopted in 2016 – often in the face of provincial pushback ("Final Report", 2019; "Temperatures", 2019). Diving further, within the country environmental laws are enacted by the federal government, ten provincial governments and three northern territorial governments (Tidball, Atcheson, & Buttgieg, 2019).

In the United Kingdom (UK), they have enacted the 'Climate Change Act of 2008', which forms the basis of their approach to addressing climate change. This act focuses on reducing emissions of carbon dioxide as well as other greenhouse gases by 2050 through a path and framework established in the Act. Within the UK, although covered by the broader act, Scotland committed to the 'Scottish Climate Change Act of 2009', Wales passed the 'Environment Act in 2016', and Northern Ireland implemented its 'Programme for Government'. It should be noted that with the UK leaving the EU some aspects of these plans may be adjusted ("UK Regulations", n.d.).

The European Union just recently released its proposed 'European Green Deal' in December of 2019, which is a renewed focus on the emissions reduction goals for 2030 (Kuebler, 2019; Harvey, Rankin & Boffey, 2019). This set the stage for various consultations and agreements to realize this approach fully, which is still in progress ("The European Green Deal", 2019). It addresses issues of biodiversity loss, resource use and waste, sustainable agriculture and the enforcement of environmental rules across the EU. (Kuebler, 2019).

While in the U.S., in addition to the President and leading administration's guidance, they have the long-standing Environmental Protection Agency (EPA), which was set up in 1970, in the wake of then elevated concern about environmental pollution. This body, whose mission is outlined as being to protect both human health and the environment, develops and enforces environmental law, sets national standards, and helps communicate requirements. They also conduct research and offer grants ("US EPA", 2013). In many ways, the U.S. represents an outlier in the approach to environmental action. The EPA does not appear to directly relate to the emissions reductions goals which underpin so many of the other agreements, and in 2017 the U.S. became the lone country not committed to the Paris Agreement (Hansler, 2017). It also pulled the plug on the Clean Power Plan, which was a part of the Obama administration's efforts to combat climate change (Greshko et al, 2019).

Each of these examples demonstrates how governments can play an essential role in affecting climate change through the creation of mandates, acts, policies, and signing on to international agreement, and establishes them clearly as a main actor in the system. Their continued commitment to addressing anthropogenic climate change is essential to effect change – as long as they actually following through on those commitments.

Non-State Actors

Beyond government, we can begin to look at who the other key players are in addressing this issue. Many who have studied this refer to these bodies as non-state actors and have recognized the role they play in influencing policy makers as well as in taking action (Nasiritousi, Hjerpe & Linnér, 2014; Hale, 2018; Vandenbergh & Gilligan, 2017). How these non-state actors are defined, however, varies depending on the source, research objective, and how their roles in influence have been evolving over the years (Bäckstrand et al, 2017).

According to the UNFCCC, non-state actors are categorized as follows: business, industry, and non-governmental organizations (NGO's); environmental non-governmental organizations (ENGO's); indigenous peoples' organizations (IPOs); local government and municipal authorities; research and independent non-governmental organizations; trade unions; farmers and agricultural NGOs; women and gender; and youth. Another group of observer organizations is constituted by Inter-governmental Organizations (IGO's), such as the World Bank, the Organization for Economic Cooperation and Development OECD, and the United Nations Environmental Programme (UNEP). (Nasiritousi, et al, 2014; Bäckstrand, et al, 2017).

In '*The Role of Sub-state and Non-state Actors in International Climate Processes'* by Thomas Hale, he identifies non-state actors as those that cross nearly every realm of world politics, actors other than nation states, including city, state and regional governments, businesses, the financial sector, civil society groups and others (Hale, 2018). These non-state actors carry out diverse roles across the policy spectrum, including influencing policy makers and taking action independent of states (Nasiritousi, 2017; Nasiritousi et al, 2014; Bäckstrand et al, 2017).

For this paper, we take a slightly different cut at defining the actors. Here it makes sense to categorize these at a more macro level. With that, in addition to Government as an actor, this paper identifies two other main level non-state actors as Business and the Public, along with several secondary level actors which we discuss further along.

The reason this paper is focusing on these three as the main actors is because each of these bodies represents significant sources of power or influence in regard to affecting climate change. This is not to say that the others are not important or are without influence, but their influence is most often funneled through, or to, one or more of these other groups. For instance, the scientific community has influence through the generation of research on climate issues, but that information is typically messaged to the other actors for them to use in their efforts to fight for change.

Business

We can start by looking first at the Business Actor group. This is important to include because of the leverage powers that business and industry groups have, which can be particularly strong on influencing policy and decision makers (Nasiritousi et al, 2014). To get an accurate picture, however, we must break it down further to recognize the two specific sub-sets. These are Large Scale Influential Organizations, and Other Organizations.

Subset 1 – Large Scale Influential Organizations

In this first subset we are looking at large-scale influential organizations capable of providing resourcing for interventions, which could include entities such as global steel corporations, cement producers, and vehicle manufacturers *(Duggan, 2018; Hale, 2018),* as well as fossil fuel organizations otherwise known as 'Big Oil and Gas,' and even groups such as 'Big Pharma.' These companies or groups have been singled out for needing to take responsibility for their role in climate change. Specifically, it has been noted that 63% of cumulative worldwide emissions of industrial C02 and methane between 1751 and 2010 can be traced to 90 entities producing natural oil, gas, coal, and cement (Heede, 2014: p.229 as cited in Nasiritousi, 2017). These entities are important to note in this analysis because although these organizations do not represent the state, their ability to influence states and other actors, as well as make change through their own direct initiatives, makes them a source of power in this equation. Examples of such companies could include Saudi Aramco, Exxon Mobil, PetroChina, BP, Royal Dutch Shell, and Chevron (Nasiritousi, 2017). 'Big Tech' also fits into this category as it has enormous ability to wield influence, even though they are not necessary aligned with the fossil fuel organizations (Duggan, 2018).

When digging deeper into the positions these organizations have on issues of climate change, it can be seen that, at least on the surface, they are committed to taking action. In fact, businesses in general have gained recognition for their activities in influencing decisions, policy makers, the international climate change agenda, and taking mitigating action (Nasiritousi, 2017). In regard to the fossil fuel sectors specifically, most if not all of these companies demonstrate an interest in making change. A quick popular media search visiting the websites for companies such as Royal Dutch Shell, and BP, reveal that they are expressing a concerted effort to combat climate change.

More pointedly, Shell even joined several new organizations including the Business Council for Sustainable Development (later headed by Shell's chair) and the working party on sustainable development for the International Chamber of Commerce (headed by an official from BP) in an effort seemingly focused on sustainability (Gutstein, 2018). Further evidence of the interest by large companies such as BP, Pemex, Saudi Aramco and Shell is the Oil and Gas Climate Initiative, which was launched in 2014 at the UN's Climate Summit. The purpose of this initiative was to spur practical action in areas such as the role of natural gas, carbon reduction, and long-term energy solutions (Nasiritousi, 2017).

Clearly this subset's size and influence make them a major actor in the system being analyzed in this paper. What is more, from an objective standpoint, they appear to be expressing interest in addressing climate change and working towards recommended goals.

The next sub-set is a broad one with several groups within, each with varying degrees of focus on being 'green'. At the one end there are sustainable energy and green tech organizations, such as those focused on solar, wind, electric vehicles, carbon capture and storage, whose entire business is about addressing climate change. Moving along that spectrum there are organizations that might not exist to create or produce green solutions, but who do have an interest in implementing greener measures within their organizations, as well as possibly educating or driving change within their own industries. These organizations may be national, local, and even on occasion global, but their ability to drive national or global policy is typically limited (Duggan, 2018). For instance, a new start-up working on sustainable products or even implementing greener policies will need to be more focused on the business at hand in order to survive, before they can focus on or contribute to lobbying. They may also lack the funds required for such impactful lobbying (Bhide, 1996; Herron-Rutland, 2019). It is also probable that there are also organizations within this group who are not focused on this issue at all.

Upon examination, it is clear that those at the sustainable energy and green tech end of this spectrum are driven towards climate change, and there is growth in that segment. According to The International Energy Agency (IEA) solar, wind and hydropower projects are currently rolling out at their fastest rate in four years (Ambrose, 2019). This segment is important to note in the system as it does have a direct involvement in combatting climate change.

Meanwhile, those on the other end of the spectrum, although they may demonstrate interest in going green, their degree of interest, effort, and impact is difficult to measure. They are worth noting, however, as they are part of the Business actor group, and are still essential to the system as a whole.

The Public

This third main actor group is the largest and perhaps most important to understand. For the purposes of this paper's analysis, though, it must be broken out into 3 sub-sets, one with two further segments. The breakdown of these subsets relates to the position each takes with regards to the concept of climate change and its anthropogenic aspects.

The first and smallest subset are the 'Climate Change Deniers" or those who do not believe that climate change is real (Charlton, 2019). For these individuals, they generally agreed upon the idea that the science of climate change is incorrect or false, and there is nothing to be done.

The next subset is comprised of people who believe that Climate Change is occurring, but who disagree with the anthropogenic attribution. They believe that this is not due to human influence and is more of a natural occurrence, or a phenomenon that cannot be changed (Charlton, 2019).

These two subsets, although different, share aspects of denial which are important to explore. According to Mark Maslin in an article aptly titled *'Here Are Five of The Main Reasons People Continue to Deny Climate Change,'* among others, the idea of science denial can be a major reason for this phenomenon. This is where individuals continue to believe that the science is unsettled and therefore debatable. He also notes economic, political and crisis denial as reasons. These, however, represent an acknowledgment that the science may be right to some degree but that other factors such as economic challenges, or the idea the uncertainty of it all mitigates any need to act. Perhaps more appropriate reasoning comes from Annie Constantinescu in '*The*

Narrative of Climate Change.' In this paper she highlights several psychological responses as possible reasons including: paralysis and fear or psychological stress theory where the topic is too much to process; cognitive dissonance, bias assimilation and confirmation bias which are linked to the general notion that evidence can be ignored or avoided if it challenges previously held beliefs or existing understanding; and illusions of, or innate optimism where individuals overestimate the positives or minimize the potential risks (Constantinescu, 2018).

This denial can be challenging in addressing climate change as it is difficult to combat. Simply creating messaging that affirms the scientific consensus on climate change is not enough to change the minds. What is more is that the denial is not just a passive stance. These individuals not only shut out information that conflicts in some way, but they may also seek out and disseminate information that perpetuates their belief (Farrell et al, 2019; Ross et al, 2016). It is for these reasons that these groups are being noted specifically.

The third subset, within which there are two further sub-segments, can be referred to as 'people who believe in Anthropogenic Climate Change'. The sub-segments simply represent the varied degree to which they believe humans are responsible. One group feels as though humans are partly to blame, while the other believes that human activity is the main reason for issues of climate change. It should be noted that there may exist some small levels of denial of certain aspects within these groups as well. However, overall there is an acceptance of the issue and a desire to make change.

Breaking these sub-sets down for analysis

As this is a large actor group and each sub-set has specific relevance, it is important to delve a bit deeper. For instance, the size of each of these subsets is important to note as to their level of influence in the system. Looking at the survey conducted as part of this paper's research, we find that zero percent of respondents stated that they did not believe in climate change, and only 1% of respondents stated that they did not believe climate change was a concern. Conversely, 91% of respondents stated that climate change is a major concern and that more needs to be done. While 4% felt that it was a concern but that they didn't have a role to play in changing it, and 3% felt that it was a concern, but it was being addressed adequately. This demonstrates the disproportionate representation regarding this topic. This research, however, did not specifically ask whether they believed in the anthropogenic aspects, since such questions were deemed to be too complex for the instrument and audience.

For more information on that aspect, we can look to a survey done by YouGov – an international research data and analytics group headquartered in London, England – which is very much in line with the findings of this paper's much smaller micro-study. Their online research tool surveyed 30,000 people in 28 countries around the world (Smith, 2019). According to the findings, which do factor in the anthropogenic aspects, on average, depending on the specific country, only between 0% and 6% (average of 1.7%) did not believe in climate change. And, between 1% and 9% say it is happening, but not as a result of human activity (Smith, 2019).

The remainder of those surveyed share a belief that climate change is a concern and in some way is a result of human activity. Those that believe it is mainly anthropogenic in nature ranges from 35% to 71% depending on the country, while between 23% and 48% believe other factors along with human activity are the cause (Smith, 2019).

In terms of the level of concern surrounding this issue, according to another poll released by the European Council on Foreign Relations and YouGov from April, nearly two-thirds of Europeans think "climate change is a major threat that should take priority over most other issues" (Kuebler, 2019). According to this paper's research, 97% cited some level of concern in regard to climate change, with 52% of those citing that they are extremely concerned.

To get a sense of what the concerns may be, we can again look to the YouGov survey where participants were asked about the likelihood of climate change causing various problems. Although there was some variation as to likelihood of a new world war, or the extinction of the human race – with European countries and the US less likely to see this outcome – there is generally a consensus that the global economy will be devastated, cities will be lost, there will mass displacement, and there is likely to be an increase in small wars (Smith, 2019).

Clearly, there is a concern for the future by the public due to climate change. What is more, this segment appears to be – to a large degree – focused on driving change through a variety of means. The survey conducted for this paper adds to this in that it found that individuals feel they can contribute in a number of ways, as shown in the chart below:
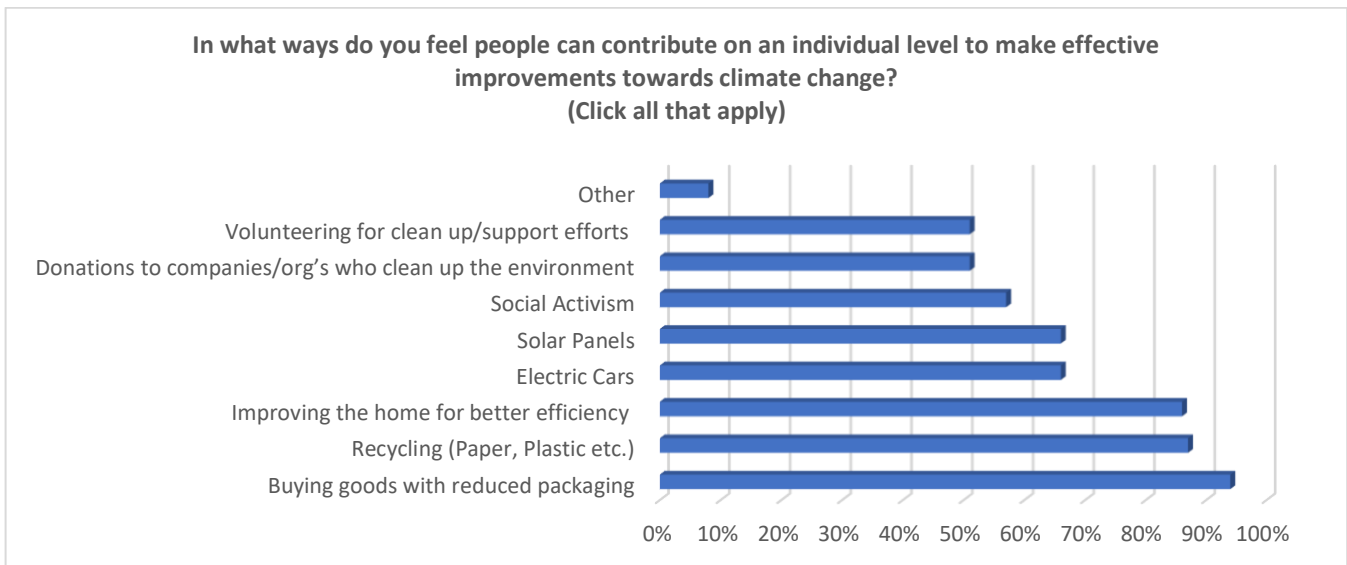
Figure 2: Image showing the ways people feel they can contribute on an individual level to climate change.

Just to note, some of the options mentioned in the 'Other' category included reducing consumerism, reducing travel and/or using public transit, making sustainable food choices, and divesting from non-green investments.

When asked which one of these they specifically felt was the most important, the results were somewhat divided. 29% identified purchasing items with reduced packaging, 18% identified recycling, and 11% cited improving home efficiency.
We can see examples of the reduced packaging option already, with individuals often purchasing or bringing reusable bags for shopping, using personal cups for coffee, and encouraging community action. One example of such community action is the Toronto based 'Roncy Reduces' in the Roncesvailles neighbourhood – which has spread to other areas of the city – asking local grocers and shops to allow individuals to bring their own storage containers to buy food, thus reducing garbage and plastic. These grocers and shops can show that they are part of

this action by placing a sticker in their window (Tina Soldovieri, presenter and panelist at the DesignMeets: Climate Action Panel Event).

It is important to note here, that although these were identified by the respondents as ways people can address climate change, it does not necessarily mean they themselves are undertaking each of the steps. Some of these, such as solar panels, or electric cars, may not be feasible.

This paper's survey also found that 11% cited social activism. However, despite the low percentage citing this as a driver for change in these results, since late 2018 there has been a notable increase in activist events and rallies around the world aimed at raising awareness and driving change to address issues of climate change. In 2019 alone, more than 7.6M people held protests in streets and squares around the globe (Bir, 2019; "School Strike for Climate", n.d.). These events were accompanied by a growing demand that world leaders address the threat of global warming, including reducing greenhouse gas emissions, with Swedish teenager Greta Thunberg spearheading a global activist movement by launching a wave of school walkouts to demand action (Bir, 2019). A global strike on 15 March 2019 gathered more than one million strikers, and around 2,200 strikes were organized in 125 countries. On 24 May 2019, the second global strike took place, in which 1,600 events across 150 countries drew hundreds of thousands of protesters. The events were timed to coincide with the 2019 European Parliament election. (Kuebler, 2019; "School Strike for Climate", n.d.)

This, in fact, became such a strong movement that 'climate strike' was named Collins Dictionary's 2019 word of the year (Hanson, 2019) and has become a household term in many places.

It is clear that this actor group, and each of its sub-sets, is essential to the system and thus the systemigram. The largest and last two subsets mentioned are key as they are very influential due to their size, have high level of concern in terms of climate change – for what are definitively, extremely dire impacts – and are interested in making change. The initial two subsets are also important as they represent possible areas creating resistance in addressing climate change at the required pace.

Introducing the Systemigram

With the first 3 main actor groups identified, along with their subsets, we can now begin creating the initial version of the systemigram which sets the stage for what follows. Figure 5 show this initial version, with three ovals for each of the main actor groups mentioned above (the public, business, and government) along with their subsets, as well as the central icon representing the forward momentum of progress in addressing anthropogenic climate change. At this point there are no connection points shown, however, as we progress through the analysis we can begin to build on this image adding the relationships and resistance factors that emerge.

Initial Layer of the Systemigram

Figure 3: Initial Systemigram showing the first 3 main actor groups along with the addressing climate change icon in the centre.

Revisiting the Question

Before we dive into expanding the systemigram, however, we may need to reframe slightly.

Now that we have a clearer understanding of the issues around climate change and have identified the three main actors who can drive the necessary action, we have to look at the question again. These actors all seem to have been indicating a desire to make major change and recognizing the urgency for some time. With this in mind, one has to wonder why things are, and have not been, moving faster. This then changes the central question or questions:

Why do we seem to be slow to respond to what is possibly the greatest threat of our time? Why do we seem to be getting in our own way?

The first and necessary step in this reframe then, is to shift directions for a moment, and look more closely at the underpinning of global society, and in particular, the dominant economic influences of western society, to see what other factors might be at play. We can then come back and add those elements into the systemigram.

Shifting Directions:

Looking at Underlying Systems & Structures

As noted above, in order to understand why we as a society might be getting in our own way when it comes to climate change action, it is important to pause the systemigram and use another tool to gain an understanding of the underlying systems, structures, and ethos in which our society exists. As the world is a large place and there are differences across many regions, this paper focuses on the systems that underpin the western societies such as Western Europe, Canada, and the U.S.

Causal Layered Analysis (CLA) Method

To begin this analysis, we draw upon a Causal Layered Analysis (CLA) tool, which provides a structured approach to identifying the layers of *Litany, Structures/Causes, Worldviews*, and the *Myths and Metaphors* that have constructed our current society, notably since the 1970's and possibly even earlier. This tool was created during the 1980's as a research tool and methodology that aims to integrate empiricist, interpretive, critical, and action learning methods (Inayatullah, 2017). It is often used as an alternative futures tool. However, for the purposes of this paper, the intent is to focus on the first phase only, identifying the current state. First, to understand this tool better we can breakdown what each of the sections mean in detail:

Litany
This is how trends and issues are being presented in the public domain. For this purpose these have been summarized and broken into multiple areas of focus (Curry & Schultz, 2009)

Structures/Causes
This layer is often referred to as systems (Curry & Schultz, 2009; Inayatullah, 2017), however, in this case, we are using the more specific 'Structures and Causes' label to differentiate it from the larger systems analysis underpinning the paper. These are the structures causes that are enabling the litany to occur.

Worldviews
The worldviews layer refers to the dominant driving beliefs that society holds and which allow for and support the structures and causes that are in place or occurring.

Myths/Metaphor
This final layer gets to the underlying ethos of our society. These are the deep-rooted systemic value sets that consciously or subconsciously cause us to develop the worldviews which currently dominate.

By going through each layer, it is possible to trace not only what dominates society, but also why it dominates (Curry & Schultz, 2009; Inayatullah, 2017).

Our Current State

Using this paper's research – both secondary and primary – we are able to begin populating the litany layer. As shown on the following page in the CLA image, we have not listed specific headlines as such, but have summarized some of the key trends which are present, separating each slightly for visual distinction. We then move on to identify what structures/causes are in place to facilitate the litany, what worldviews enable those structures or causes, and what myths and/or metaphors are really driving these worldviews.

It is important to note that the lists presented in the image that follows are not intended to be fully exhaustive in that not every aspect of society is listed. As the paper focuses on the issue of climate change, the use of this tool focuses on identifying the aspects which emerged from the research as relevant to this issue. Further research was then done to build the layers out where necessary.

It is also important to note that there may exist contradictory elements to those listed in each area, which may or may not be shown here. For instance, in the Myths and Metaphors section, we have listed 'I alone can't fix it' along with 'Everyman for themselves." These may appear to contradict, but they are both relevant and the way in which, and level to which, each informs the other layers is different. They are both factors at play, though, relevant to our issue and so they are both considered. For those contradictory elements that are not listed, the purpose is not to exclude or ignore their existence, but rather again to focus on the dominant elements in our current state, which relate most directly to the problem at hand.

Using this tool, we are able to examine the systems that exist today and peel back the layers to understand how we arrived here. Through this analysis it became clear that a theme was emerging. The items shown in red, all the way down to the myths and metaphors, all seem to be aspects of one ideology or hegemony: one that may best be recognized by the term 'Neoliberalism'. What this tells us is that this ideology may be playing a large role, not only in driving our society today, but also in the problems and solutions around addressing climate change. This is an important finding and requires us to dive further into this subject before we can return to building the systemigram, as it will inform how that moves forward. The image that follows lays out the findings from the CLA.

Causal Layered Analysis (CLA) - Downward (Current State)

Litany

- Climate Change advancing
- Democratic governments
- **Increased global structures & agreements**
- **Market driven economies driving policy**
- **Stocks, bonds, mortgages, loans, etc.**
- **Continued austerity measures**
- Shifting political climates in NA

Social Media Platforms Introduce 'Manipulated Media' Label
Lack of data on who pays for Political Ads
Voter manipulation by foreign powers
US Big Banks opening fake accounts

Brexit taking place
Polarized Politics and Rhetoric
President Trump spreading misinformation

Corona Virus Pandemic - Health issue or economic issue
Cities and regions in quarantine due to virus
Climate sees some brief relief as the World Pauses

- **Increased marginalization / extreme disparity between rich and poor**
- **Think Tanks producing 'knowledge' from biased research**
- Social media algorithms reinforcing confirmation bias
- **Dis/Misinformation common practice, need to fact check everything**
- **Concentration of wealth and power in fossil fuels and big tech**
- **Non-binding Global commitments to address Climate Change**
- Slow advancement and/or implementation of sustainable technology and green innovations
- Climate Strikes, boycotts, and social media activism for climate change
- Climate change denial messaging
- European Union and NAFTA as examples of multinational trade agreements

Big industry funding climate change deniers
Big tech pushing to minimize competitors
Pipeline projects met with resistance and activism

Older trees and forests losing ability to absorb CO_2
Climate agreements failing
Many barriers to fighting climate change
11 Years remaining to change the outcomes
Climate Activism on the rise
Climate-fueled human displacement

Stimulus packages created to revive economies
Trade Tariffs on China
Fear of Economic collapse due top CoVid-19

Structures/Causes

- **Bargains between government and Industry to advance climate change while maintaining a focus on fossil fuels**
- Jurisdictional challenges with International, National, Regional, Provincial/State, and local governments

World-view

- Governments should be of the people, by the people, for the people
- **Government should not be involved in economic policy (i.e. can causes stagflation/other issues)**
- **Globalism opens up new markets and helps drive the economy**
- **Shareholder Value should be the main economic driver**
- **Strong interest in passive wealth generation policies/tools (i.e. interest or share increases)**
- **Free-market will self-regulate**
- **Trickle down economics will ensure balance amongst the classes**
- **Living wages are not required because there are always people willing to work**
- Science is equal to technology in that it is biased, rather than objective
- Rise in populism/nationalism (xenophobia)
- Reluctance towards broad transformation/ preference for incrementalism
- **International agreements rely on peer pressure to meet goals**
- Sustainable options are not always clear, or environmentally friendly
- The system and people cannot be trusted
- Fossil Fuels are essential to everyday life
- There is time to make slow transitions
- **Socialism is bad for the economy**
- **Consumerism**

Myths/Metaphors

The Human Race is Invincible
Good will always trump evil
A hero will save the day
Everything is as it seems
Man dominates nature
Earth's resources are infinite
Market Growth is Infinite
Big business knows best
Stay the course

Bigger is better (globalism)
The masses serve the few
Money is Power
Fear of the other
Everyman for themselves
It Takes a Village
I alone can't make a difference
United we stand divided we fall
Everything has a price

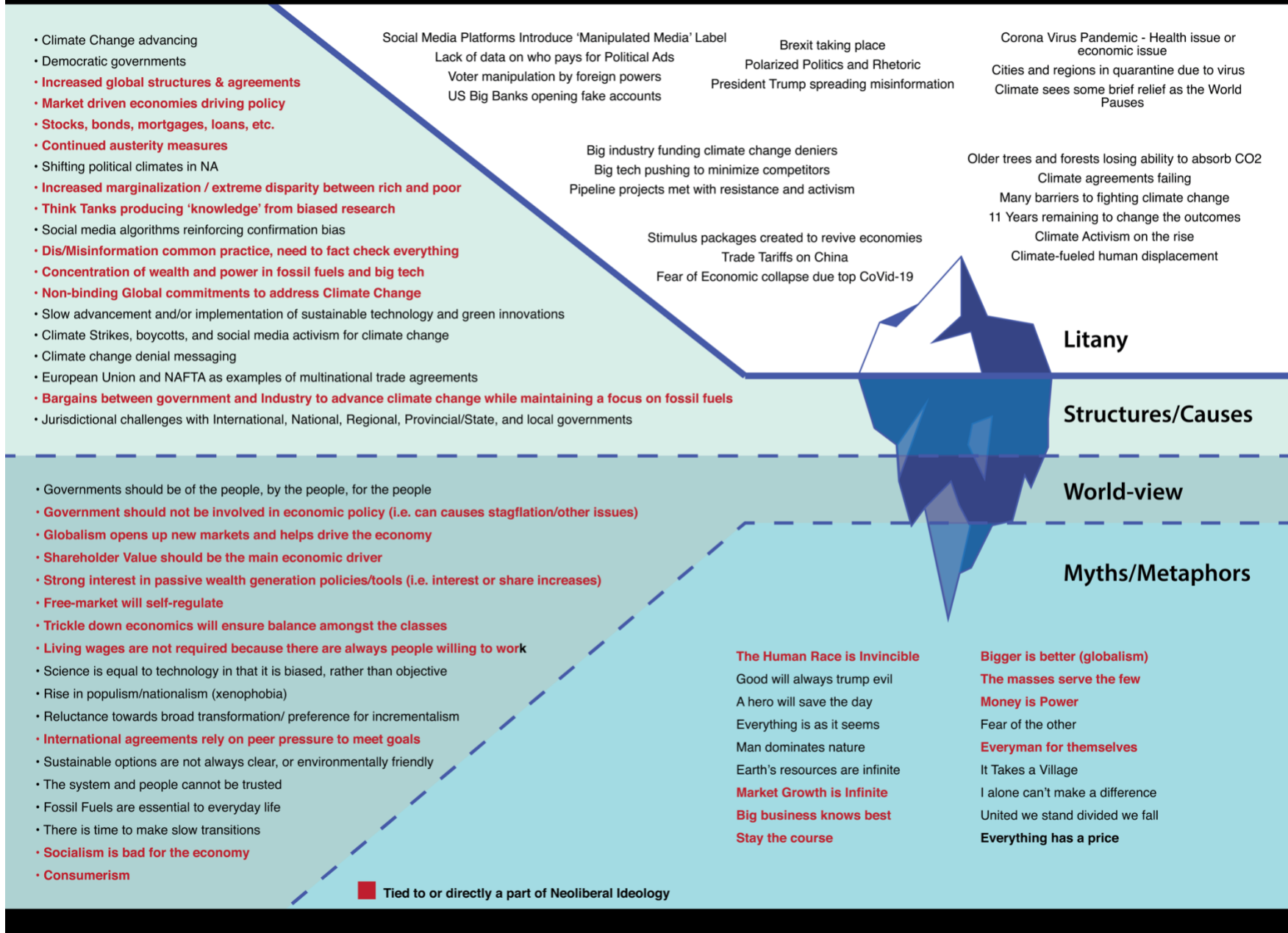🟥 Tied to or directly a part of Neoliberal Ideology

Figure 4: Causal Layered Analysis (CLA) focused on systems that underpin the westernized societies such as Western Europe, Canada, and the U.S.

Understanding Neoliberalism

As noted above we have identified neoliberalism as a key element in our exploration. This term, however, is contentious and often problematic as it has many different meanings for different groups, and its evolution over the years has led to different interpretations and applications. Because of this multiplicity, in order to assist in understanding how it applies in this context in relation to the issues of addressing climate change, it is imperative to explain this concept in detail, specifically, its history, how it is often defined, and the definition ultimately being applied in this current analysis.

A Brief History

According to Philip Mirowski and Dieter Plehwe in *'The Road to Mont Pèlerin,'* the term neoliberalism first started appearing during the 1930's in multiple contexts, eventually becoming established as a new intellectual/political movement. However, most scholars identify its first acknowledged use as being in 1938 during the Colloque Walter Lippmann meeting in Paris that included the two individuals who are acknowledged to have defined the ideology: Ludwig von Mises and Friedrich Hayek (Monbiot, 2016; Birch, 2015; Iber, 2018). Notably though, this term may not have initially been accepted by all participants at the time (Birch, 2015; Mirowski, 2014). These individuals who were exiles from Austria viewed *social democracy* as a manifestation of collectivism, along the same spectrum as Nazism and Communism (Monboit, 2016), and that liberalism had failed. Further, according to Walter Lippman in the book that inspired the historical meeting in 1938, he stated that "in free society, the state does not administer to the affairs of men. It administers justice among men who conduct their own affairs" (Mirowski & Plehwe, 2009).

Almost a decade later in 1947, Friedrich Hayek, along with 14 others – including Ludwig von Mises, Michael Polyani, Wihelm Röpke, Louis Baudin, and Raymond Aron –(Mirowski & Plehwe, 2009) in an effort to organize those sharing these ideas, created an organization called the Mont Pèlerin Society (MPS) (Gertz & Kharas, 2019; Monboit, 2016), named after a hotel near Montreux, Switzerland where the first meeting was conducted ('Think Tank Watch', n.d.; Iber, 2018), and supported financially by millionaires and their foundations (Monbiot, 2016).

It was not until the late 1970's, though, that neoliberalism really took hold as state legitimacy came into crisis and Keynesianism began to falter (Giroux, 2005; Centeno & Cohen, 2012; Carroll & Sapinski; Monbiot, 2016), developmentalism became paralyzed (Saad-Filho, 2019; Reinert, 2010), and the Soviet bloc began to struggle (Saad-Filho, 2019; Harvey, 2007). Keynesianism had come in as a prevailing economic concept at the end of World War II, at a time when states were facing pressure to address capitalism's excesses and establish basic welfare guarantees for the people. As a result, governments began to grow and to exert more influence on the economy (Centeno & Cohen, 2012; Mirowski & Plehwe, 2009). This prevailing approach began to face challenges in the 1960's as worker productivity was down and trade deficits were growing (Centeno & Cohen, 2012). In the 1970's, there was an issue of stagflation, in that there was a rise in unemployment along with an economic slowdown, but at the same time prices were rising and social expenditures soared (Harvey, 2007; Centeno & Cohen, 2012). This challenged central Keynesian thought that inflation was caused by an

overheated economy, and opened the door for a major paradigm change, for which the MPS was ready.

The notion that government involvement was to blame for the economic crisis began to take hold quite quickly, and this shifted the thinking to that of market driven forces. These views really became embedded with the implementation of the Washington Consensus, which included the following directives: fiscal austerity; market-determined interest and exchange rates; free trade; inward investment deregulation; privatization; market deregulation; and, a commitment to protecting private property (Williamson, 1990 cited in Centeno & Cohen, 2012; Birch, 2015). These may have been applied with variation across different countries, but the underlying premise persisted and drove the neoliberal reforms (Centeno & Cohen, 2012; Harvey, 2007).

In the 1980's, neoliberalism was often associated with the conservative governments of Margaret Thatcher and Ronald Reagan (Birch, 2017; Gertz & Kharas, 2019), and when 'The Third Way' or 'Progressive Neoliberalism' came into being in the 1990's with the Bill Clinton administration, Tony Blair, and even the provincial governments of Quebec and Saskatchewan in Canada, despite overlaying social aspects, the neoliberal agenda persisted (Birch, 2017; Rodrik, 2017; Driver & Martell, 2000; Leggett, 2018, Ferguson, 2004; Anderson, 2000; McGrane, 2008). This 'third way' broke with the typical right-wing ideological view, but it did not go so far as to embrace the left's focus on interventionism. According to Stephen Driver and Luke Martell in *'Left, Right and the Third Way,'* Tony Blair himself stated "Our task today is not to fight old battles but to show that there is a third way, a way of marrying together an open, competitive and successful economy with a just, decent and humane society." In this, the third way represented a means to endorse a positive role for the state, but it need not assume that governments would provide services directly (Driver & Martell, 2000, Ferguson, 2004).

When examined more closely, the policies of this era can be seen somewhat as a duplicitous effort. On the surface, they addressed the challenges of society and appeared to offer a shift in ideology, but they were accompanied by the creation of new regulatory bodies and agencies designed to guide the direction influenced by neoliberal research and preferences (Keil, 2002: Driver & Martel, 2000; Ferguson, 2004). Overall, this approach to public policy still encompassed a number of neoliberal aspects. Driver and Martell identify specifically that this 'third way' still featured the state working in partnership with private and voluntary sectors; government regulating and acting as guarantor but not as a direct provider of public goods or of basic standards; government departments and agencies working together to tackle complex social problems; the welfare state working 'proactively' to help individuals off social security and into work; government targeting social policy on the socially excluded while at the same time encouraging greater individual responsibility for welfare provision (e.g. 'stakeholder pensions'); and, government redrawing the so-called '*social contract*', rights to welfare matched by responsibilities, especially regarding work (Driver & Martel, 2000; Ferguson, 2004).

Although 'the third way' is considered a historical term to describe an era, and neoliberalism is not often used directly in relation to today's governments, the elements still persist. In fact, Stephen Metcalf in an article titled *'Neoliberalism: The Idea That Swallowed the World,'* highlights that the three senior economists from the International Monetary Fund (IMF) – often associated with neoliberalism – published a paper that acknowledged that neoliberalism still imbues the systems today. They called it out for "using deregulation on economies, forcing open national markets to trade and capital, and for demanding that governments shrink themselves via austerity or privatisation". Metcalf further highlights that following the 2008

crisis, neoliberalism was revived as a way of referring to politics, adding that previous to that some had accused Clinton and Blair of actually abandoning the left's traditional commitments, favouring the global financial elite, and enabling the ideology to persist (Metcalf, 2018).

How has this hegemony managed to survive and persist in the face of push-back and economic challenges? For an answer to that we can look to the forethought of the original founders of MPS who recognized early on the need to organize themselves; generating and sharing knowledge through networks of loosely affiliated think tanks, universities and publications; as a central tenet of their ideology (Gertz and Kharas, 2019: Monboit, 2016; Birch, 2015; Mirowski & Plehwe, 2009; Plehwe, 2017; Carroll & Sapinski, 2016). Donald Gutstein in his book *'The Big Stall'* which looks at how neoliberalist think tanks – and big oil – are blocking climate change, notes specifically that Friedrich Hayek, one of the founders of the MPS, understood the importance of having a network of 'dealerships' or think tanks, backed by corporations and their owners (often channeled through charitable foundations), who could repackage neoliberal doctrines and disseminate that information through second-hand dealers to the public.

As a part of this, members of the MPS were actually encouraged to pursue the think tank route in favour of politics ("Think Tank Watch," n.d.; "Statement of Aims," n.d.). Anthony Fisher, a member who was encouraged in this way, went on to establish some of the most notably influential examples with the Institute for Economic Affairs (IEA) in London in 1971, the Heritage Foundation in Washington in 1973, and the Atlas Economic Research Foundation in 1981. It should be noted that this last body went on to further support a wide network of additional think-tanks including the Fraser Institute and the Manhattan Institute for Policy Research ("Think Tank Watch," n.d.; Mirowski, 2014; Plehwe, 2017; Birch, 2017; Harvey, 2005).

Philip Mirowski in *'The Political Movement that Dared not Speak its own Name: The Neoliberal Thought Collective Under Erasure,'* further highlights examples of this nexus of power moving beyond think tanks and to the academic side. He notes several specific departments of academia where neoliberals dominated before 1980, including the University of Chicago Economics, the LSE, L'Institut Universitaire des Hautes Etudes Internationales at Geneva, St. Andrews in Scotland, Freiburg, the Virginia School, and George Mason University, as the next outer layer of neoliberal infrastructure, and an emergent public face of the thought collective.

Mirowski also identifies special-purpose foundations as another tool used in the advance of the doctrine, with entities such as the Volker Fund, the Earhart Foundation, the Relm Foundation, the Lilly Endowment, the John M. Olin Foundation, the Bradley Foundation, and the Foundation for Economic Education.

Through these tools the ideology of neoliberalism has continued as a central driver to western systems, and although it has grown well beyond this one body, the Mont Pèlerin Society does still exist today and is still largely regarded as a central collective of neoliberalist thought (Mirowski & Plehwe, 2009).

How It is Often Defined

As the neoliberal movement grew, it proliferated in countries and power structures across the western world. According to Kean Birch in "A Research Agenda for Neoliberalism," the schools of neoliberal thought began in Austria with Hayek and Mises, and then France with the Louis Rougier and others. It also expanded to Britain in the London School of Economics, Germany and the Ordoliberal/Freiburg School, Italy with Bocconi, Chicago with the Chicago School of Economics, and Virginia with James Buchanan and Gordon Tullock. Although, while many people still identify the concept of neoliberalism with the European movement, the American Neoliberalism is just as relevant even if it emerged as a slightly different version (Mirowski, 2014; Centeno & Cohen, 2012; Mirowski & Plehwe, 2009).

Throughout its progression, with each new school, the collective thought of neoliberalism evolved, creating slight variations of the ideology, adapted to local contexts and conditions (Gertz & Kharas, 2019; Birch, 2017). In some cases, the different schools even challenged each other's use or role in the thought collective. For instance, the term was used in France to describe those associated with the Colloque Walter Lippmann meeting from about 1939 until the early 1950's. However, when the German School emerged, they defined themselves as the original *neo-liberals*, largely ignoring those who came before. This is because, Carl Friedrich, who defined the German School, believed that the French and Italian neoliberalists were in favour of a strong state, which was contrary to his *Ordoliberal School's* view (Birch, 2015).

With these evolutions and variations, it has impacted the ability to determine one fully accepted and agreed upon definition. Lacking that definition, the next best option is to look to other scholars who have worked to compile the various terminologies and tenets to create their versions of a definition. Through this, we can begin to identify common elements.

First we can look to Will Kenton – a writer with a background in political science and economics – in an article aptly titled *'Neoliberalism'*, where the concept is defined as a policy model: one which bridges politics, social studies and economics, and looks to transfer control of economic factors away from the public sector and into the private sector's hands. Further, it leans towards free-market capitalism and away from government spending, regulation and public ownership (Kenton, 2019).

Next we can look at Patrick Iber's '*Worlds Apart: How neoliberalism shapes the global economy and limits the power of democracies*.' Here, Iber – a historian and writer working at the University of Wisconsin – describes the term as what some used to call '*Post-Fordism*', focused on just-in-time production, the internationalization of capital, deregulations of industry, insecure labour, and the entrepreneurial self (Iber, 2018).

Meanwhile, Philip Mirowski and Dieter Plehwe, in *'The Road from Mont Pèlerin'* highlight that the colloquium itself defined the concept with four terms: priority of the price mechanism, free enterprise, system of competition, and a strong and impartial state.

Rather than looking at one definition, sociologists Miguel Centeno and Joseph Cohen in '*The Arc of Neoliberalism'* took a different approach and identified three ways to understand the complex concept: as a technical policy debate regarding the best economic model; as an

institutionalized crisis containment strategy involving political choices and power; and, as a hegemonic ideology or system of thought (Centeno & Cohen, 2012).

Geoffrey Gertz and Homi Kharas – from Global Economy and Development at the Brookings Institution – in *'Beyond Neoliberalism'*, also identify three ways to look at definitions for this term which are not altogether dissimilar to those of Centeno and Cohen. The first is as a thought collective, referring to an organized intellectual and political movement propagated by a specific group of people (Gertz & Kharas, 2019). This refers to the aforementioned creation of the Mont Pèlerin Society (MPS) and ideas behind neoliberalism. The second is as an academic theory, more specifically the study of economics either focused on the idea of individual choice on what to consume or produce or focused on the discourse of neoclassical models and the proper interpretation of microeconomic and macroeconomic models. The third is as a set of economic principles implemented by government and focused on the same ideas of individualism and markets as those held by neoliberal thinkers (Gertz & Kharas, 2019). Despite the three approaches, they did identify that each ultimately rested on the ideas of rationality, individualism, and equilibria (Gertz & Kharas, 2019).

Gertz and Kharas further note that "the definition of neoliberalism is contested not only because it is frequently applied to these three overlapping but not identical concepts, but also because in each of these cases there is not one single, narrowly-defined idea, but rather considerable ambiguity and flexibility." (Gertz and Kharas, 2019 pg. 8)

Another challenge to understanding this term lies in the fact that many who might be defined as neoliberalists by the left or are evident by the principles that underly their actions, have chosen not to use that term anymore. Many who are influenced by the originals like Hayek or Friedman tend to feel, and with some merit, that the term is used today as a pejorative or a slight (Monbiot, 2016; Iber, 2018; Birch, 2015; Mirowski, 2014). This may be in part because the term became associated with the movements in Latin America, and specifically the dictatorship of Augusto Pinochet (1973 – 1990) (Birch, 2015; Iber, 2018; Mirowski & Plehwe, 2009).

With the distancing from the term happening, other labels began to be applied, but the underlying constructs remained. In the late 20th century and epitomized by Margaret Thatcher and Ronald Reagan, neoliberalism was often described as a policy practice focused on the notions of '*stabilize, privatize, and liberalize*' (Gertz & Kharas, 2019), but later '*third-way politics*' or *'progressive neoliberalism'* emerged with the UK's Tony Blair and the US's Bill Clinton, hailed as a movement aimed at finding a middle ground between the old left and old right (Kenton, 2019; Ferguson, 2004; Fraser, 2017). The reason it was seen as a middle ground by some, was that it brought elements of social policy into the fold. Rather than purely focusing on market-driven economics and reduced government, this evolution allowed for some focus on medicare, and minimal social programming to reduce the overwhelming marginalization that was occurring in the U.S and Britain (Fraser, 2017; Ferguson, 2004; Driver & Martell, 2000). By others, however, this was seen as an attempt by neoliberals to placate the masses and specifically the left, through softer rhetoric and the idea of social cohesion (Anderson, 2000; Ferguson; 2004; Leggett; 2018). In reality, some noted that the steps taken during this time were bolder than those of the previous conservative governments, and that it was a shell to the underlying neoliberal ideology, still ultimately ignoring the larger issues of marginalization (Centeno & Cohen; 2012; Rodrik, 2017; Anderson, 2000; Ferguson; 2004; Leggett; 2018).

When you consider that these are just a few of the methods used to define this term, concept, or hegemony, and the fact that most prefer not to use the actual original label of neoliberal, it becomes clear why one definition has still not prevailed.

Defining the Term for This Study

As we see from the previous section it is challenging to create one official definition for this hegemony, and it is ultimately, beyond the scope of this paper to attempt such an enormous task. Rather, the aim in identifying others' definitions has been to identify the key underlying principles typically associated with the term that persist in our societies today, and which may be affecting our ability to hasten the pace of change to address the urgent needs of our planet.

Going forward, in order to differentiate, this paper will focus on what this author identifies as '*Contemporary Latent Neoliberalism*' as a new term to capture and express the most relevant dominant principles and common threads.

Within this new label, we can lay out the following as the central tenets relevant to our analysis throughout the remainder of the paper:

- **A Focus on Free-market capitalism,** with the concept of infinite and continued growth, leading to an almost singular focus on shareholder value as the key economic driver and measure of success
- **Light-touch by government**, focused only on protecting the market from democratic challenges
- **The Hidden Ruling Elite, which includes** Think Tanks, Foundations, and Academia using Publications and Social Media as tools to produce and proliferate information specifically designed to steer the economy in the desired direction as and when necessary
- **Social Issues (including the environment) as subordinate to all else**

Although neoliberalism has evolved and shifted over the years, and there exist multiple definitions, these aspects appear to be somewhat consistent in today's world. Moreover, these aspects seem to be at the root of the problem we are looking to address in this analysis.

'Contemporary Latent Neoliberalism' in Detail

Now that we have identified a new term and working definition, we can move to examine each of the principles more specifically, not only to explain them, but also to demonstrate examples of where this can be seen in trends and decisions affecting the central questions around environmental action or inaction.

A focus on free-market capitalism

As noted in the definitions of the previous section, the idea that the market should self-regulate, self-correct, and be the organizing principle for all political, social, and economic decisions is central to the ideology (Gertz & Kharas, 2016; Giroux, 2005; Wanner, 2014; Carroll & Sapinski, 2016). Today, this notion of free-market fundamentalism is the driving force of both economics and politics in most of the world (Giroux, 2005).

When we look to one of the original founders, Friedrich Hayek of the Austrian School, we see from his words that from early on the idea was to create a world where "democratic enthusiasms did not interfere with the functioning of markets across the world" (Iber, 2018). The idea was to separate the social and political contexts from the market economy so that the economy could operate free of the burdens of social challenges (Wanner, 2014).

Although there are different camps within neoliberal factions – some that allow for corporate monopolies like the Chicago School of Economics, and others that favour a more purely competitive landscape without any monopolies such as the European factions (Birch, 2015) – ultimately, they all agree that the government should not intervene unless it is to protect against democratic or populist involvement in the economy (Djelic & Etchanchu, 2017; Iber, 2018; Gertz and Kharas, 2016).

Going further, when we look at the understanding of a free market in the context of neoliberalism, we can see that there is a focus on competition among organizations, shareholder value, continued growth, and profit maximization (Bal, 2018: Djelic & Etchanchu, 2015: Centeno & Cohen, 2012; Gertz & Kharas). In fact, Martin Friedman, a disciple of Hayek and the MPS wrote in a 1970's New York times piece that a corporate executive's only responsibility is to his [or her] shareholder above all else.

Light Touch Government

Building off of the idea of free markets above, a focus on deregulation and privatization naturally follows. Early neoliberalists believed that government involvement in the marketplace is what led to the financial inflation crisis in the 1970's and the fall of Keynesianism (Centeno & Cohen, 2012; Harvey, 2007). The belief was that the public sector could not obey the basic law of competing for profits or market share and should be therefore substantially downsized. As such, privatization became one of the major economic transformations over the last 20 or 30 years, beginning in Britain and spreading throughout the world (Bal, 2018).

On a broad scale, neoliberalism emphasizes the need and desirability of transferring economic power and control from governments to private markets (Centeno & Cohen, 2012: Djelic & Etchanchu, 2015: Giroux, 2005; Mirowski and Plehwe, 2009).

That said, if we look back to Centeno & Cohen in 'The Arc of Neoliberalism' we can understand that neoliberalism did not necessarily aim to end the power of the state, but rather, to shift the central focus of that power from defenders of the rights of citizens to clients of the new global market alliance. Under Neoliberalism, Governments actually remain powerful in some sense. It is just that institutional power shifted towards agencies managing relations with capital, such as

central banks, and finance ministries. In addition, the financial sectors became more concentrated with national banking coalescing around a smaller number of internationally competitive firms, with the focus of capital investment internationalized (Centeno & Cohen, 2012). As such, what we see today are measures of investor confidence (i.e. ratings), rather than political polls, often as the primary indicators of government's success (Centeno & Cohen, 2012; Deeg & O'Sullivan, 2009: Giroux, 2005)

It is worth noting that in recent decades governments have implemented policies or changes that in many ways appear as social intervention, such as Sure Start or the Voucher system in the UK, or social welfare systems in Canada and the US (Ferguson, 2004; Anderson, 2000; McGrane, 2008). These may appear to be at odds with neoliberalism, however, these initiatives were put in place ultimately as part of the '*third way politics*' or *'progressive neoliberalism'* mentioned previously which has underlying neoliberal foundations.

Today, even in the face of economic collapse and increased tension between the right and left in many countries, the system still operates with minimal government intervention, and market forces as the driver (Monbiot, 2016).

The Hidden Ruling Elite

Looking at the evolution of the *Neoliberal Thought Collective* (Mirowski and Plehwe, 2009), it is clear that its rise to power and dominance did not happen by accident. As noted previously, it required targeted efforts to spread its underlying doctrine through networks of seemingly independent think tanks, economic policy bodies, foundations and academic departments. These bodies would package their messaging for media, politicians, policymakers and pubic through studies, reports, op-eds, websites, and more recently social media (Gutstein, 2018; Mirowski and Plehwe, 2009; Mirowski, 2014; Plehwe, 2017; Monbiot, 2016).

Although officially the MPS argues itself to be a scholarly community involved in the discourse of ideas against collectivism, and not one involved in propaganda or public relations, it has always been an instrument of the free market think-tank movement. This nexus of power was also noted by Karin Fischer from Johannes Kepler University in Austria, in the article "Neoliberal Think Tank Networks" from Global Dialogue. In it she states:

> "since their creation, these well-developed networks have engaged in the 'battle of ideas' and contributed to the continuing strength of neoliberal paradigms. Connected and coordinated across borders and mostly with an elitist character, they attempt to conquer a larger audience and influence governance matters on a national and international scale. They devote a lot of creativity and corporate money to develop story lines and push politics in a certain direction." (Fischer, n.d.)

A specific example comes from William Carroll and Jean Philippe Sapinski in "Neoliberalism and the Transnational Capitalist Class." In this paper they cite The World Economic Forum (WEF) as presenting a mode for disseminating capitalist and neoliberal thought. They explain that the WEF was established in 1971 by business policy expert Klaus Schwab and grew from a small group of CEO's to a large scale gathering of the world economic leaders. It includes not only

what they refer to as 'transnational capitalists', but also high-ranking politicians and heads of key international government organizations that manage the neoliberal regime at the global level, such as the International Monetary Fund and the World Bank. It also includes, in addition to the group of core '*foundational*' members (limited to the 1000 foremost companies around the globe), a group of satellite '*constituents*' which includes scientists, academics, media leaders, public figures, artists, and NGO's who meet each year in Davos, Switzerland. (Carroll & Sapinski, 2016).

Just to clarify, both the IMF and the World Bank operated apart from neoliberal ideology for several decades after their inception. However, in the early 1980's both organizations shifted and became well-known for promoting neoliberal reforms. This shift was due to rise of neoliberal conservative governments in the U.S. and U.K. as well as the rising Third World debt crisis (Stein, 2014, Karjanen, 2015; Babb& Kentikelenis, 2018).

Through this we can clearly see that Think Tanks, Foundations, Economic Institutions, and Academia, are part of the hidden elite, contributing to policy development, knowledge creation, and message dissemination in specific regard to latent neoliberal ideology.

Social Issues subordinate to all else

Ultimately, much of the foregoing leads straight to a collateral principle: that among the most powerful influencers in a neoliberal system, social issues, which include environmental issues, are viewed as secondary or even tertiary to economic and political ones. As noted above, the focus among these actors is on free-market and light government, and social issues are only important when they impact the market forces, or when addressing them in any way facilitates greater movement towards their neoliberal goals.

This principle is more a result of the others, but it is important to note because if social and therefore environmental issues can never become the primary focus for market or policy decisions, then true progress on a climate change agenda, among other social priorities for humankind, will likely remain unmoved.

This is ultimately where we begin to see the issue taking on vital importance to our collective futures.

Back to the reframed Questions at Hand

With a more thorough understanding of what neoliberalism is, or more specifically, what this paper is labeling as 'Contemporary Latent Neoliberalism,' we can now circle back to building out a system with its actors and relationships, in hopes of answering the questions posed earlier:

What is the reason why we seem to be slow to respond to what is possibly the greatest threat of our time with Climate Change? Why do we seem to be getting in our own way?

Building Out the Systemigram

Creating a Clearer Picture

Prior to delving into Neoliberalism, which was a necessary step before building out the systemigram further, we identified the 3 main actor groups: Government, Businesses, and the Public, and their subsets. Each of these have, at least on the surface, expressed a desire and intent to push for and implement change where possible. Governments have done this through international commitments as well as internal policies and regulatory actions, as well as politically expressed mandates. Businesses, including the fossil fuel sector, have highlighted plans for change, and some have joined global organizations to express a desire to mitigate the role played by their production processes; and, the public are loudly demanding change through activism at the local, national, and global level, as well as expressing a desire to make changes in their own day to day to lives.

The next step is to continue the objective approach, and identify the secondary layer of actors who also play a role in this system, several of whom emerge from the foregoing analysis of neoliberalism. These are listed and explained in this section.

It should be noted that the goal here is to build out a full image of what the system is supposed to be doing, based on the expressed intents or outward appearance of each of the actor groups. Once that has been established, in the section that follows, we can then begin to peel away the layers to reveal the realities and context of each actor group to see where the issues and challenges are in terms of addressing ACC.

Secondary Actor Groups

Economic Drivers

The first and possibly largest secondary actor group is the Economic Driver group. When looking at our modern financial system, we can see that there are number of players that comprise this group, demonstrating the ties between banking and capital markets (Adrian & Shin, 2009).

From a global perspective, according to an article by Will Kenton titled '*Neoliberalism*' in Investopia, we can understand that the financial system includes players such as the International Monetary Fund (IMF), central banks, government treasuries and monetary authorities, the World Bank, as well as major private international banks (Kenton, 2019).

For the purposes of this paper, the first subset of this actor group is comprised of the three key institutions: local, regional and national banks; insurance companies; and, stock exchanges which allow for the exchange of funds (Davies & Richardson, 2010). In this subset, borrowers, lenders, and investors exchange current funds to finance projects, either for consumption or productive investments, and to pursue a return on their investments. Specific tools such as consumer credit, mortgages and other loans, retail investment banking, microfinance initiatives, and additional initiatives to promote financial inclusion also fit within this subset (Sell, 2019). It should also be noted that within this subset there would be local, regional, and national regulatory bodies, such as those that govern the stock market in each country, such as Securities and Exchange Commission in the U.S (Adrian & Shin, 2009) the Financial Conduct Authority (FCA) in the UK ("Making a complaint," n.d.); and the Investment Industry Regulatory Organization of Canada (IIROC) ("Canadian Securities Administrators," n.d.).

The second subset consists of the influencers. These are the intergovernmental organizations (IGO's) that develop and drive policy at the global level. These bodies, because of their connections at different levels of governance and their financial strength, are able to wield a great deal of leverage and material powers (Nasiritousi et al, 2014). Examples of bodies that would be included in this group would be the World Bank, the Organization for Economic Cooperation and Development (OECD), the International Monetary Fund (IMF), and the International Chamber of Commerce (ICC) (Carroll and Sapinski, 2016; Nasiritousi et al, 2014; Kenton, 2019; Duggan, 2018). This subset operates more like an 'invisible hand' in what is a supposedly anonymous, self-regulating market (Sell, 2019).

By separating these into their own subsets we are able to differentiate between the general tools and institutions responsible for day-to-day and micro-economic aspects, and the more macro-level influential elements which influence and, in some cases, set the broad policy frameworks, and regulatory guidelines (Davies & Richardson, 2010).

Think Tanks

Coming out of our analysis of neoliberalism we can see that another secondary actor group to include in this system are the Think Tanks.

They are important to include in this system analysis as think tanks appear to be proliferating and growing in importance. They have been supplementing the universities and research institutions of interest groups or membership organizations and have ultimately become critical agents in politics and policy making (Fischer, n.d.).

Within this actor group, we must recognize that there are differences among Think Tanks as they do not all fit within one ideology. For the purposes of this paper we will consider that there are those that align with overt or more latent neoliberalist ideals as mentioned in previous sections, and then there are those that do not. More specifically, the latter are bodies not linked to the Mont Pélerin Society or directly tied to neoliberal ideals who may be working to push alternate, i.e. more social, agendas such as the Centre for Labour and Social Studies (CLASS) in the UK (Pautz, 2019; Wanner, 2014). However, this subset is much smaller in comparison to the former (Kallick, 2002). It can be challenging to tell as well, since in some cases bodies that on their face appear to be mis-aligned with neoliberal ideology, are owned or created by entities which are widely considered to be very much in line with those ideals. For instance, a body such as the Green Knowledge Platform, an environmentally focused initiative, was set up in part by the World Bank which as was established earlier has followed neoliberal principles since the 1980's (Wanner, 2014).

To account for this difference in the systemigram, we must also break this group out into those two subsets: one being those think tanks tied to the latent neoliberal ideology; and, the other being those who are outside of that bound (Jacques et al, 2008).

Scientific Community

This actor group's relevance is somewhat obvious and comes from the earlier analysis of Anthropogenic Climate Change. As noted in the history of our understanding of this issue, we see that scientists have been compiling evidence on carbon and other emissions, and sharing that information, for close to a century. Their continued efforts to understand these phenomena and examine ways to mitigate, as well as disseminate that information, are essential in advancing the necessary changes. Today, there are growing banks of data, along with improved climate models, which have convinced most climate scientists that rising trends in greenhouse gas emissions are directly responsible for a rising trend in atmospheric temperature (McRae, 2019).

These data are then compiled and published in peer reviewed publications, shared with governments and non-government organizations such as the Intergovernmental Panel on Climate Change (IPCC) (History, 2020), with organizations that might be affiliated or part of the funding models behind the research, and even shared with the public via the media.

Academic Sector

Another important secondary actor group, which was highlighted in the neoliberal analysis, is the Academic sector. Previously, we noted that Philip Mirowski listed several examples of academic power players tied to neoliberalism prior to 1980, including the University of Chicago Economics, St. Andrews in Scotland, Freiburg, and the Virginia School (Mirowksi, 2014). There are many others as well, and today, Universities are still major players in the creation and dissemination of information whether neoliberal or otherwise. One only needs to look at the reference list of this and other papers to see that a large portion of knowledge comes from universities around the globe.

Environmental NGO's

In recognition of bodies that are focused on specifically addressing climate change, it is important to include Environmental Non-governmental Organizations (ENGO's) as an actor group in this system analysis. This group is one that is recognized by the United Nations Framework Convention on Climate Change (UNFCCC) as a non-state actor (Nasiritousi et al, 2014). This is an important group to recognize as they can play a crucial role in helping to fill gaps through research that facilitates policy development and independent dialogue with the public, as well as building institutional capacity (Mubarak & Alam, 2012).

This group began to get involved in climate change negotiations during the 1990's, in correlation with the emerging alliance between NGO's and scientists (Dalmedico & Buffet, 2009). They became a strong party on raising awareness and surprisingly to some, at representing public opinion (Nasiritousi et al, 2016). One key example of an ENGO is the IPCC which has become a recognized leader in climate change expertise (Dalmedico & Buffet, 2009).

The lines between NGO's and think tanks is admittedly quite blurred in today's world. However, this paper draws the distinction that think tanks are organizations who conduct research and engage in advocacy on a variety of topics. Many are non-profit, and are funded by governments, interest groups, or businesses, although in some cases they may generate their own income from consulting or research work related to their mandate. Conversely, non-governmental organizations (NGO) are legally constituted, non-governmental organizations created without participation or representation of any government. There may be cases where some NGO's are funded in some part by government, but they maintain the NGO status by excluding government representatives from their memberships (Pop, 2012).

Media

This brings us to the next secondary actor group, the media, which has not really been focused on thus far in this paper. Media are important as they are a component in the public information system, which was on the face of it, designed to empower the masses to make decisions leading to democracy, greater freedom, and the rise of the middle class (Torr, 2003). However, today, it may be more appropriate to identify them as having the power to set the agenda for public debate and propagate the ideas, values, and policy initiatives that represent an elite

consensus (Brownlee as cited in Evans, 2006). What remains in either understanding is their ability to influence.

To differentiate, this actor group refers to news traditional media outlets, although that extends beyond print, and includes their use of television or online tools. The distinction drawn here is not about the method of dissemination, but rather the source. Media also stands on its own as an actor because for this paper it refers to those who are subject to the core principles of journalism. According to the website 'Ethical Journalism Network' there are five of these principles: Truth and Accuracy, Independence, Humanity, and Accountability ("Five Principles," n.d.). Although not all media outlets may adhere to all of these equally, the existence of the framework differentiates this group from entertainment outlets, as well as general person to person information shared via social media tools.

Additional Considerations for the Systemigram

In addition to the main and secondary actors now identified by this paper, there are two additional aspects which are important to add to the systemigram at this point, which are Social Media and Dis/Misinformation. Both of these aspects factor heavily in how information is shared between many of the actor groups but are not themselves separate actors.

Social Media

According to Andreas Kaplan and Michael Haenlein in *'Users of the world, unite! The challenges and opportunities of Social Media,'* this aspect can be referred to as a "group of Internet-based applications that build on the ideological and technological foundations of the Web 2.0 and that allow the creation and exchange of user-generated content." This differentiates it from traditional media – although traditional media makes use of these tools as well – in that the information exchanged does not need to follow any journalistic guidelines. Tweets, posts, photos, and video content are shared amongst people in their own connections and networks, and these need not be verified. Even when posts by traditional media are shared, there is the ability for more dynamic two-way conversation in that individuals' opinions can be added to those shares, adding a layer of editorialism (Kaplan & Haenlein; 2010; Dijck & Poell, 2013).

This is therefore important to add to the systemigram, as it an important and relevant method by which information is shared by the both the primary and actor groups.

Dis/Misinformation

This aspect is important to consider in terms of information generation and sharing, as it is one that is becoming more prevalent, or more overt, in society today. It has become so commonplace that scholars have begun to use the term 'post-truth society' to describe this new epistemological moment where public's trust in facts and evidence is generally eroding (Farrell et al, 2019; McCarthy, 2019).

The reason that both disinformation and misinformation are considered here together, rather than separating or focusing on one specifically, is because it is the position of this paper that disinformation often leads to misinformation and thus they are linked. In terms of definitions, this paper considers disinformation to be the intentional spread of incorrect or misleading information; and misinformation to be the unintentional spread of that information. It is important to note that misinformation can also occur simply by individuals misunderstanding information and then sharing that reinterpretation amongst their own connections.

Although dis/misinformation has become increasingly recognized it is not a new phenomenon. Examples of disinformation go back as far as medieval times and were noted in the renaissance as well. These were often seen to relate to ensuring the power went to the papacy or royals of the time. Information was power and could be withheld from the masses as a means of control (Leach, 2018). Postmodernism brought with it a generalized distrust, resulting in fragmented knowledge, consisting of stories designed to convince others of the truth of their own discourse (Aylesworth, 2015). This phenomenon may be more pernicious now though, as according to research conducted by the Hewlett Foundation (Born & Stroud, 2018), modern dis/misinformation benefits greatly from the technology of the internet and social media.

Revisiting the Systemigram

With the secondary actors and additional aspects identified they can now be added to the systemigram, along with some of the basic relationship connections. The image that follows shows the initial version of the systemigram now updated with this new layer of information. We can see the secondary actors in the light green ovals, with relevant subsets within, and the additional aspects (social media and disinformation) shown in pink. We can also see the connections with lines and arrows – often double-sided to reflect the two-way nature of the relationship – going between the actors shown.

It is important to note that this image is not intended to show every relationship that exists between each entity, but rather highlight those that are pertinent to the analysis. For instance, we see one thinner lobbying and political contribution line going from business to government and one heavier line specifically from the large Influential organizations to government. This weight difference in the line is to reflect the heavier level of influence that this latter group wields. From the public actor group, we can see multiple lines of connection reflecting their expressed efforts to influence both government and business. These include activism, voting, joining climate focused organizations, purchasing decisions, and other personal efforts.

Looking at the additional aspects, we can see that social media is linked to each of main actor groups. In the case of the public, it is linked to each subset specifically, and this is to reflect the

clear difference in views reflected in posts and searches stemming from their respective positions on climate change. The lines used here are heavier to reflect the high level of interpersonal use of social media and its impact. It is also shown that Social Media connects directly with the government, business, and the media as both a source of information on public opinion, and a method to disseminate their message. Although think tanks, academia and other actor groups may use social media as well, often the media are the conduit by which this information flows first. With this in mind the media are shown in the systemigram as the flow-through point for information.

Dis/misinformation, at this point, stands on its own, in that there are no arrows going to, or from this aspect to any of the other actors. This is because we need more information to really understand its influence, which occurs later in this paper. It is relevant to show though, as it is an aspect that has been identified specifically in the analysis.

In addition to the actors and aspects shown, there are also two new elements in this image. They are the elements in the grey ovals, which include the climate change agreements, and policies and regulations. These items were not specifically focused on up to this point, but their relevance emerged from the analysis of the actor groups.   For instance, we know at this point that climate change agreements are in place at the global level, and that policies and regulations are a necessary part of the system in terms of addressing climate change at the national, regional, and local levels.

With this new layer added to the systemigram, it is now possible to move to the next step.

As noted previously, we have not yet looked at the reality of the roles these actors play in addressing climate change with the influences of contemporary latent neoliberalism. Following Figure 5, the next section begins to discuss these realities.
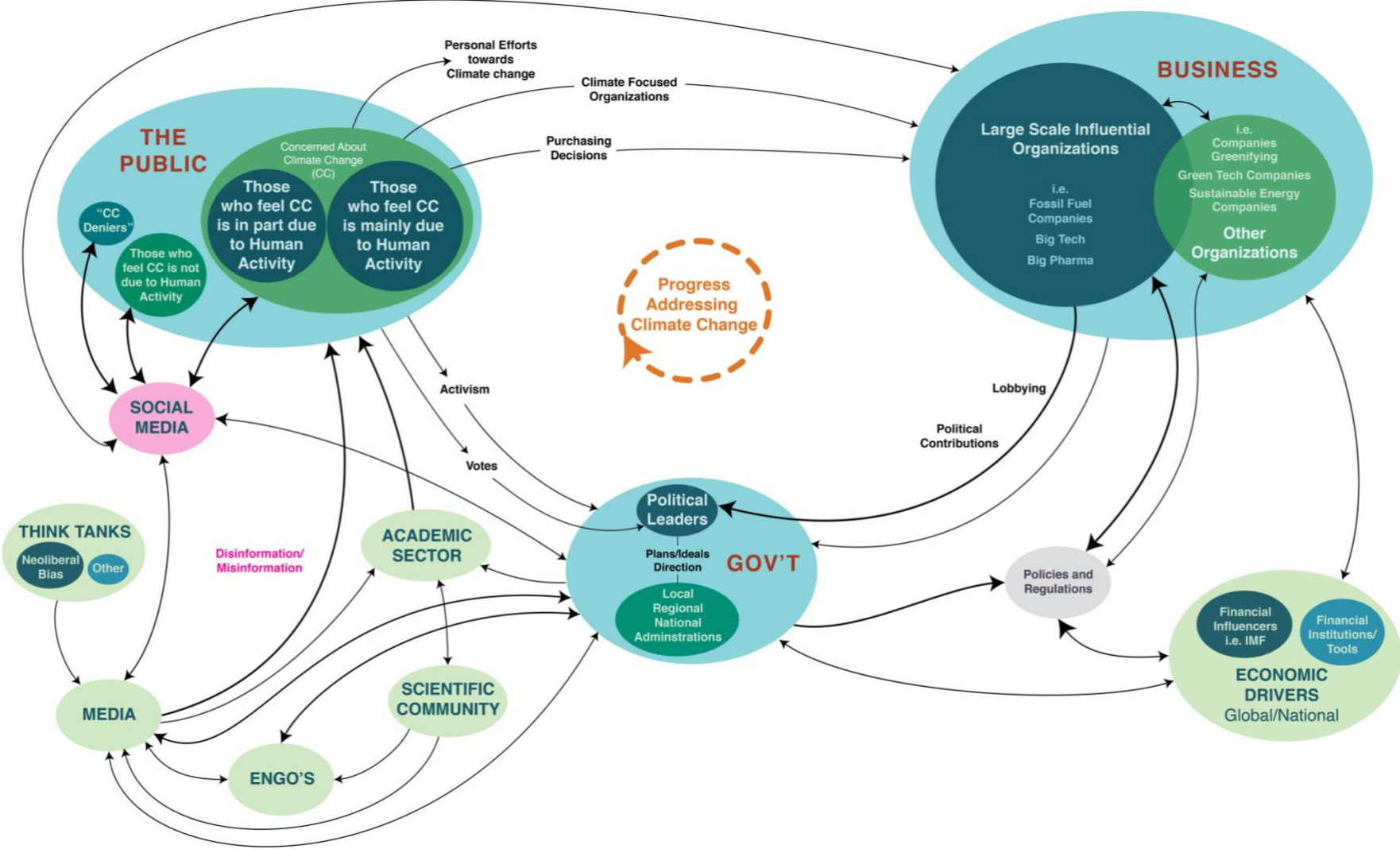
Second Layer of the Systemigram

Figure 5: Second version of the Systemigram with secondary actor groups and aspects layered in, along with some initial relationships and connections.

Discussion: Putting it All Together

With the primary and secondary actors identified, along with the additional aspects of social media and dis/misinformation added in, the systems analysis begins to really take shape. We can now identify the relationships among each element in the system, not only based on what the outwardly expressed intent may be in each case, but with additional context. We can peel back the layers of their expressed intents and in examining the reality of their roles, as we go back over each one, new insights may emerge as to how the contemporary latent neoliberalism is driving counter-clockwise influences on the momentum of other elements that are addressing climate change.

Adding Essential Context

Governments Lacking in Power

Let us first revisit governments in this system, who across the western world operate mostly as democratic institutions. For this paper we are considering that term in the more political sense which can be described using Michael Anyaehie's words from *'Understanding Democracy,'* as "a government of the people or popular self-government." Moreover, a democracy exists when the masses have control over their governance with every person having a say in the government regardless of his status or birth (Anyaehie, 2008). In fact, these concepts are what led to Abraham Lincoln defining democracy as "for the people, of the people, by the people" during the Gettysburg Address (Anyaehie, 2008; Pasquino, 2005), a term very often used to describe democracy today.

Understanding this is important as Political leaders, most typically heads of their parties, are elected by a 'majority rules' premise, after campaigning on mandates that suit their constituents and at a particular place on the socio-political spectrum. Through voting, the people feel they are electing a government representative of their wants and needs. Going further, the resulting democratic institutions are perceived by the public as operating to protect their interests through regulations, policies, and intergovernmental agreements. (Anyaehie, 2008; Dalton et al, 2007). However, we know that this perception may not be fully accurate.

We know from the earlier analysis that governments across the globe have signed on to the Paris Agreement, demonstrating a concerted interest in addressing climate change, and that many have also created environmental policies or acts for their own jurisdictions. However, after considering the contemporary latent neoliberalist constructs that exist today within our governments – because the structures have been built with that in mind for close to 50 years (since the 1970's) – we can recognize that regardless of their place on the socio-political spectrum they actually take a light touch approach governing.

For instance, in the U.S. where the political parties are highly polarized, it has been established that neoliberal economics exist in both parties – especially the notions of self-regulating free market, minimal government intervention, choice as an economic prerogative, and the idea that transactions can in many cases replace political democracy (Giroux, 2005)

With this in mind, instead of leading through directive action, governments work with private partners and economic influencers to create policies that allow the marketplace to drive the change. For instance, in 2016 in Canada, the federal government in partnership with the provinces and territories introduced the Pan Canadian Framework on Clean Growth and Climate Change. This framework outlines Canada's plan to meet its goals under the Paris Agreement. The backbone of this framework, however, is the idea of 'clean growth;' maintaining a focus on the economy and creation of new markets as a central driver in addressing the climate goals (O'Manique, 2017; "Pan-Canadian Framework," 2016). This is spelled out in the document itself:

The politics that help drive down emissions can also help the economy to keep growing by cutting costs for Canadians, creating new markets for low-emission goods, and services and helping businesses use cleaner and more efficient technologies that give them a leg up on international competitors ("Pan-Canadian Framework," 2016, pg. 9).

Another example worth noting which fits within the above framework is when the Liberal-led Government of Canada faced mounting obstacles to the execution of a plan to implement a pipeline project designed to facilitate delivery of fossil fuels. Looking again to Donald Gutstein in "The Big Stall," he notes that ultimately the government made what was referred to by some as the "grand bargain." This being industry agreeing to a carbon pricing mechanism, in exchange for the government approving pipeline projects (Gutstein, 2018). In an article by Claudia Cattaneo, in an article titled *'Business awaits Trudeau's pipelines "grand bargain,"'* John Manley, the president and CEO of the Business Council of Canada is quoted regarding this negotiation. Prior to the deal being done he states that "this is a test of whether the Trudeau Government is going to balance the needs of a resource-based economy with those of a climate agenda" (Cattaneo, 2016). This bargain demonstrates the power industry has over government when it comes to addressing climate change by shaping legislation and policy to advance their goals (Giroux, 2005)

Looking now to the EU for examples of influence of big business and elite influencers on climate change, Mario Giuseppe Varrenti notes in '*What the "European Green Deal" Means for the EU's External Action*,' that many of the key international partners in climate change are largely dependent on natural resource rents, which are defined by the World Bank as the sum of revenues from oil, natural gas, coal, mineral and forest (Varrenti, 2020). The EU's New Green Deal has also been met with resistance from various countries and agencies, who have accused it of being unachievable and unrealistic, while also being criticized by environmental groups for being too timid in trying to tackle areas such as emissions from cars and the aviation sector (Kuebler, 2019; Harvey, Rankin & Boffey, 2019).

The U.S. represents a very different example, as they are overtly following the neoliberal ideology of light touch government and market forces as the singular driver of public policy, especially in regard to the environment. They have withdrawn from the Paris Agreement (taking effect in November 2020) (Roberts, 2019; Hansler, 2017); and as noted by CNN's Jennifer Hansler in *'5 Major Changes to US Environmental Policy in 2017,'* the Environmental Protection Agency (EPA) Administrator Scott Pruitt has shifted the organization's focus toward deregulation efforts and taken significantly more meetings with fossil-fuel industry leaders than with environmental groups. The President himself has on many occasions made comments that he believes climate change to be a hoax, although he has also often walked those back when asked (Cheung, 2020).

Even with all of that the US does, on the surface, seem to support the idea that some actions should be taken to address the issue, but they typically refer to clean air and water, pushing responsibility to the states, and looking to the private sector to make any changes happen (Hansler, 2017).   This is because they feel action by the private sector has the ability to bridge the divide by left- and right-wing politics, and that any resistance to addressing climate change is actually born from the fear of big government. There is also a belief that applying reductions in emissions is actually unnecessary, but that doing so may buy time for public support and opinion to catch up to 'real' climate science (Vandenbergh & Gilligan, 2017).

It is important to note that many of the individual US states have various approaches and levels of interest in addressing climate change (Hansler, 2017). For instance in California, they are emphasizing ways for individuals to reduce their carbon footprint, encouraging clean energy investments to boost the local economy, as well as implementing a 'Climate Credit' program to require power plants and other large industries to buy carbon pollution permits from auctions managed by the California Air Resource Board. ("Climate Change in California," n.d.). Washington and New York have also made focused efforts to address this challenge. In fact, after Trump announced the withdrawal from the Paris Agreement, these three states created the US Climate Alliance, which has since grown to 24 states and Puerto Rico. Despite these states' efforts – which still ultimately focus on private sector initiatives and growth ("*7 Ways U.S.*", 2019) as noted by the National Research Council's book "America's Climate Choices," – even with the efforts of local, state, and private-sector actors, they are not likely to yield the same level of progress that could be achieved with the addition of a strong national approach. With policies that establish coherent national goals and incentives, and promote strong U.S. engagement in international-level response efforts, much more could be accomplished ("America's Climate Choices," 2011)

So, despite the pressure coming from the largest portion of the public to address climate change as quickly as possible, governments are actually still looking to, and working with, private industry to dictate the pace. In this sense, regardless of who the party elected to lead is, the economics are neoliberal in nature, and any climate change decisions will be considered through that lens.

Duplicity by Big Business

Shifting to Big Business, we have established in this paper that on the surface they have expressed an interest in making change (Nasiritousi, 2017). However, when we begin to look more closely, their actions do not actually fit with those expressed interests, and the contemporary latent neoliberal aspects begin to come clear.

When looking specifically at fossil fuel companies like big oil and gas, despite their claims to be working towards addressing climate change, the fact is the majority of them have actually been working to the contrary and have been putting their money into projects that are directly contrary to that end. According to Carbon Tracker, "a financial thinktank found that ExxonMobil, Chevron, Shell and BP each spent at least 30% of their investment in 2018 on projects that are inconsistent with climate targets" (Ambrose, 2019). Going back to *'The Big Stall,'* Donald Gutstein echoes this noting that Shell joined several new organizations established to divert attention away from the fossil fuel causes of global warming and onto the notion of sustainable development, while continuing to invest tens of billions of dollars in oil exploration in Alaska, Alberta's oil sands, Brazil's and Mexico's offshore reserves and gas and oil fracking (Gutstein, 2018). Perhaps the author of the Carbon Tracker Report, Andrew Grant, summed it up well when he states that "Every oil major is betting heavily against a 1.5C world and investing in projects that are contrary to the Paris goals" (Ambrose, 2019).

Shifting focus to 'Big Pharma', another big business that is not always immediately associated with carbon emissions and the climate change discussion, we can look at how they are affecting and approaching this issue. In a study conducted by McMaster University, it was found that the global pharmaceutical industry is a significant contributor to climate change, and that it is actually 'dirtier' than the global automotive production centres. This study also found that in order to comply with the Paris Agreement targets, this industry would have to reduce its emissions intensity by approximately 59% from 2015 levels (Belkhir, 2019). According to an analysis of corporate disclosures by the Carbon Dioxide Project (DCP), "even though 200 companies make up the bulk of the pharma industry, only 25 were found by the non-profit CDP to consistently report greenhouse emissions in the past five years" ("Climate change means", 2019).

Now, there are those within this industry who have expressed interest and made efforts in addressing this issue. Novartis and Astro Zeneca, for example, have been working on converting to renewable energy for their manufacturing processes (Neville, 2019). However, their focus is still in large part on shareholder value and economics. In her own words, Karen Coyne, the global head of environment at Novartis, pointed to the benefits of tackling causes and effects of climate change. She stated that "we really need to think about . . . how we can support the kind of environments where we as human beings can thrive," and "from a financial point of view, improving environmental performance is really a way of creating new shareholder value for our company, through these increased efficiencies and cost savings." (Neville, 2019).

Looking at the motives, it is easy to understand why for those with economic power and influence, addressing climate change is not economically appealing. Further, we also see why continuing to focus on their main lines of businesses – which actually contribute to climate change – is very appealing as it brings in considerable profits. Demonstrating this, according to the *'Extreme Carbon Inequality'* OXFAM report, during the time between the Copenhagen and Paris climate conferences, the number of billionaires on the Forbes list with interests in fossil fuel activities rose from 54 in 2010, and to 88 in 2015. Meanwhile, the size of their combined

personal fortunes has expanded from over $200 billion to over $300 billion (Extreme Carbon Inequality, n.d.).

That said, it is important to note that there are also other reasons for big business not moving forward quickly on addressing climate change. One of these, as noted by Coyne from Novartis, is the fact that they are governed by the contemporary latent neoliberal constructs that focus on shareholder value above everything else, as well as continued economic growth(Neville, 2019).

In order for these organizations to survive they must ensure that they are continually and increasingly profitable, and thus that shareholders are seeing a return on investment. If a greener path is less profitable, then it will impact their growth and result in lower shareholder value, which is in contradiction to their overarching mission. Therefore, they will work to slow this shift through pressure on government. For an example we can look at Chevron again, and the fact that they have expressed unease with California's climate policies, viewing them as too costly and threatening jobs. A company representative has even stated during a speech that there would be significant impact to the company from these policies, and that they were working with the Governor and his administration to ensure the legislation is implemented in a way that balances economic and environmental needs (Nasiritousi, 2017). As long as that is the main measure by which they function, then change will be slow by necessity. Even if the shareholders express interests in greener endeavours, they will only support them if they can be done with minimal impact or more preferably an increase in profits over a short period of time. In this way we can clearly see that the contemporary latent neoliberal economic framework creates a driver for the resistance to change by these types of large organizations.

On an even broader level we can see that these motives may create a cyclical effect. With big business and economic influencers (i.e. major shareholders, CEO's, etc.) working to maintain profit and growth for their shareholders, they will look to use their power and influence to lobby government and affect policy decisions in their favour. They may work to slow any major changes to policy, prevent new regulations, and maintain the current economic constructs so that they can continue on their path. As we learned through this paper, think tanks, foundations and other tools may also be used to maintain the status quo.

Other Businesses

When we look at other businesses, it is important to acknowledge that there a number of differences across this spectrum. In terms of environmental action, there are some who are specifically working on green initiatives, some who's business fall outside that realm but that will focus on demanding green-friendly policies and technologies from their industry, and many who will take mitigating action themselves through in-house initiatives (Pinkse, 2019; York et al, 2016; Kaesehage et al., 2019) There will also be those who do not have this as a focus, simply using the appearance of 'going green' to improve their image; and some who may actually work to roll back regulation in preference of profit (Nasiritousi, 2017).

For those small and medium enterprises (SME's) looking at implementing greener processes within their organizations, or driving change in their industry, their progress will depend on the individual champions driving those initiatives, as well as the participation of other employees. The level of efforts will also directly relate to the impact on the economics of their organization (Kaesehage et al., 2019).

When looking at those focused on sustainable innovations, there are number of challenges. One of the most important relates to the uphill battle faced against established industry and the existing regulations formed around unsustainable technologies (Pinkse, 2019). For instance, in the energy sector, storage of energy has been identified as a priority technology for innovation. However, under the current regulatory constructs, it is difficult to compete with conventional generators for the provision of electricity system services, with the most important regulatory barrier being the current classification of storage as a generation asset. (Gisseya, Dodds & Radcliffe, 2018). This issue was raised as a potential barrier for innovation by one of the individuals interviewed as part of the research process. Jonathon Dogterom, the Senior Vice President of Venture Services at MaRS Discovery District in Toronto, Canada noted that one of the ventures he was working with ran into such regulatory barriers, as they had developed a method for storing sustainable energy, but the only regulations in place were for either the production or use of energy. There was nothing to allow for storage, and this caused lengthy delays for this company.

Two other barriers were highlighted by Paul Dowsett, the principal architect at Sustainable in Toronto, an award-winning architecture firm focused on sustainability. He has a lens into this area through his work with small businesses offering new environmentally friendly building innovations. In his experience, one challenge faced by these sustainable firms is a lack of awareness and understanding by the public in regard to the efficacy of these new innovations, as well as a resistance to move away from more established methods. The second challenge is that the costs are still often too high to tip the scales for homeowners and builders to make the change.

It would seem that within the current constructs, regulations and business practices have not kept pace with environmental innovation or needs. Companies may face the challenge that their sustainable technological solutions do not fit existing institutions. Another way to look at it is that their solutions defy the dominant neoliberal logic for doing business and organizing the economy and are thus seen as disruptive (Johnson and Suskewicz 2009 as cited in Pinkse, 2019).

These barriers are then compounded by the fact that despite their interest in making change, either directly through innovations or through greener actions, their ability to lobby for this change is minimal. The reality is that for businesses operating locally, regionally, or even nationally, the level of influence in affecting negotiations on the international level is limited. They simply do not have requisite weight due to the lack of affiliation or involvement with specific delegations or economic influencer bodies (Duggan, 2018).

So, in terms of the relationships, we can see big businesses have the majority of influence in regard to issues of climate change, connecting to governments through lobbying and political contributions (Nasiritousi, 2017; Duggan, 2018). According to the Extreme Carbon Inequality report by OXFAM, "fossil fuel interests declare spending €44M a year on lobbying the EU in Brussels. While in the US in 2013, the oil, gas and coal industries spent almost $157M on

lobbying. This pales in comparison to the lobbying by the entire alternative energy sector, which on a per year basis is equivalent to the amount of just the top two oil giants."

We can also see their connection with the economic influencers, as many executives maintain positions within those elite economic bodies. For instance, the presence of large oil and gas companies at the international climate change conferences under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC), which has been controversial, is just one example of how they are viewed as lobbyists (Heede, 2014 as cited in Nasiritousi, 2017).

Financial Sector's Elite Level of Influence

Going back to the financial sector, we know that markets, institutions, and elites have increasingly come to dominate the global political economy (Sell, 2019), and as we look closer, we can see that it has very much been built in-line with neoliberal ideology. The tools and mechanisms in place within this sector favour the free-market, shareholder value, competition and light touch by government.

That is not to say that there are not financial mechanisms that encourage addressing climate change. The economic influencers have expressed a desire to address climate change as shown by their involvement in the global agreements; and they have worked to create various incentive programs and grants to encourage development in the green sector such as bonds and tax relief ("Council of Canadian", 2019; Cansino et al, 2010). It is more a question as to whether these programs are able to encourage the requisite rapid change and create enough leverage to push back against the larger forces of the elite influencers whose focus on profit and shareholder value, beyond anything else, continues to enable efforts in contrast with addressing climate change.

For an example of this long-standing influence of the elite, we again look to *'The Big Stall'* where Donald Gutstein highlights the example of the Trilateral Commission, which was the organization established by the Rockefellers and Zbigniew Brzezinski following the first oil shock. He notes that Rockefeller was, at the time, head of the Chase Manhattan Bank, while Brzezinski went on to become national security advisor in the Carter administration. This organization was created with the intent to bring together multiple industrialized democracies like North America, Japan, and Europe, and included 250 members of the financial, industrial, political, bureaucratic and media elites. To realize their goal, however, they recognized a need to modify government's role by strengthening it to resist the demands of citizens, and to focus more on the demands of business (Gutstein, 2018). This example shows how the strength of one organization can yield incredible sway and represent the elite voices currently directing the market.

When we look at the World Bank or the International Monetary Fund, who each have enormous influence on the economic drivers ("The IMF and", 2020), we learn that their policy advice and the nature of their capacity building training assumes one 'correct' approach to governance that is applicable across countries (Gertz & Kharas, 2019).

Despite these bodies expressing an interest in change, and even developing tools and mechanisms to foster innovation to combat climate change, there is still an overarching focus away from climate finance. For instance, despite pledging in 2009 to direct public and private resources to financing climate change mitigation in the amount of $100 billion annually under the Copenhagen accord, progress has been noticeably slow. The UNFCCC's Green climate fund was the next much smaller commitment with nations pledging $10.3 billion, but in reality, only about $3.5 billion has actually been transferred. What's more is that the U.S. has now stated that it will not be making any further contribution (Roberts, 2019).

With the economic influencers focused on other priorities, and with only an evidently tacit interest in mitigating the effects of climate change, there is added resistance in the system slowing the progress toward climate change. This resistance comes through the relationships that the financial sector, and specifically the influencers, have with governments, global agreements, and businesses in terms of their key drivers and incentives, as well as with think tanks for generating tailored messaging.

Think Tanks Tied to Neoliberalism Driving Disinformation

This brings us back to think tanks, which as we noted previously are policy-oriented organizations situated at the intersections of academia, economic interests, politics and media, who are dedicated to developing expertise, consulting, and dissemination of information. However, with our look at neoliberalism we now understand that many these think tanks, the larger subset in our systemigram, are tied to big business and the financial elite (Plehwe et al, 2018), and used to develop and promote information to further their interests, as originally envisioned by the founders of the Mont Pèlerin Society as part of neoliberalism. In fact, studies of these think tanks have even established that is a measure of success that their expertise is both political and controversial in nature (Fischer, n.d.). Karen Fischer from the Johannes Kepler University in Austria, states that think tanks have pushed university-based intellectuals to the margins of public political debates and may even be seen as replacing the university professor as an "expert" in the media.

With this in mind, as noted by Plehwe et al. in *'Saving the dangerous idea: austerity think tank networks in the European Union,'* we must be aware that "think tank experts cannot be simply considered as 'speaking truth to power' or to be 'bridging the gap' between scholars and decision-makers. Rather, there is an instrumentality of think tanks in 'knowledge marketing' and the legitimisation of certain policy perspectives (Plehwe et al, 2018). Think tanks are often not working towards disseminating what might be considered objective truth, but rather a '*truth*' that works to push the economic and political policies in a direction favouring their preferred market position, typically because they will profit from that direction. Looking again to Philip Mirowski, but this time in his article *'The Political Movement that Dare Not Speak Its Name: The Neoliberal Thought Collective Under Eraser,'* he notes that "It is a neoliberal tactic to postpone the truth as long as possible when it comes to the nature of the society they are dedicated to bring about." He further highlights how the fascination with the Koch Brothers in the early-mid 2000's uncovered evidence showing the lengths that the elite (think tanks, organizations, corporate shell entities and general political consultancies) will go to obscure the truth of their structure, funding sources, and agendas (Mirowski, 2014).

This shaping of knowledge and knowledge manipulation – think tanks using 'evidence' to undermine solid and un-interested expertise – have even fuelled the development of the discipline of 'agnotology studies' which is the study of ignorance and information (Croissant, 2018; Pinto, 2015), with regard to a wide range of environmental, public health and economic policy conflicts, and has stoked concerns around the strategic use of this knowledge as a method to undermine solid and objective expertise (Plehwe et al, 2018).

An example of this can be seen in relation to Britain's contentious exit from the EU, where neoliberal and conservative think tank networks played a huge role in mobilizing opinion in favor of Brexit and the Tories. Despite the assumption that they would favour globalization and free-markets, right wing Tory networks such as the Bruge Group or Neoliberal think tanks like the Center for New Europe opposed deeper European Integration as far back as the 1990s because they felt the EU was moving towards political, possibly even social union (Plewhe, 2019).

Also in Britain, as noted by Monbiot in '*Neoliberal Think Tanks and The Crisis'*, right-wing think tanks have recently been credited for successfully changing the terms and frames of debating the global financial crisis, from a crisis-of-capitalism to a discourse on a crisis of the public sector. In the U.S., the capacity to change the terms of debates through think tanks of the New Right has also been identified in the field of welfare research, which was reframed in the United States during the 1980s to address problems of dependency, instead of problems of inequality (Monbiot, 2016).

In regard to the environment, these neoliberal think tanks have not been passive in nature either. They have been producing an endless flow of materials for consumption to fuel the battle of ideas (Jaques et al, 2008), financed by the fossil fuel, mining, and energy industries (Fischer, n.d.). It was also noted in Donald Gutstein's *'The Big Stall'* that during the 1990's six think tanks produced 77 percent of the books, op-eds, articles, policy studies and news releases attacking global warming. Further, five of these think tanks were created within three years of one another in the early 1980s, during the scale-up in the neoliberal infrastructure, and when global warming became an issue, they quickly turned their focus to this issue with fossil fuel and foundations providing the financial backing. These are the National Center for Policy Analysis (Dallas, Texas), Heartland Institute (Chicago, Illinois), National Center for Public Policy Research (Washington, D.C.), Competitive Enterprise Institute (Washington, D.C.) and the George C. Marshall Institute (Arlington, Virginia).

The leverage these neoliberal think tanks have through influencing climate skeptics, policymakers, and governments is important to highlight (Constantinescu, 2019), especially when contrasting it against the minimal leverage achieved by think tanks that fall outside or to the margins of the neoliberal constructs. Examples of these latter bodies include entities such as such as the Centre for Labour and Social Studies (CLASS), founded in 2012 as a left leaning think tank working to ensure that policy is on the side of everyday people (Pautz, 2019); or the Global Green Growth Institute whose focus is actually on issues of climate change (Wanner, 2014), or the International Institute for Sustainable Development ("Our Mission", 2015).

For those entities focused on the environment, one challenge in terms of obtaining leverage is that there does not currently exist a universally agreed definition of a 'green economy' or 'green growth'. Thomas Wanner in *'The New Passive Revolution of the Green,"* notes that The World Bank defines what it calls 'inclusive green growth' as 'economic growth that is environmentally sustainable', while UNEP defines a green economy 'as one that results in improved human well-

being and social equity, while significantly reducing environmental risks and ecological scarcities' (Wanner, 2014). This issue creates confusion as to an agreed upon direction in this regard, undermining the possibility of a consistent and thus more powerful voice, rendering them generally no match for the more powerful competing forces of right-leaning corporations and billionaires (Fischer, n.d.). What is more is that when we look at the multiple definitions, we can actually see these entities are not entirely free from the latent contemporary neoliberal tenets themselves. They are predicated on the basis of achieving three pillars of sustainable development: economic sustainability and sustainable economic growth, social sustainability and social justice, and environmental sustainability and environmental justice, in addition to addressing global poverty and inequality (Wanner, 2014). This focus on economic growth and sustainable development in itself ties them to at least the margins of that ideology.

Another important consideration is the levels of volume in the voices within the various concentrations of thinks tanks. Adrian Pop, a PhD Professor at National School for Political Studies and Public Administration, notes in his paper *'Avoiding Common Mistakes in Think Tank and NGO Training'* that there are key differences between the US and European Think Tanks and NGO's in this sense. Specifically, in the U.S. he highlights that they have far greater resources, many of which have long-established credibility, and are more adept at communicating their messages through websites and public events. This in turn allows them to exert a great deal of influence on policy thinking, not just in their own realm but in Europe as well. Since they tend to lead the world in framing innovative and creative solutions to global challenges, this enables them to act as the model for the establishment of new think tanks. In comparison, Pop notes that UK think tanks tend to maintain closer interaction with policymaking, but with far fewer resources, and less human resources. In general, Pop states that European countries with think tanks tend to mainly influence the European debate via their own national circles or governments (Pop, 2012). If we combine this understanding with the knowledge that the U.S. has expressed disinterest in working towards the 1.5 degree reduction in surface temperature of the earth by 2030, and we see that there is a stronger influence by those think tanks who maintain the neoliberal status quo with economic drivers as the only focus, we see how a movement away from the goals of the Paris Agreement could begin to take hold.

Over time, this power balance could shift, as pressure and the reality of the climate change become undeniable. However, this will take considerable time, and thus it represents an area of resistance against rapid solutions to the problems of climate change. This resistance is a key contributor to the slow progress seen on addressing climate change.

Climate Agreements and Initiatives Without Teeth

Although for the purposes of this paper we are not considering the Climate Agreements as an actor, they are an important mechanism to consider especially with regard to whether they are, in fact, driving the required change at the required rate. At the international level, we know that the Kyoto Protocol did not succeed in its endeavours (Gertz & Kharas, 2019) and that the US pulled out of that agreement. We also know that the amounts pledged in the Copenhagen

Accord were considered unreachable and the actual numbers have fallen short of the established commitments as established previously in this paper.

This brings us to the landmark Paris Agreement, which according to the UNFCCC,

> "was intended to bring together the member 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, charting a new course in the global climate effort. To reach these ambitious goals, appropriate mobilization and provision of financial resources, a new technology framework and enhanced capacity-building is to be put in place, thus supporting action by developing countries and the most vulnerable countries, in line with their own national objectives. The Agreement also provides for an enhanced transparency framework for action and support" (UNFCCC).

The effectiveness of this agreement since its inception, however, is intensely debated, and a large portion of that debate focuses on its weak legal status, as it is not legally binding with regard to states' voluntary pledges (Bäckstrand et al, 2017; UNFCCC). This agreement was actually intended to be a solution to the dilemma of the previous agreements. The feeling was that the previous endeavours had failed because they set legally binding targets, and this dissuaded some countries as they were concerned about penalties and enforcement mechanisms (Roberts, 2019). If the commitments were voluntary, the thinking was that countries would open up about what they could and would be willing to do. Unfortunately, this has not been the reality (Roberts, 2019; Gertz & Kharas, 2019)

In fact, the majority of member countries are emerging economies, most of which have submitted Nationally Determined Contributions (NDC's), which are the voluntary levels of effort ("Paris Agreement", n.d.) that allow them to continue increasing emissions through to 2030. Meanwhile, there are countries in Europe that are actually going to see 1,200 coal plants, which are now under construction or in permit phases, go into operation in the 2020's, essentially making it impossible to render the necessary 1.5 or two degree limit to warming of the planet required in the Paris Agreement to prevent catastrophic results. (Roberts, 2019; Sachs, 2020).

This agreement also operates with the notion that 'peer pressure' would be an effective tool to maintain the course, but given the history of previous agreements, this was an odd assumption and has proven to be anything but effective. Central to the premise was the idea that if countries saw others making progress, they would feel more obligated, and thus be more willing to make progressively deeper cuts themselves. Where this fails though, is that international reputation is only one consideration for these states. Powerful domestic economic interests are far more of a concern, especially when compared to commitments made in a non-binding agreement. (Sachs, 2020).

Absent the necessary enforcement or penalizing aspects, and absent the peer pressure premise, countries are essentially able to withdraw, or back away, from the Paris Agreement at any time. This concern, as noted early in the paper, came to fruition when in 2017 the U.S, one of the largest signatories, filed paperwork to leave the agreement with the exit taking place on Nov. 4, 2020. This in many ways places the future of the agreement in the hands of the

forthcoming U.S. election, as the result of that election may determine the U.S. commitments going forward (Roberts, 2019).

This is the second time the U.S has withdrawn from a climate commitment or pushed back on the specific requirements. When President Trump announced the withdrawal, he was joined by Myron Ebell, the leader of the Environmental Protection Agency (EPA) who himself challenges the idea of climate change. It should be noted that Ebell has also been linked to several think tanks and groups who have received millions from fossil fuel companies and wealthy foundations like the Koch foundation who are aligned with the neoliberal ideals (Farrell et al, 2019). With this and the previous withdrawals, damage is being done to the trust within these agreements (Roberts, 2019) This has enormous impact, since we have already established that the U.S. has a louder and often more effective voice through its think tanks and NGO's, and they are adhering more closely to a neoliberal construct focusing on the market as a single driver for change.

There has been suggestion that part of the reason some countries and/or bodies might push back on the commitments outlined in the agreement, or withdraw altogether, is that the costs of ambitious climate policies are borne in the present within their jurisdictions, while the benefits of these actions span decades and continents. Further, Politicians bear the brunt of the impact of these upfront costs, which can damage powerful constituencies in the present. That in turn creates an incentive to postpone, make only the minimum efforts, and then rely on others to take up the slack (Roberts, 2019; Sachs, 2020; "The Economics", 2019).

The economic influencers and the larger businesses such as fossil fuel companies are also impacted by these agreements, and ultimately, they run contrary to their financial best interests. In essence, they stand to benefit from inaction on climate change, and their ability to leverage through their involvement in these agreements, vis-a-vis governments, NGO's, foundations, etc., and is a continuing challenge for the Paris Agreement ("Extreme Carbon Inequality", *n.d.*).

According to David Roberts in his article *'The Paris Climate Agreement is at Risk of Falling Apart in the 2020's,'* informed by Noah Sachs work in the Ecology Law Quarterly, points out that the cost-benefit ratio on climate action has actually shifted to favour sustainable energy sources. But even with that, the IPCC states it is still not enough, and that to achieve the right trajectory towards a 1.5-degree reduction in average temperature, the economy needs to move more rapidly (Roberts, 2019).

Another example of where these agreements may not meet the need for major change lies with the EU. Its 'New Green Deal' has been called an exercise in greenwashing, citing that it fails to adequately address size, composition, and scope (Varoufakis and Adler, 2020; Kuebler, 2019). The 100 Billion Pounds/year commitment is considered unreasonable and unreachable, as well as being inadequate to the task. The agreement itself highlights this shortfall in stating that it needs 260 Billion Pounds annually to reach its targets. Another issue raised is that it is still aligned with existing fiscal rules which are still considered to be driven by austerity, and by private market-driven interests, shifting the risk onto the public while investors reap the benefits (Varoufakis and Adler, 2020).

Ultimately through this discussion, we can see that despite all of the efforts by multiple actor groups to develop methods and models for changing the course of climate change, and global agreements created to drive this change at the highest level, the underlying contemporary latent

neoliberal constructs continue to push back, continuously injecting resistance counter to the speed of progress.

Science and Objective Fact Getting Lost Along the Way

This brings us to the scientific community, which should represent a strong forward influencing force towards addressing climate change. However, despite their ability to use the media, inform academia, think tanks, and the government (among other actors) their influence has not had the impact it perhaps should. The reality is that despite climate change being established in the natural sciences world, and communication efforts being undertaken by this group, it has generated limited intentional public action, behaviour change, coherent policies, or regulatory tools. (Constantinescu, 2019; Ross, Arrow & Cialdini et al, 2016).

On possible reason for this comes from the paper *'The Expert Panel on Climate Change Risks and Adaptation Potential'* from the Council of Canadian Academies. This document suggests that the limited impact could be in part because the climate data available is actually hosted in disparate locations and formats, making difficult and costly for large institutions, and prohibitively expensive for smaller companies. In addition, it highlights that the tools needed to process and translate this important data are also not readily available, making it very difficult to get an accurate picture of what the science is saying.

Adding to this, Farrell, McConnell and Brulle in *'Evidence-based strategies to combat scientific misinformation,'* suggest that it is also in part the dis/misinformation efforts of those who seek to reduce the flow of this information. In the wake of mountains of information, intended to create the appearance of scientific uncertainty about issues when the solutions might threaten business and special interest, the messages from experts are getting lost or muddled for many. They offer that these networks are often spear-headed by a small number of in-house and externally funded experts who discredit scientific consensus, misrepresent, draw selectively from scientific literature, and create the appearance of legitimacy through their own publications and conferences.

Looking at these issues, what it all means is that no matter how much objective science is created, published, and shared, there is resistance in the system from the contrary forces. So, what should be forward momentum is slowed. In fact, progress has already been delayed in addressing this issue, in part for this reason, for decades.

ENGO's Lacking Impact

ENGO's also represent what should be a possible and important driver for forward momentum in addressing climate change. On their face they appear to be an example of a contrary force to the neoliberal think tanks discussed above, as they should be able to plug gaps by conducting research, facilitating policy development, building institutional capacity, and building an independent discourse with the public (Mubarak & Alam, 2012). The importance of these

organizations is also recognized at the international level with UNFCCC considering them as non-state actor constituents that have a role in creating climate policies and directions (Nasiritousi et al, 2014; Dalmedico & Buffet, 2009)

However, while they have been having some impact and many have emerged on the international scene (Dalmedico & Buffet, 2009), they still have far less influence on international policy directions. In fact, in a study on the influence of non-state actors in relation to the UNFCCC, ENGO's were found to be relatively weak in setting the agenda or influencing policy makers, even with their strong social-powers and large membership base (Nasiritousi et al, 2014).

According to Razan Al Mubarak, and Tanzeed Alam in *'The Role of NGO's in Tracking Environmental Issues',* although some barriers these ENGO's face are beginning to be lifted, they still face a number of challenges. These include: the need for a legal framework to recognize them properly and enable them to access more diverse funding sources; increased support and endorsement from local figureheads; and, engagement in policy development and implementation.

Another challenge these entities face stems from their own inability to find consensus in terms of approach. For instance, in a study by Ylva Uggla and Linda Soneryd, at Örebro University that looked at Greenpeace, Friends of the Earth (FoE), and WWF, it found that there were differences in how these organizations breakdown allocation of responsibilities, as well as the culpability, and responsibility for future action (Uggla & Soneryd, 2017). This lack of cohesion can lead to confusion in messaging, similar to the way it affects green think tanks.

The above study also looked at two oil companies, Shell and BP, to examine the differences between the ENGO's and businesses views on addressing climate change. What is interesting is that their research found there was increasing convergence between the groups (Uggla & Soneryd, 2017). This may seem like a positive sign, however, it seems that rather than industry following the ENGO's, it may be the opposite. They found the language being used by ENGO's showed a "new environmental pragmatism" appearing to deliberately ignore more critical matters, such as "questioning over-consumption in the developed world and criticizing over-exploitation of natural resources" (Anshelm and Hansson, 2011:87 as cited in Uggla & Soneryd, 2017). What is more is that this study found that Greenpeace and WWF clearly emphasize market mechanisms as being crucial to their efforts, while FoE pushes back on this without offering any alternative. This indicates that they also have contemporary latent neoliberal aspects which continue to focus on economic levers as the main method for change. Even if they did begin to push back though, we now know that their influence is not yet high enough to effect rapid change, or to change the economic paradigm that gets in the way.

The Public Cannot Solve the Issue Alone

Focusing back on the public now, we understand that the largest portion, those who believe in anthropogenic climate change to some degree, are demanding change and showing those demands through voting, activism, social and traditional media sources, as well as purchasing

decisions and behavioral changes on their part. They believe more needs to be done by multiple parties.

Going back to the global survey conducted by YouGov, when asked if it was too late to avoid the worst effects of climate change even if drastic action is taken, 50% to 82% of those who responded (depending on the country) stated that it was not. They felt that with drastic action it could be mitigated, which is a positive in terms of the level of hope. However, when asked who was responsible for the current state of climate change, not one country identified individuals as being primarily responsible. They generally felt that business and industry, international bodies, and governments were the responsible parties (Smith, 2019).

According to this paper's research survey – which looked a sample of individuals in the Province of Ontario, Canada individuals not only feel they are not mainly responsible for making change, but they also do not feel a great deal of agency in effecting that change.   When asked the question using a Likert scale, only 5% of respondents felt they had a great deal of agency to address climate change. While 37%, the largest segment, landed in the middle representing an "I am not sure" position, and 10% stating they felt they had little agency for change, as shown in the chart below:

How much agency/ability do you feel you have to make significant change in this regard?
(1 is Not Much, and 5 is a Great Deal)

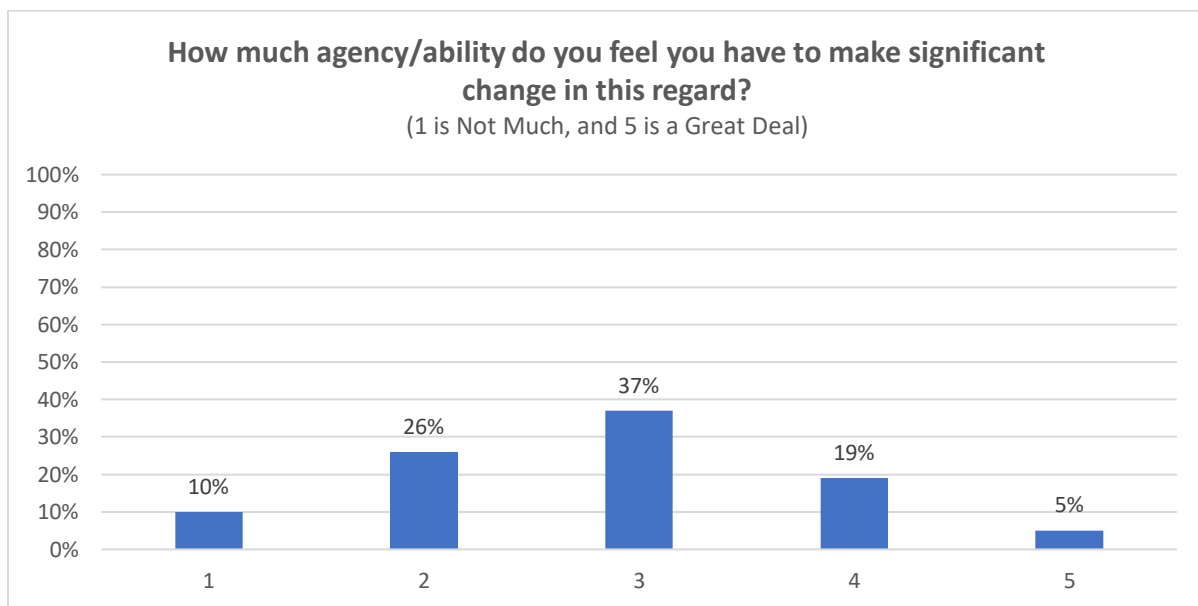| Rating	Percentage
1	10%
2	26%
3	37%
4	19%
5	5%

Figure 6: Chart showing results to the survey question "How much agency/ability do you feel you have to make significant change [in regard to climate change]?"

In reality, it may actually be unreasonable to assume that individuals who comprise the public should bear the brunt of making change for the climate. Changing course in how the world operates and the effects this has on the planet is not just a matter of personal choice. Many individuals face challenges and are powerless in certain circumstances. For instance, many are without options if they lack access to renewable energy or public transportation, or if they are within a fiscal system that favours fossil fuel vehicles. The public is also subject to the messaging that glorifies the value of consumerism which can factor into purchasing habits greatly (Varrenti, 2020).

This came through in this paper's survey when respondents were asked what barriers they felt stood in their way.   There were three options that were almost tied for number one: 50% of respondents stated that their contributions were too small to matter; 48% stated that green options are too costly to choose all the time; and, 46% stated that convenience sometimes wins when juggling too many things. Fourth place at 34% was that not enough green choices exist, followed by 29% stating that they are not sure which options are environmentally friendly. The following chart outlines these results.
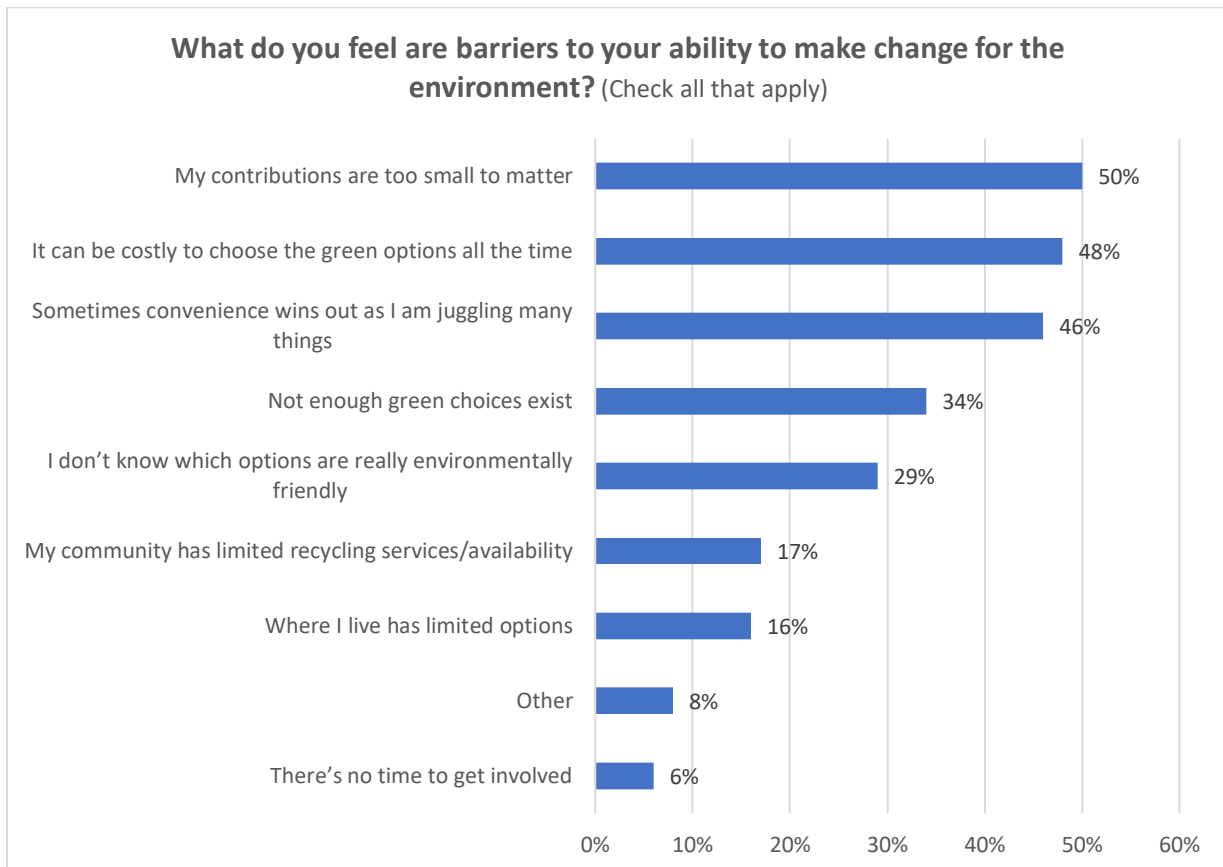
What do you feel are barriers to your ability to make change for the environment? (Check all that apply)

Barrier	Percentage
My contributions are too small to matter	50%
It can be costly to choose the green options all the time	48%
Sometimes convenience wins out as I am juggling many things	46%
Not enough green choices exist	34%
I don't know which options are really environmentally friendly	29%
My community has limited recycling services/availability	17%
Where I live has limited options	16%
Other	8%
There's no time to get involved	6%

Figure 7: Chart showing the results from the survey questions "What do you feel are barriers to your ability to make change for the environment?"

What we learn from this is that as individuals, it can be challenging to navigate the myriad of products available to make the greenest choice, and that it is not possible to always make the necessary selections due to economic and feasibility issues.

When asked about who they felt was most responsible to address climate change, the respondents overwhelmingly suggested Government (57%), and following that the private sector (26%). Only 3% responded with Individuals as holding the main responsibility. This is important to note, as it reinforces the findings that the public are looking for change first and

foremost from the Government, possibly without understanding the limitations of government, due to the contemporary latent neoliberal constructs.

For instance, we have already established that in general the political parties, regardless of their position on the socio-political spectrum, support to a large degree the main tenets of the contemporary latent neoliberalism. This means that no matter which way the elections go, the underlying power structure still focuses on shareholder value and market value as primary drivers, and therefore applies a light touch approach.

This is not meant to imply that they do not feel they as individuals have a role, in fact 94% of respondents stated they do play a role, but rather they feel theirs is a tertiary measure behind government and industry.

It is ultimately ironic to note that the vast majority of environmentally conscious messaging currently targets the end user, the global citizen, the public in general, the one element in our system that holds few, if any, of the true levers required to change the course of current, global, economic affairs at the centre of this stickiest of sticky problems.

Additional Realities to Note

Dis/Misinformation Eroding Trust in the Messaging

This analysis would not be complete without also looking at the reality of Media and Social media in the dissemination of what was referred to earlier as the aspect of dis/misinformation. As we have established through previous sections, these tools are used by multiple actors to share and gain information, but the increase in dis/misinformation is having an effect on the ability for these actor groups to trust the sources. According to the Edelman Trust Barometer's recent reports, 2017 marked the year of 'Trust in Crisis', while 2018 is labeled as 'The Battle of Truth.' They further noted that 7 in 10 people around the globe worry about fake news or false information being used as a weapon or tool.

This mistrust may not directly relate to the public's understanding of think tanks and other actors generating disinformation for their own purposes – as it generally relates more the current term of "Fake News' or 'alternative facts coming out of the U.S. and their political turmoil (Prasad, 2019; Farrell et al, 2019) – but is ever present nonetheless.

This begins to go into the realm of confirmation bias, and cognitive dissonance, which was touched on previously and is an important element to note. Although exploring those fields at an in-depth level is outside the scope of this paper, we can, however, take a cursory approach to understanding these aspects further. In this vein, according to 'Evidence-based Strategies to Combat Scientific Misinformation' by Farrell et al, "there is a growing body of work that argues individuals' perceptions of scientific information are deeply informed by their 'cultural cognition', or, the ways that they understand scientific information. This suggests that individuals' pre-existing ideologies and value systems can play a significant role in whether they accept or reject

scientific consensus." This is relevant here because those whose pre-existing ideologies or value systems, or even their inability to comprehend the complexity of the issue, have led them to disbelieve scientific consensus, are not going to easily be swayed by the information to the contrary. As long as the media – be it websites, tv, or print – is putting out the dis/misinformation produced by select actors contrary to scientific experts' opinions, if it lines up with their own thinking, they will continue to believe those sources. In addition, those who are flexible in their values and ideologies, are also susceptible to this dis/misinformation.

Social media further exacerbates the spread and effectiveness of dis/misinformation. As a modern technology it contributes to the democratization of information, allows for anonymization of shared content, and increases levels of personalization (Born & Stroud, 2018). On the surface and in many ways these are positives in terms of information sharing, but they also allow for dis/misinformation to be shared without barriers. This is made worse by the technology that drives social media tools, such as Facebook and Twitter. The algorithms essentially reinforce confirmation bias as they filter out information that does not align with previous posts that were liked, and filters in posts that reinforce previously liked items (Agrawal, 2016). Figure 8, which was created by this author along with several other team members for a separate class project as part of the overall Masters' studies, is relevant here as it shows this confirmation bias cycle of social media.
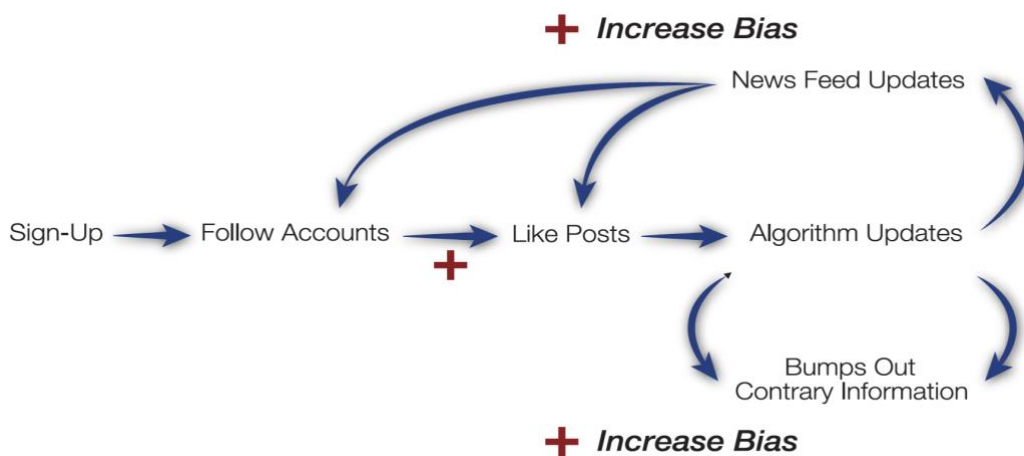

Figure 8: Taken from a separate project from the master's program, this image shows the confirmation bias loop created by social media.

When we look at this aspect of dis/misinformation within the systemigram we can see that it has a large impact and can add further resistance to the speed of change in relation to the climate crisis. This is because the 'correct' direction is unclear, and confusion can slow progress. In specific relation to climate change, there has been documented, patterned and organized productions of dis/misinformation, intended to confuse the public as well as block the science-based policy directions. As noted previously, this can happen through think-tanks, foundations, businesses, associations, advocacy groups, and lobby groups (Farrell, McConnell & Brulle, n.d.).

What is more is that this idea of dis/misinformation to confuse the public or policy makers, is actually one of the underlying methods associated with the Mont Pèlerin Society and

neoliberalism. According to Timothy Mitchell, a political theorist at Columbia University, the founders and their colleagues understood that "in order to capture political power, they would first have to alter the intellectual climate. And to alter the intellectual climate, they would have to influence those who control the distribution of expert knowledge to the public" (Gutstein, 2018). When we consider the sheer amount of information neoliberal think tanks have put out contrasting scientific experts alongside this aspect, it becomes clear why there may be confusion undermining the rate of change.

The Problem is Getting Worse

This section ends with a revisit to the issue at hand and its current state. At this moment, the problem is getting worse. This is evident in the fact that despite the alarm bells being rung by scientists with an abundance of data and information highlighting the concern around greenhouse gases, there has been virtually nothing but delays (Roberts, 2019). Rather than seeing a steady and slow decline, over the last decade greenhouse gases have been rising a rate of 1.5 percent per year. Further, fuel emissions from energy use and industry grew 2 percent in 2018, reaching a record per-year high ("*Emissions Gap Report", 2019*).

There is also no sign of reaching a peak in terms of increases in the next few years, and every year that the peak is delayed means that faster and deeper cuts will be needed to meet the goals and mitigate the crisis (("*Emissions Gap Report", 2019*). Now, we are in the stage where nothing short of radical jolting action is needed (Roberts, 2019).

According to the United Nations Environment Programme (UNEP) which calculates an annual 'emission gap' report, in the 2020's the difference between what countries have pledged and what is actually necessary to be even close to the Paris Agreement goals for limiting global warming, is 13 to 15 billion tons of carbon dioxide equivalent. That is similar to the US light-duty auto sector's current emissions 15 times over. To bridge this gap, all countries would need to reduce their carbon emissions by between 5 and 8 percent per year, until the end of the century. This is something that at this point no one country has ever achieved, in any time frame, let alone within a year, which demonstrates the magnitude of the issue (Roberts, 2019).

Perhaps the image below, which was presented at the Design Meets Climate Action Panel Event and created by Brendan Leonard (@semi_rad) from Outside Magazine, provides a clever way to show the severity of the current state.
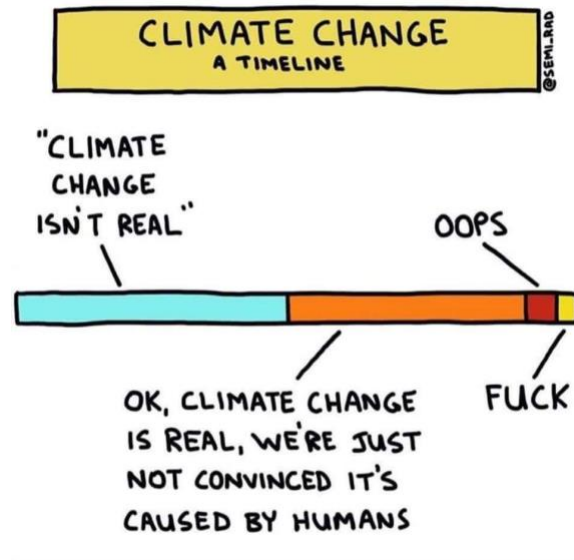
Through this paper's analysis, we can see that we have long passed the first phase and are likely moving from the second phase into the third 'Oops' phase, if not the already the final phase, rather colourfully labeled by the designer (with apologies from this author).

A Final Look at the Systemigram

Now that we have all of the elements and have considered the reality of how they interact, in consideration with the underlying ideology, we can see a full visual of the system at play. Figure 10 shows this full image. Specifically, we can see that one more element has been added, which is the grant, tax breaks, and incentives for green initiatives element shown in the grey oval just above the economic influencers. This is an important element in the system of addressing climate change that emerged from the above discussion, and we can see that it links to business, policies and regulations as well as the economic drivers.

We also see that dis/misinformation is now showing relationships through pink arrows to think tanks, social media, media, and the academic sector. This is because the analysis found that disinformation often comes from neoliberal or conservative think tanks, and is then disseminated via the media, social media, or directly to academia. Dis/misinformation also comes from other actor groups, however, most often it flows through social media or the media and so those are the main connections that are reflected in the image.

What is most important to note in this final version, however, is how contemporary latent neoliberalism flows through so many elements in the system. Stemming from the discussion and analysis we can see the four key elements in this paper's definition affecting the actor groups: These include a focus on free-market capitalism and shareholder value, light-touch by government, the hidden ruling elite in the economic influencers and business leaders from influential organizations, and social Issues (including the environment) as secondary to all else.

We also understand though, through the discussion, that contemporary latent neoliberalism has embedded its ideology into many academic institutions; that it is part of the underlying framework for most businesses; and, that entities tied to this ideology specifically engage in creating and/or sharing biased information to guide and control the market. These connections are shown in the image using the red arrows.

What we also understand through the analysis is that this ideology also imbues other connection points within the system. For instance, it is a dominant aspect in much of the lobbying efforts by influential organizations. It is also a major factor in the development of policies and regulations, and in the financial tools and incentives that exist. The image shows these types of influences with the red shadow around the black arrows.

All of these contemporary latent neoliberal influences converge in the centre, with the two large arrows emerging from government and business going to the icon in the centre, representing the pace of implementing actions for climate change. These large arrows represent the level of influence these two groups have on effecting change, but we see that they are working in a resistant manner. In contrast, we can see that there is a forward clockwise push from the public actor group, as well as a limited clockwise forward influence from the other organizations. Their level of influence is limited, however, as established in the discussion, and that is reflected in the weight of the lines.

Overall, when we look at these counter-clockwise influences that converge at the centre of the system – all of them running counter to the otherwise progressive and urgent forces for change – this system model reveals how the fundamental aspects of contemporary latent neoliberalism are impeding the progress of responsible, global responses to the existential threat of Anthropogenic Climate Change.
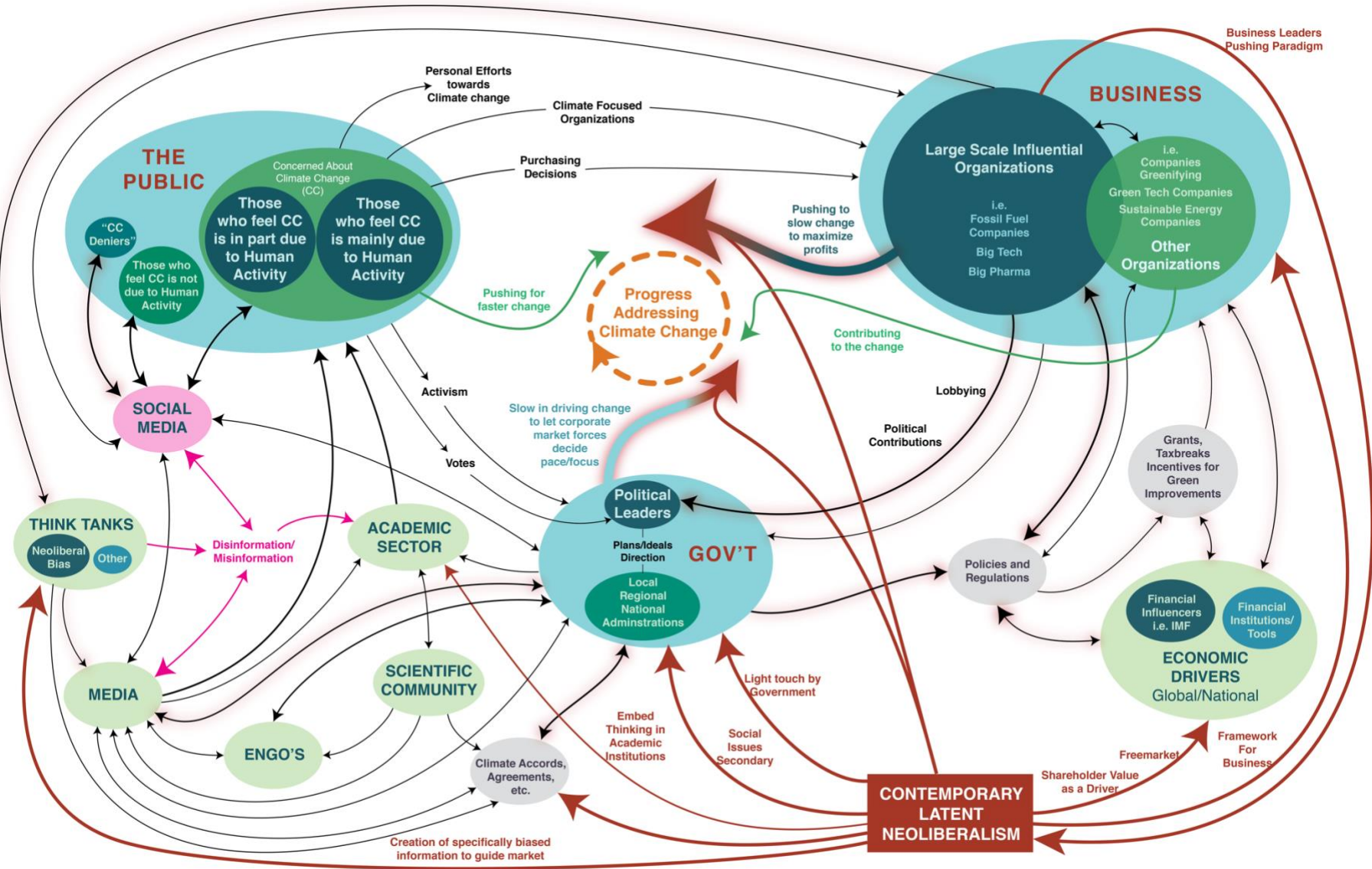
Final Systemigram

Figure 10: Final Systemigram image showing actors, relationships and contemporary neoliberal influence.

Conclusion: So What Does This Tell Us?

What this analysis tells us is that the current global '*system*' itself, driven by its Contemporary Latent Neoliberalism, is possibly the largest and most urgent obstacle needing attention in order to find a way to truly address climate change within the time frame that has been identified, before we reach 'the point of no return' and are no longer able to have any impacting effect at all.

Specifically, through this paper's research and analysis we have identified that the underlying system at work in the majority of western societies is still based on aspects of the hegemony of neoliberalism, even if that term is not often used today. Specifically, they all embody the four principles of what this paper has termed 'Contemporary Latent Neoliberalism.' These principles include:

- **A Focus on Free-market capitalism,** with the concept of infinite and continued growth, leading to an almost singular focus on shareholder value as the key economic driver and measure of success
- **Light-touch by government**, focused only on protecting the market from democratic challenges
- **The Hidden Ruling Elite,** which includes Think Tanks, Foundations, and Academia using Publications and Social Media as tools to produce and proliferate information specifically designed to steer the economy in the desired direction as and when necessary
- **Social Issues (including the environment) as subordinate to all else**

Further, we have established that this underlying premise imbues the relationships between all of the relevant actor groups within the system. Specifically, the economic drivers, the conservative leaning think tanks, and large-scale influential organizations, all have essential roles and deep-rooted interests in perpetuating these principles, as they are key to their continued success. They also wield a great deal of influence on other actor groups which is what allows the hegemony to persist so well. They are key in developing the climate agreements, designing and maintaining policies and positions, and even in creating the types of incentives for green initiatives. They also use the media and dis/misinformation to spread their ideology and muddy the waters on issues that are contrary to their goals

Large-scale influential organizations in particular are rooted to this ideology because of the focus on shareholder value, as it is their mandate to maintain profits for their shareholders, and their core businesses that contribute to emissions are extremely profitable.

Meanwhile government(s) – the body that the public feels is there to protect their interests and act on their behalf – has evolved to fit within the neoliberal framework, and is unable to act strongly against these influential actor groups.   Instead, the system has been designed to limit government influence to ensure it follows the market forces. Although they may genuinely want to implement large and urgent actions to address climate change, they are often forced to make bargains with industry, limiting the reach of any green initiatives in favour of the market's desired pace.

Through the research we also learned that the public, by and large, are interested in seeing urgent and rapid change, but that it is wholly unreasonable to expect the public to carry the majority of the burden on this.   With the majority of carbon emissions coming from industry such as fossil fuels and even big pharma, no amount of effort by the public could affect the actual emissions, and since government is beholden to the market, no amount of activism or voting for party change will make enough of a difference at the pace required.

Although the research and analysis did show us that there are forces of forward momentum in the system with ENGO's working at the international level, the scientific community working to ring alarm bells, and other organizations working in sustainable energy or green tech, those bodies currently lack the influence and voice required to combat the resistive forces. In part because they themselves are fragmented in their approaches, and in part because their solutions still work to follow market forces which do not favour rapid change. Further, the international agreements that are intended to unite the world in efforts to address climate change, lack the accountability or enforcement mechanisms to hold countries accountable, and as such almost no countries are on track with the established goals.

With this in mind, if we look at the Systemigram that has been created through this analysis, with all its actors and relationships, we can see that the resistant forces working counter-clockwise, and thus enabling continued climate change, are far greater and more powerful than all of the clockwise driving forces intended to manage and reduce climate change and its impacts.

So although there has been an awareness of this issue for decades, and the 3 main actor groups (the public, government, and business) are expressing an interest in addressing climate change with an eye on meeting the requirements outlined in the Paris Agreement, and even taking some steps, the speed at which change is actually occurring is completely insufficient and has been for decades. The system itself is flawed, self-defeating, and it is getting in the way of real progress in this regard.

This is not meant to imply that the efforts undertaken to date, by various parties, are not important and worthy of merit. Each and every action taken matters in the efforts to combat climate change and its effects. In the words of Paul Dowsett, the principal architect from Sustainable – who in addition to being interviewed also spoke at a DesignMeets Climate Action Panel event in Toronto – "We need to do all the things." What this analysis does identify, however, is the insight that significant system change may be the missing ingredient, and thus the primary barrier to all those 'things' having the impact they should.

What can be Done?

It is important to restate that the purpose of this paper is not to propose direct solutions to this dilemma, but rather offer a new insight, lifting the lid on what might be the central cause for delays on addressing climate change. Further work would need to be done to develop a fulsome socio-enviro-economic paradigm to put in place, or even to compile a record of all the efforts being undertaken currently to try to make small changes. Both of these endeavours would be highly worthwhile.

There are a couple of efforts though that bear mention here, in that they offer interesting approaches to shifting the economic constructs. The 'Triple Bottom Line' for instance, is an attempt to shift the system away from a single focus on 'profit as a measurement' for success. Instead, it bases success on combined measurements of social impact, environmental impact, and profit. It also focuses on the 'stakeholder' rather than the 'shareholder' (Burhan, 2016). This could perhaps represent one of the key elements to a new paradigm, however, there are some barriers to implementation. These include the challenge around creating a universal measurement tool for social or environmental aspects, and lack of a specific push to adopt these beyond a company's goodwill efforts (Burhan, 2016; Cubas-Díaz & Sedano, 2017).

Looking to investment strategies, there has been a recent push towards divestment. This focuses on having wealthy investors divest of their shares in climate-harming industries. So far, according to Stephanie Bailey's CNN article titled *'How rich people could help save the planet from climate change,'* "Over 1,100 organizations and 59,000 individuals, with combined assets totaling $8.8 trillion, have pledged to divest from fossil fuels through the online movement DivestInvest" (Bailey, 2019). One issue here though, is that it still relies on an elite power structure creating a similar imbalance in the system, only somewhat greener.

It is the position of this author, that perhaps the first step is giving a small amount of oversight power back to government so that decisions are not just made based on market forces, but that they also reflect the interests of the public. A greater level of enforcement for green initiatives would lead to greater accountability by organizations and ideally translate into a systemic shift where the environment is no longer taking a back seat to profits. It is not about a return to Keynesianism, but rather finding a new paradigm focused on maintaining a balance between social, environmental, and economic needs.

Challenges in Implementing Change?

It may be comforting to know that this paper is not the first to identify problematic aspects of the overarching idea of neoliberalism. In fact, various sources have been identifying the failures of this paradigm since the 2008 economic crisis (Centeno & Cohen, 2012). What this means is that there exist individuals and organizations aware of its problems and perhaps looking for solutions, although they may not be looking at the problem through the lens of climate change, as in this paper.

Where this is helpful is in attempting to understand why this hegemony remains the default model, and thus why the latent aspects remain, even in the face of perceived failure. In Alex Williams paper "The complex Hegemony of Neoliberalism," he discusses how this construct has

embedded itself so deeply in the system that it is able to disable its opponents, as one possible reason for its perseverance (Williams, 2019). This paper identifies that same challenge as it relates to the elite influencers and economic powerhouse companies and their ability to direct policy and economic models in their favour.

What this hegemony's perseverance in the face of the 'Great Recession' also tells us though, is that in order to move away from some of its core aspects, or replace it entirely, it might take a large-scale event or crisis – larger than a global economic recession. What comes to mind is what Naomi Klein has referred to as the 'Shock Doctrine.' Klein suggests that society is more apt to make sweeping change and accept conditions and measures they would not ordinarily accept, when faced with the impact of a disaster or crisis. In her book she suggests that corporations, and their hidden influence in government, manufacture disasters to enact sweeping policy change (Klein, 2007). Although her focus there is on intentional small scale disasters, this same method could be used in the event of an unexpected large scale disaster as well.

The key to this, however, lies in having an alternative model in the waiting, ready for implementation when any such crisis hits. It is here that one of the reasons cited by many for the continued existence of neoliberalism, is found. There currently exist no cohesive alternative hegemonies or paradigms to take over. (Williams, 2019; Centeno & Cohen, 2012, Gertz and Kharas, 2019). For 80 years or so, no one has produced any new coherent general frameworks of economic thought (Monboit, 2016). Absent an alternative, the system will likely continue as it is, persevering with only minor shifts to weather each collapse. Ironically, with neoliberalism persevering, it is likely we will see more and more incidents of collapse.

In fact, as this paper is being written, we are in the midst of one of the worst disasters of our time. CoVid-19 started in China in 2019 and swiftly moved across the world, being declared a Global pandemic by the World Health Organization in March 2020 ("*Coronavirus disease", 2020*). This virus, that as of this writing has no cure and no specific identified treatment (Pappas, 2020), has caused the shutdown of countries around the world, as people are quarantined, governments mandate social-distancing, and hospitals struggle to cope with demand. China built temporary hospitals to address the need while quarantining an area of over 11 million persons, later broadening that even further. Italy was next to lock down a large area within its northern regions. Following that, other countries have been progressively reducing human contact by shutting down borders, businesses, events, restricting restaurants to take-out only, and implementing penalties for those who do not comply ("Coronavirus", 2020; "Coronavirus: What's", 2020). With these measures in place, the world has essentially shut down, and the world economy is sustaining unprecedented damage, too soon to fully quantify.

On a societal level, we will never be the same, and on an economic level the consequences will be dire. The public is looking to governments for support and guidance in a way that has not happened since the second world war, with President Trump even being asked to act as a 'wartime' President (Caputo, 2020).

To address this crisis, countries like Canada and the U.S. are now introducing economic stimulus packages to try to address the health concerns and needs of the public, but also to keep the economy going on the premise of growth and a market driven society (("Coronavirus", 2020). Central to these packages are payments to the public to weather the storm, reductions in some lending interest payments, mortgage deferral options, and funds to buy the necessary

supplies for hospitals and other medical facilities. What this essentially amounts to is governments taking a necessary heavy-handed approach to helping their citizens and directing industry and policy as needed.

Such measures are in contradiction to the contemporary latent neoliberalism in place and are already creating new tensions. The US is a particularly striking example of this, with the President contradicting health professionals and working to shift the focus off of the public health crisis and back to getting the economy going (King, Wu, & Shesgreen et al, 2020). With such apparent incompatibilities, it will remain to be seen what the long-term effects will be, especially for those who are already marginalized in some way.

This paper certainly does not advocate the creation of a disaster to effect change, as such events create undue suffering for many. However, in the case of an unforeseen uninitiated disaster, outside of our usual levels of control over our world, there may be as-yet hidden opportunities to act. If there was ever a time to make change in the prevailing system, it may indeed be now.

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