

A NEW STORY TO **SPARK**

THE FUTURE OF

CLIMATE ACTION



INSTITUTE FOR THE FUTURE

EXTREME WEATHER. RISING SEAS. FOOD SCARCITY.

The science and symptoms are clear: climate disruptions are all around us. Over the past several decades, citizens and governments have mobilized to contain the menace of a changing climate. We've forged new global partnerships and agreements. Scientific advancements have helped us model climate change scenarios with greater accuracy and design better solutions for preventing the worst of them from happening. We've invested hundreds of billions of dollars in monitoring, prevention, and mitigation technologies. We've developed new laws and cutting-edge financial instruments to coordinate action at scale.

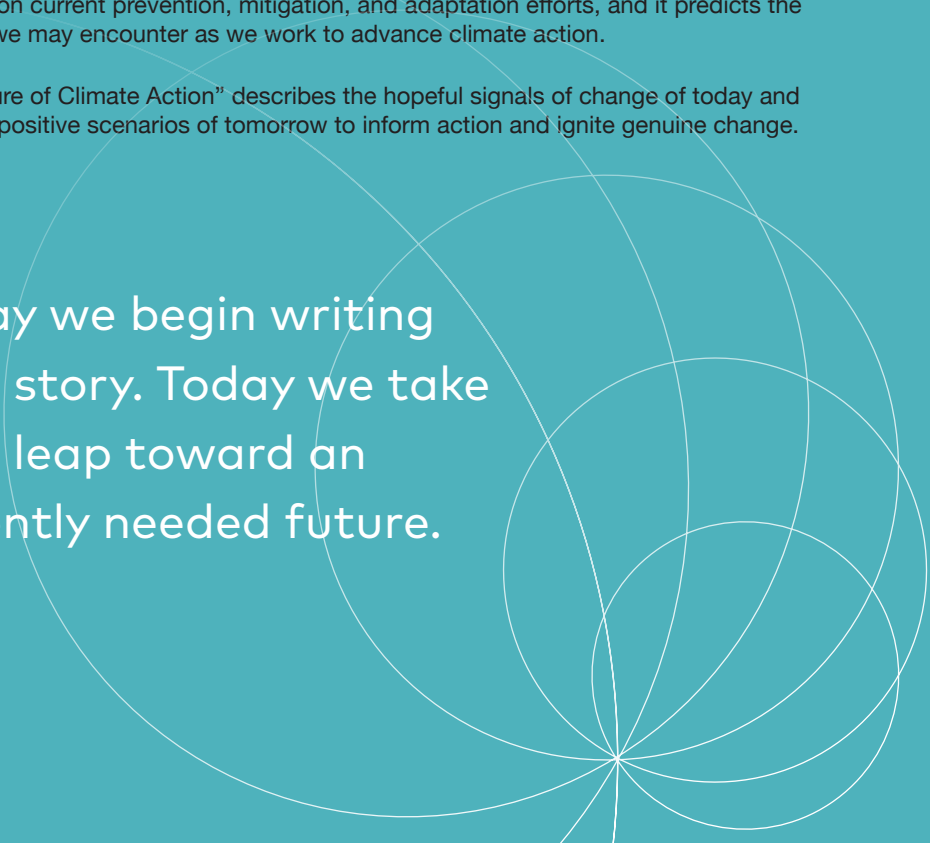
And yet, much more needs to be done. We have the knowledge and resources to prevent global temperatures from rising more than 2°C above pre-industrial times, but science and technology alone won't get us there. We must accelerate momentum toward a new narrative that galvanizes and inspires. One that moves us all—individuals and governments, manufacturers and investors—to hasten our march toward decarbonization.

Now we have a chance to do just that. No one can know for certain what the future holds for climate change, but we can attempt to identify a broad set of actors—emerging and those yet to emerge—from the public, private, international, national, and civic sectors to reimagine our response to climate change. In this new narrative, what we call “The Future of Climate Action,” climate influences every aspect of our daily lives and pushes us to care for the earth, ourselves, and generations to come. It delivers us from fear, uncertainty, and doubt, because it centers instead on opportunity, meaning, and possibility.

Through this narrative, and this map, we can blaze a new path. It opens the door to a future we can build and mold by focusing on the external forces that shape our capacity to act. It describes the emerging opportunity zones, or levers, for accelerating progress. It poses provocative questions to stimulate ideas for altering power dynamics rather than focusing on current prevention, mitigation, and adaptation efforts, and it predicts the frictions we may encounter as we work to advance climate action.

“The Future of Climate Action” describes the hopeful signals of change of today and presents positive scenarios of tomorrow to inform action and ignite genuine change.

Today we begin writing
that story. Today we take
that leap toward an
urgently needed future.



THINK GLOBALLY, ACT EVERYWHERE

This map is more than an outline of a new narrative for the future. It's a tool for matching external forces to design new coalitions, identify areas for experimentation, and capitalize on new opportunities to accelerate climate action.

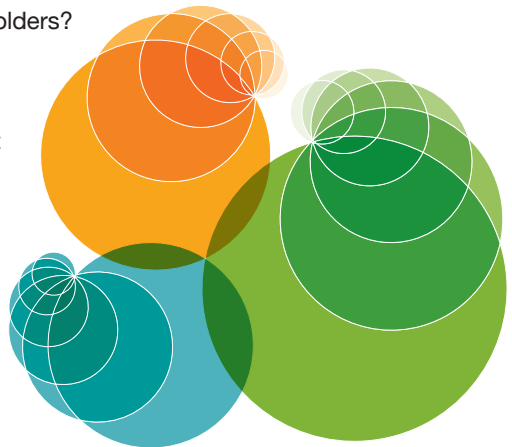
Whether in multilateral negotiations, top-down mandates, or community organizing, three modes of interaction can be leveraged to motivate partners:

- We can **COMPEL** others to do what they wouldn't voluntarily do. For example, governments might design regulations and pricing schemes that motivate a shift in production towards more climate-friendly models of appliances and vehicles, mandating manufacturers to comply and making ecologically sustainable models more attractive to consumers.
- We can **EMPOWER** others to use existing resources to communicate with their constituents and craft their own compelling narratives. For example, scientific institutions could work multilaterally with artists, designers, and social activists to make climate data accessible by mobile phones in highly context-relevant ways to empower interested citizens and civic organizations to engage their communities in climate action.
- We can **ATTRACT** others who care, pulling them in closer and creating a sense of urgency and meaning. For example, a new wave of globally connected youth activists might unleash fresh messaging campaigns that draw in confused or uninterested parents, siblings, and teachers, eventually impacting national decision makers within a wide range of internal political systems.

These modes of interaction aren't new. What's novel is that a broader set of actors will be able to use the modes to influence one another, across borders and at different scales. Sometimes the persuasion will be based on good old-fashioned politics and financial incentives. But we also desperately need unpredictable—even unimaginable—new coalitions and tactics.

As you look to 2030, ask yourself how you can use ideas from the map to shake up your current stakeholder coalitions and build a new narrative that will drive change:

- **How might you empower a different set of voices** that could alter power dynamics among traditional stakeholders?
- **How might you drastically increase the number and quality of interactions** among your current stakeholders to drive faster, larger, or more efficient impact?
- **How might you transform your organization's own story** to connect with a mass audience?



EXTERNAL FORCES

key drivers shaping the landscape for climate action

These are major developments impacting the larger external environment in which climate action will take place.

extreme megacities

Vast cities will house up to two-thirds of the world's population by 2030, and most of them will be located within 100 kilometers of coastal zones. These urban centers will concentrate the effects of climate disruption such as storm surges, putting trillions of dollars at risk, and will spur a new wave of climate gentrification as the wealthy relocate to safe areas. This will also make municipal governments the frontline for climate efforts, driving subnational and multipolar climate action to new levels.

climate suffering

City dwellers around the globe will suffer cardiovascular and respiratory health conditions caused by dirty emissions from vehicles, factories, and power plants. Deforestation, too much or too little rain, and rising temperatures will push insects and animals into unwanted contact with humans, spreading disease. The elderly will be especially vulnerable. Challenged by personal health consequences, citizens will press for change.

solastalgia

As the severe weather effects of climate change significantly damage iconic cultural sites such as Australia's Great Barrier Reef, as well as coastal habitats and endangered animal species, these losses are likely to trigger widespread "solastalgia"—nostalgia or wistfulness for terrains lost. Just like nostalgia, which scientists have found to create a sense of continuity with the past and greater social connectedness, solastalgia is likely to foster a sense of continuity with earlier terrains and encourage social connectedness among those eager to act together to prevent their destruction.

abundant data for decision making

New sensing technology such as satellite imaging, drone mapping, and ocean sensors will provide a view of our planet at extraordinary resolution. The ability to track consumption, production, and weather patterns at new scales will make previously invisible impacts of climate change visible. Embedding digital intelligence in our physical environment—from self-driving cars to phones that track air quality—will allow real-time analysis for decision making.

new authorities, new power dynamics

How we influence at scale and who has the ability to do so will shift as new media platforms enable individuals to project their voices to millions and geopolitical changes give rise to new economic power centers. Old power, held by a few and jealously guarded, closed, inaccessible, and leader-driven, will give way to new power, which is made by many, open, participatory, and peer-driven, in the words of activist authors Jeremy Heimans and Henry Timms. The new power dynamics will open up new opportunities for climate action at all levels—local, global, civic, and institutional.

technologies of decentralization

The next decade will see the steady rise of tools—such as blockchain, grid edge, and crowdsourcing—that cut out unnecessary middlemen and empower network edges. Blockchain will be used not simply as digital currency but for "smart" peer-to-peer and peer-to-market contracts, and will fuel new experiments in secure identity, distributed ownership, and financial transactions. These tools will push us to rethink scale, enabling investment and insurance for more local, less mainstream climate projects.

ACCELERATING CLIMATE ACTION

zones of opportunity

Zones of opportunity outline new possibility spaces for reframing the narrative around climate change and accelerating climate action.



ACTIVATED YOUTH

from siloed scenes to meme movements

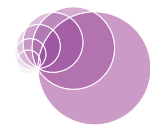
While not every young person will be online by 2030, increased connectivity will provide access to next-generation, cutting-edge viral communication techniques born of youth Internet and mobile phone culture. Young people in places subject to the most devastating impacts of climate change will bear witness on global social media platforms and in on-the-ground movements, activating peers in developing and developed economies alike. As in the past, youth-led social movements will be an emotional nucleus of change with the power to transform national politics. This time, they will fight for the health of the planet.

NEW FORMS OF CLIMATE ACTION:

Harnessing online response for street action; teaching youth how to understand government structures and reach government officials

NEW CLIMATE ACTORS:

Girls, students, youth-supporting groups



WOMEN AS CLIMATE ACTION LEADERS

from traditional gender roles to empowered representation

Women are disproportionately impacted by climate change—an outsized number of climate migrants are women, as just one example—and they are also critical to taking action on climate change. In the next decade, as high-level policymakers, they will be responsible for increased international cooperation. In rural and developing communities, they will leverage social and familial roles to change public sentiment on climate action. Communities and frameworks that tap into the organizing ability and knowledge capital of women will succeed better at climate action efforts than those that continue the status quo of underrepresentation.

NEW FORMS OF CLIMATE ACTION:

Seeking out and empowering women in climate action leadership positions; supporting women as local and ground-level influencers

NEW CLIMATE ACTORS:

Female politicians, female community organizers, women-led organizations



ORGANIZING WITHOUT ORGANIZATIONS

from formal structures to networked nodes

Networked, distributed, open organizational forms are overtaking and replacing the ones we've relied on for the last several centuries, creating new ways to get things done. The new organizations will be more porous, distributed, and activated than legacy institutions, while also being less stable and unpredictable. Characterized by reputation-based systems, software-managed processes, and networks of contributors rather than formal staffs, these emerging twenty-first-century organizations will offer incentives beyond monetary compensation. Participants will be driven by opportunities to build reputations and have awe-inspiring impact.

NEW FORMS OF CLIMATE ACTION:

Redesigning institutional structures to incentivize connection with open, emergent networks; prototyping nation-level crowdfunding and crowdsourcing sites for climate adaptation

NEW CLIMATE ACTORS:

Institutional bridge builders, community managers, platform cooperatives, blockchain nodes



CLIMATE AS GROWTH SPACE

from burden to profitable investment

By 2030 the profitability of technologies and businesses that benefit the climate will be proven, shifting our views on investments for climate change. Soon they will be seen as areas of innovation and profit. New markets in climate data and insurable natural infrastructure—and even climate-sector cryptocurrencies—will emerge. With assets at risk, large companies will invest more in adaptation, services, and their own renewable energy infrastructure. Job seekers, development, and workforce programs will see the climate change sector as a job creator. Nations and corporations will need to rebalance economic and social priorities by promoting climate-friendly investment policies and encouraging greater wealth equality.

NEW FORMS OF CLIMATE ACTION:

Incubating climate services start-ups in least-developed countries; funding entrepreneurs to de-risk green products, driving larger corporate investment; developing new business school programs to balance social goals such as ecosystem preservation with economic profits

NEW CLIMATE ACTORS:

Entrepreneurship policymakers, workforce planners, start-ups, elite investors at scale (especially insurance companies, pension funds, sovereign wealth funds, endowments, and foundations), climate entrepreneurs



ALGORITHMIC ACTION

from people power to computer collaborators

Smart systems and objects will undertake climate action on our behalf. Over the next decade, regulators and programmers will bake climate action into our processes and machines—imagine social credit systems that automatically register and sanction polluters, and objects that organize their own power consumption. Artificially intelligent personal assistants like Siri and Alexa could make climate-friendly individual consumption the default, while industrial automation does the same at the institutional level. Smart contracts, based on blockchains, will allow groups of any size to create automated exchanges, whether land titles or excess electrons.

NEW FORMS OF CLIMATE ACTION:

Automating climate regulation compliance; outsourcing climate regulation compliance; enabling peer-to-market energy transactions

NEW CLIMATE ACTORS:

Compliance system designers, process automation programmers, smart grid managers



WATCHFUL EYES

from institutional authority to crowd oversight

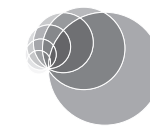
By 2030, collaborative climate data gathering, citizen monitoring of places and institutions, and shared knowledge bases will allow greater independent oversight and verification of what's happening to our planet. Mass observation from diverse perspectives will be a critical method for pushing back against false information from official sources (both governmental and corporate) and corruption. Hiding bad actions from public scrutiny will become much harder. The new transparency will bring new voices and authorities into climate conversations, enabling action on a wider scale.

NEW FORMS OF CLIMATE ACTION:

Building systems for cross-border data analysis; funding open source climate data collection tools and teaching citizens how to use them

NEW CLIMATE ACTORS:

Anti-corruption activists, journalists, manufacturers of user-friendly climate data collection hardware



IMMERSIVE NEWS

from distant facts to intimate impact

New storytelling tools will convert complex, jargon-laden graphs into emotional experiences, increasing our psychological grasp of the reality of climate change. A wide variety of new techniques—including virtual and augmented reality simulations, snappy Internet memes, and feedback loops about climate impacts of daily activities—will draw in people who don't care about climate change and mobilize people who are ready to act. Accurate climate data repositories—accessible in multiple sensory-rich formats and comprehensible to both pros and amateurs—will be critical building blocks.

NEW FORMS OF CLIMATE ACTION:

Bringing real impacts to life via visceral experiences; optimizing climate data platforms for sense making and story building; designing climate action memes and infographics

NEW CLIMATE ACTORS:

Media creation tool developers, science journalists, entertainment creatives



MEDIA FOR GOOD

from computational propaganda to positive persuasion

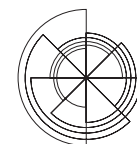
Tools for injecting ideas into the media will become more accessible and more powerful, wielded not only by disruptive national actors but also by corporations, NGOs, governments, and individuals. The technology underlying the weaponized bots and computational propaganda that activated anti-democratic behavior worldwide in the late 2010s can also be harnessed to openly influence environmental beliefs, connect micro-communities, and organize pro-climate social behavior in the 2020s. Transparency will be critical: knowing that information came from a bot won't necessarily undermine its effectiveness. It may even make it more trustworthy, if one knows the source of the bot.

NEW FORMS OF CLIMATE ACTION:

Signal tracking and signal boosting in real time; designing and deploying bot networks

NEW CLIMATE ACTORS:

Bot networks, social media platform designers



PROTECTIONISM

ACTIVATED YOUTH

from siloed scenes to meme movements



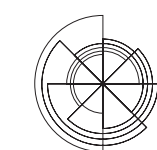
March For Our Lives, a movement launched by high school students, rapidly generated one of the largest US political protests ever and is reshaping the dynamics of addressing gun violence issues, long considered politically untouchable.

Source: marchforourlives.com
Image: facebook.com/marchforourlives



Youth rapper Sonita Alizadeh's music video, *Brides for Sale* spread her story of escaping fate as a child bride in Afghanistan after it went viral, reaching leaders and citizens worldwide. The song became the launchpad for her advocacy organization, Girls Not Brides, which has formed a global network of more than 800 civil society groups that work to end child marriage as well as accomplish a number of UN Sustainable Development Goals.

Source: sonita.org
Image: flickr user iIP Photo Archive



SHORT-TERMISM

WOMEN AS CLIMATE ACTION LEADERS

from traditional gender roles to empowered representation



The Natural Resources Defense Council reports that a study of 130 countries found that women in government leadership positions are more likely than men to sign on to international treaties taking action on climate change.

Source: Natural Resources Defense Council
Image: NRDC.org

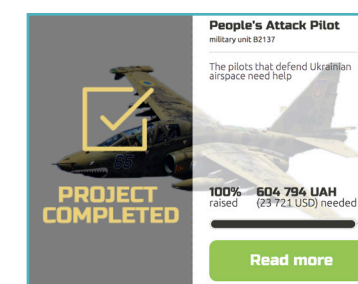


Zenab for Women in Development, a Sudanese NGO founded by Fatima Ahmed in 2000, trains traditionally excluded women in conservation and agricultural techniques, and in 2017 won an award from the UNFCCC's Momentum for Change program.

Source and Image: unfccc.int

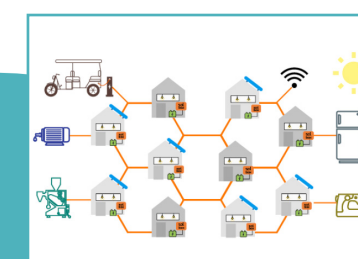
People's Project is a citizen-led online crowdfunding platform that was started to provide the Ukrainian army with equipment and then expanded to fund rehabilitation of wounded soldiers and support promising projects and initiatives in Ukraine.

Source and Image: peoplesproject.com/en



ME SOLshare, a peer-to-peer solar microgrid, lets citizens in Bangladesh independently generate solar PV power and then buy it from and sell it to one another using plug-and-play blockchain-powered electricity meters.

Source and Image: me-solshare.com



A NEW STORY TO SPARK

THE FUTURE OF CLIMATE ACTION

CLIMATE AS GROWTH SPACE

from burden to profitable investment



Ninety-six percent of MBA students at top global business schools think businesses should lead efforts to address climate change, according to a Yale survey of 3,700 students at 29 top business schools across five continents.

Source and Image: ctbey.yale.edu



Morocco's increasingly ambitious power generation goals—the latest of which is 52% renewable energy power by 2030—has spurred investors, from international development banks funding Morocco's 800MW Noor Midelt solar complex to private firms like Soluna, a blockchain company with plans to develop a 900MW wind farm in the area.

Source: www.reuters.com
Image: wikimedia commons

ORGANIZING WITHOUT ORGANIZATIONS

from formal structures to networked nodes



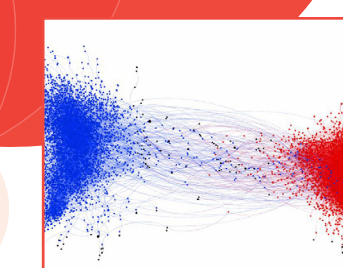
FACT RESISTANCE



ATTENTION SCARCITY

MEDIA FOR GOOD

from computational propaganda to positive persuasion



Researchers find that tweets from "good" bots spread just as quickly as bad ones.

Source: journals.plos.org
Image: nytimes.com

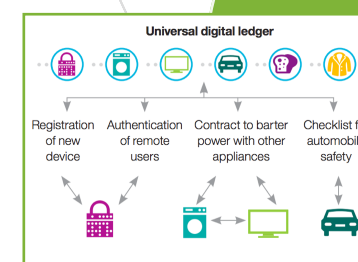


The Cognitive Online Simulation of Information Network Environments (COSINE) project at Indiana University was granted \$4.95 million by DARPA to investigate online information diffusion in complex, massive-scale networks.

Source: cnet.indiana.edu
Image: prns.org

ALGORITHMIC ACTION

from people power to computer collaborators

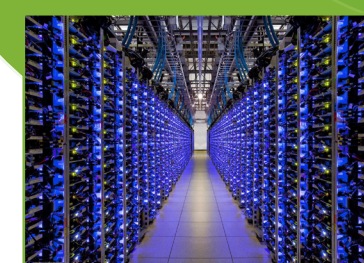


IBM and Samsung developed a proof-of-concept using their ADEPT (Autonomous Decentralized Peer-to-Peer Telemetry) protocol to enable a washing machine to autonomously negotiate energy use with the grid so as to avoid peak power usage.

Source: insights.samsung.com
Image: ibm.com

DeepMind AI, a powerful machine learning system, has reduced the energy used to cool Google's massive data centers by up to 40 percent by automating dynamic energy consumption.

Source: deepmind.com
Image: unbottmgroundswell.blogspot.com



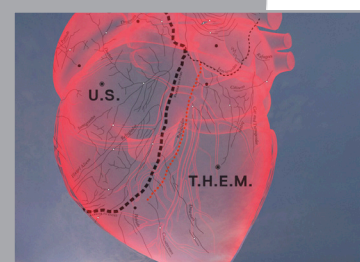
IMMERSIVE NEWS

from distant facts to intimate impact



The Earth Journalism Network in February 2018 launched a three-year project to help journalists, educators, and activists create and distribute reliable, actionable information to increase climate resilience in vulnerable communities in the Bay of Bengal region.

Source and Image: earthjournalism.net



Alejandro G. Iñárritu's Oscar-winning conceptual virtual reality installation CARNE y ARENA places visitors inside an encounter between immigrants and police on the US-Mexico border, transforming reportage into immersive experience.

Source and Image: lacma.org/carne-y-arena



LEGACY ENERGY

Ghana's Strengthening Accountability Mechanism (GSAM) project, funded by USAID, holds local governments accountable for progress on capital projects like construction of classrooms and clinics by equipping citizens with tools to collect firsthand data.

Source: gsamproject.org
Image: facebook.com/gsamproject



The Organized Crime and Corruption Reporting Project harnesses a global network of independent journalists and citizens to conduct cross-border investigations that expose hidden corruption via projects like the Panama Papers.

Source: occrpp.org
Image: facebook.com/occrpp.org



WATCHFUL EYES

from institutional authority to crowd oversight

RISE IN DISPOSABLE INCOMES

CONSIDER THE CONSEQUENCES

WHAT IF IN 2030

the environment is a friend you can chat with every day?

In daily life most people think of the Voices of Nature (VoNs) as nature spirits, but in reality they are sophisticated artificial intelligence networks that pull together readings from environmental sensors embedded in trees, soil, and smartphones and carried on drones and migratory animals. Some of the world's best dramatic storytellers turn the data into colorful, personality-packed updates for social media. A tree-based VoN in New Delhi who brags about cooling the overheated air and reducing particulate matter made history when its follower count surpassed that of India's top cricket player.

It's estimated that more than 40 percent of the planet's youth have at least one VoN app, and about half of them collect local data to feed back to the network. Like other celebrities, VoNs endorse brands they love and encourage audiences to boycott companies harming the personified environment. VoNs have given nature a voice and are using that voice to rally a global network of human friends to defend their cause.

WHAT IF IN 2030

anyone can trade energy through a local grid?

The boom has finally cooled off and people are no longer making fortunes on open-network grids. It's not that it's no longer profitable but simply that everyone seems to be doing it these days, from young entrepreneurs building profitable businesses with the latest solar technology to elders with a single panel helping stretch their savings a little further.

In the early 2020s, blockchain systems finally got reliable and user friendly enough that distributed solar grids became a popular way to power cities. At first, it was the tech savvy who were buying up cheap rooftops in Lima, Lagos, and Kuala Lumpur and making piles of cash selling clean energy. But just like with bitcoin mining, a few big success stories attracted a lot of interest.

The demand for energy is near endless, and these grids are a stable source of income for a lot of people. Even in places where local investment capital is low, the demand for cheap energy is high, and the low buy-in cost means anyone can be a green entrepreneur.

WHAT IF IN 2030

bots are a force for good?

The same tools once used by people to influence elections are now used by civil society groups to influence popular opinion in an open, transparent, and beneficial way. The new benevolent bots focus on verifying the truth of statements, finding connections among diverse communities, and amplifying the stickiest grassroots messages.

It all started with young climate activists. Teenagers in the Maldives whose families were hit hard by rising sea levels created a mini-movement documenting their struggles and solutions in simple, powerful memes and videos. An open-source bot started connecting them with teens in Vietnam, Egypt, and Miami whose profiles signaled the same needs. Facebook and WhatsApp, seeking to rebuild trust and expand their reach with teen audiences, explicitly jumped on board to help, opening up their APIs.

Now, global connections for climate activists are the fuel that allows most projects to go forward. Benevolent bots make these connections possible.

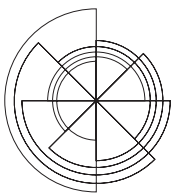
WHAT IF IN 2030

our devices guide us towards climate-friendly decisions?

Behavioral optimization software systems (BOSSes) have become commonplace across a range of applications, but perhaps their most profound impact has resulted from tens of millions of users adopting what are known as green BOSSes.

First-generation green BOSSes guided users to make choices they would have found too complex to make on their own, such as planning the week's grocery shopping around optimally low-carbon ingredients. Second- and third-gen BOSSes introduced AI algorithms that guided massive groups of people to make almost unnoticeably small adjustments in virtually all of their daily habits, with effects that shocked even the most optimistic BOSS evangelists.

Top algorithm designers say they can't always understand the linkages their AI makes between cause and effect, but scientists agree that green BOSS adoption has driven down key climate change indicators more than any other factor. Nudging people towards climate-friendly behaviors has made doing the right thing effortless.



FRICITION POINTS

obstacles hampering climate change action

We need to write a new narrative of climate change action. A narrative that compels, empowers, and attracts people across industries and geographies to think of climate change not as an intractable problem, but as a space for innovative solutions. This map helps to navigate this space by examining all the influential elements of the next decade of climate action, including the **Friction Points** that interfere with climate action responses.

LEGACY ENERGY

Fossil fuel-based patterns of consumption and approaches to economic growth are deeply embedded in national political and regulatory systems. Decarbonization won't happen without a fight.

SHORT-TERMISM

The natural human tendency to focus on the here and now gets amplified by climate-related fear, passivity, and apathy, that drown out long-term thinking.

RISE IN DISPOSABLE INCOMES

Economic growth brings with it rising demands for all types of consumer goods, putting increasing strain on resources and expanding outputs of CO₂.

ATTENTION SCARCITY

As we become increasingly overwhelmed by rapid, flashy media cycles and addictive entertainment, it becomes more and more difficult for climate dangers to break through the noise.

FACT RESISTANCE

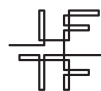
Science, journalism, and other fact-gathering institutions are challenged by rampant misinformation, that turns policy debates into polarized shouting matches.

PROTECTIONISM

Economic and political nationalism reduce the public appetite for financing cross-border solutions to planet-scale problems.



www.climateinvestmentfunds.org



INSTITUTE FOR THE FUTURE

www.iff.org

Special thanks for contributions from our partners at Impossible Labs.

© 2018 Institute for the Future. All rights reserved. All brands and trademarks remain the property of their respective owners. SR-2037A | CC BY-NC-ND 4.0