

CLIMATE CHANGE AND REAL AI

by

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Futurealities

Only AI with Real Intelligence, not politicians, can inform markets in mitigating climate risk

Global politicians pretend that markets can save us from the risks of climate warming. Such pretence that markets can deliver control over the behaviour of the climatic system in decades is absurd. It should be clear by now that the climate crisis is neither a scientific delusion nor a divine punishment, it is manifestly an expression of increasing global tensions that are being felt in different ways across the rich and poor worlds. At least we can thank the Covid pandemic for making us aware of our global interdependence.

Our ignorance of global warming's local impact is our worst enemy, as both individuals and organisations are not able to comprehend the complex web of forces that are combining to threaten us. AI is not a panacea, but a tool that can enable us to detect patterns that can reveal the underlying dynamics of the forces shaping our future environment.

Our focus should be on where and when the consequences of these threats begin to affect much wider communities and on designing ways to mitigate their impact.

Markets are the driver of economic growth, the source of global warming that sustains the urbanisation of humanity. Yet economics ignores the cost of the harm this has caused to the planet. The investment in every farm, factory, or ferry has been made without accounting for the costs they impose in sustaining their return and that will endure for many decades. The timescale for replacing these assets is far longer than markets, largely ignorant of these risks and their impact, can deliver, delaying intervention and reducing effectiveness of measures to reduce pollution.

Beyond the political priority of avoiding any admission of guilt, or impotence, in addressing global warming, the lack of any "real intelligence" on prospective risks prevents markets from mitigating the dangers these pose to communities. Neither communities, nor business are aware of the magnitude of when or where such risks will develop. It is nonsensical to assume that markets can deliver salvation from climate risk in a few short decades. Reality requires real intelligence that will permit markets to track and respond to the impact of changing climatic risk on human behaviour in years rather than decades.

In the next thirty years, the timeframe for achieving supposed "carbon net zero" coincides with the explosion of reliable data monitoring of both the environment and human activity that is commonly defined by IOT, the Internet Of (almost every) Thing. Today its equivalent is the data that flows from the ubiquity of the smartphone's ability to track every user's whereabouts. In the past decade the market intelligence these have provided to users has

seen the development of national market economies in hitherto subsistence communities. In many ways this is the first real-time evidence of how markets form and function.

Yet the torrent of data that flows today into the servers of the social media is still to provide the real intelligence that can inform the revolution in market economics needed to drive humanity's response to climate change. There is growing mistrust of how and what social media are used for. In part, it is a fear of intrusion on individual privacy, as advertisers, the primary source of revenue, learn of our whereabouts and our supposed preferences in real time, but not of our actual intentions at the time.

Perhaps more sinister is a plethora of untested assertions and outright falsehoods designed to bolster different groups' opinions and beliefs contesting even the reality of climate warming. Such human-generated content is not a record of our activity from direct observation and is inevitably a subjective interpretation of our personal biases and worse. It is no substitute for remote observation and recording of data derived from known sources on, or above, ground.

We have become almost wearied by the constant refrain and debate about a climate crisis that hides out of sight, or sense, of most people today. For some, however, it is an ever-present reality as their homes or livelihoods are threatened or destroyed. We are asked to believe the science but, unlike in the recent pandemic, we cannot measure its extent or observe its evolution over days or weeks or even months. Our problem is not simply to minimise today's pollution, but to mitigate the impending consequences of its residue from the past two centuries.

While the long-term causes of climatic variability are established, the spatial distribution of their impact on climate we will experience across the globe is far from well understood. From time to time these events become national crises, as extreme cold weather in Texas or in French vineyards testify. When or where such events might occur lies beyond our capabilities in long-term forecasting and their specific causation even more so. Without an informed awareness of such impending events, it is clear that our economic system cannot anticipate when or where it might invest to avoid the dangers these may pose.

Crucially, our ability to address climate risk depends on mobilising and re-directing the economic forces that are its root cause. These two fields – economy and climate – have been the focus of mostly separate academic study and attempting to integrate them poses a challenge to demonstrate how economic models operate as part of the global environmental ecosystem, not separate from it. Such a step would fundamentally dispute the assumption that the economy can function without accounting for its impact on the commons, the public realm. This is a formidably complex data modelling problem of the kind that leading AI developers believe could only be addressed using advanced AI systems.

In this decade, IOT will be capturing data from billions of sensors, beginning to give us the primary information from which we can start to detect the impact of human activity on our planet. This prefaces a revolution in economics that will redefine its relationship with the physical environment. No longer need economics be the dumb partner of physics in attempting to predict the market impacts of climatic forces. Our problem is then one of

interpretation and testing how effectively our models perform in forecasting the consequences of climatic change on the centres of human population. This is the realm of advanced AI systems modelling. What AI can do is demonstrate where and when the greatest threats will occur, potentially even within the timeframe of those with most to lose. It is inevitable that such risks will sooner or later be felt most acutely in the greatest concentrations of urban life.

Global megacity regions will account for half the world's population by 2050. Many are found in low-lying coastal areas and are by definition among the most vulnerable to rising sea levels, one of the most important global indicators of climate change.

However, this is perhaps not the most critical threat they face. By virtue of being the largest centres of political and economic power, they are among the most polluting and polluted places on Earth. They are also the centres of most industrial output, much of it reliant on energy and materials that are the significant contributors to global warming that is driving climate change.

While the threat of rising sea levels seems incontrovertibly real and urgent, it is extraordinary that this is effectively being ignored, as local authorities bicker among themselves as to responsibilities for action. This state of affairs is all the more surprising in a region, such as the Bay Area in California, that has recently experienced unprecedented forest fires that shrouded much of it in toxic smoke for days on end. The primary response to this threat has been to try to extract monetary compensation from the power utility for the inadequacy of its grid and vulnerability to fire, yet without doubt the extent and intensity of the fires was due to the rising frequency and persistence of intense winds. These are clearly a critical indicator of more immediate climate danger than rising sea levels.

Time is being wasted from recognising the links among these events and their impact. It is sadly ironic that the market economy in the US is demonstrating how a failure to anticipate the impact of changing climate has rendered communities, such as in Texas, very vulnerable to harm, as in the case of the recent intense period of cold weather. Once again, the reaction of the authorities sensing public anger has been to blame the grid and power companies, yet it is competitive forces that have encouraged this lack of investment. It is now becoming clear that with a more positive recognition of the dangers that climate change is posing in the US, business can see with greater certainty the opportunity to switch to new sources of renewable power. Yet what might mitigate the impacts on one of the greatest global concentrations of petrochemical industries is hard to imagine. Leaving oil and gas in the ground is yet to be seriously considered in Texas!

Megacities and regions are among both the wealthiest and poorest societies on Earth. They are all however the drivers of economic growth, which continues to be based on thermal processes of all kinds. This role gives them political power as well, and increasingly the scale to take action to ban or restrain the most polluting activities. In doing so they are acting at the behest of their constituents and can stimulate and motivate changes in human behaviour that can directly benefit all in their communities, as well as contribute to establishing a new "low carbon" economic model.

It is the scale of the market such centres represent that offers the biggest incentive to businesses to adopt new production methods or sources of supply. The list of economic activities that are characteristic of megacity life should indicate the priorities for market innovation aimed at reducing atmospheric pollution. While each one will perhaps contribute only a few percentage points to the overall saving, it is the sum of these innovations that has the potential to reshape the economy. Perhaps it is only in such globally connected and media-saturated societies that the means exist to persuade citizens to change fundamental aspects of their behaviour.

These cities offer the best prospect to capture a record of economic activity in real time that should offer the possibility to model the future spatial impact of climate warming. In doing so, this could begin to demonstrate the possible synthesis of economic and environmental system models in what we have called the Symbiotic Economy. This, as its name implies, recognises that the economy exists – and can only exist – in a mutually dependent relationship with all living and environmental systems, and it is our primary task now to seek a new balance between markets, people and planet.