

RESPOND AREAS OF ACTION 2023

RESPOND ACCELERATOR
COHORT #4



A PROGRAM BY

BMW Foundation
Herbert Quandt

OPERATED BY

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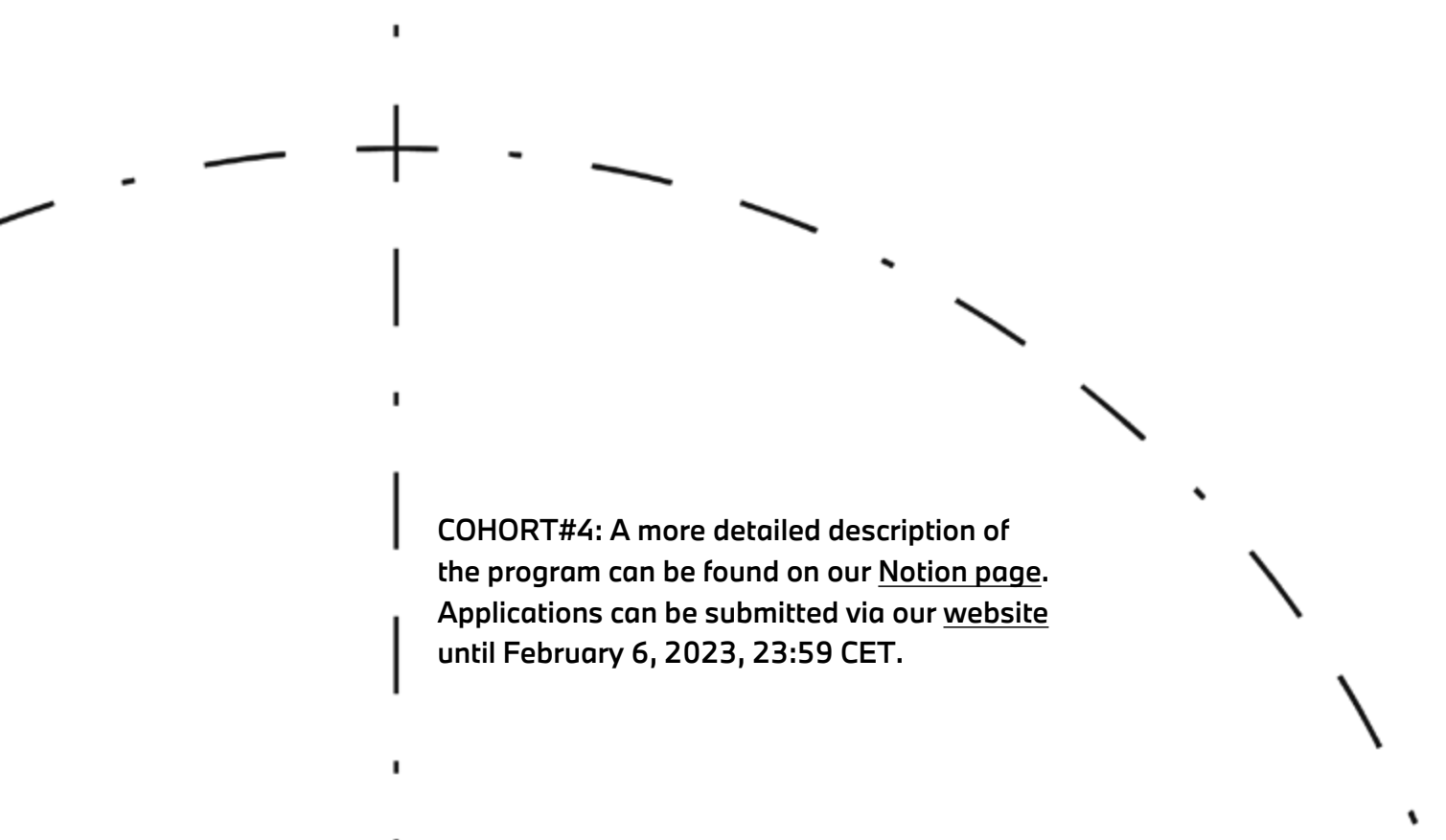
RESPOND

A BMW FOUNDATION Herbert Quandt Program

RESPOND is the first accelerator that drives the transformation towards a regenerative economy and promotes Responsible Leadership.

We're an international startup accelerator program that systematically advances how entrepreneurs lead, grow, and scale sustainable businesses. We support founders through coaching and mentoring, leadership development, our global network, and brand visibility – free of charge and without taking equity.

Out of 5,000+ screened ventures and 1,000+ applications, 30 startups from 13 countries have been selected for **RESPOND** so far.



COHORT#4: A more detailed description of the program can be found on our [Notion page](#). Applications can be submitted via our [website](#) until February 6, 2023, 23:59 CET.



INNOVATION AS THE KEY TOWARDS REGENERATIVE CO-EVOLUTION

We live in the Decisive Decade for climate action. In recent years we've also entered the Disruptive Decades: a period of time in which we find ourselves at a critical rupture point, oscillating between breakdown and breakthrough. A time of great turbulence and transformation, the outcomes of which will be determined not only by how well we're able to leverage our technological capabilities to reduce emissions and tackle multiple environmental crises, but equally by how we transform society's organizing systems. Whereas our technological capabilities determine a civilization's potential, it's our organizing systems – such as our economic, governance, and financial systems – which determine how close to this potential a society can get.

The paradigms that we've adopted to govern our economies and run our businesses have in recent decades put us on a path towards an accelerated model of "degenerative economics" – a path that has led to a point where we're now facing multiple planetary and social crises, including climate breakdown, pollution, biodiversity loss, and deep social inequity.

Aiming for net zero carbon emissions by 2050 is therefore only one step towards overcoming our current escalating predicament. Rather, we'll have to set our eyes on nurturing a positive relationship with our planetary ecosystems. This involves embracing a regenerative worldview, in which the goal of net zero becomes a stop-off on the longer journey to co-evolve with our changing climate and create the conditions for life to flourish, thrive, and renew into perpetuity.

In doing so, we see the role of regenerative practices and innovation as a means to co-create, experiment, elevate, and respond to the challenges at hand in a dynamic and partly


unpredictable process of co-evolutionary development, in which progress and well-being are very much a two-way street.¹

Although there's certainly a need for immediate action, the scale of the required interventions also necessitates change in broader systems²: those that may still represent the dominant way of "how things are done here" and often help enable the status quo. This means we have to simultaneously work within existing systems that are gradually breaking down, while nurturing the conditions for new onto emerge.

The RESPOND Accelerator supports the transition to a regenerative future by helping impact-driven entrepreneurs to strategically address critical leverage points in the system, to scale and to succeed.

¹ BMW Foundation RESPOND (2022), "Putting the Climate Emergency into Perspective: From Breakdown to Breakthrough – a Short Primer on Embracing Regeneration": https://respond-accelerator.com/wp-content/uploads/2022/12/Briefing_Report_RegenerativeEconomics_digital.pdf

² Examples of systems include our economic system, the health care system, the education system, the mobility system, the food (production) system, and so on.



RESPOND

AREAS OF ACTION 2023

For 2023, we've defined three crucial leverage points to move our systems towards a regenerative economy. We're looking for leaders behind innovations that

- (1) Protect and Restore Ecosystems
- (2) Transform Industries
- (3) Reboot the System

1 PROTECT & RESTORE ECOSYSTEMS

WE'VE HIT THE LIMITS OF PLANET EARTH

We're looking for creative, tech-based approaches that support the adaptation and regeneration of ecosystems. These can be, for example, solutions to mitigate climate change impacts and help ecosystems to adapt and regenerate. We see huge potential in emerging technologies that capture carbon, reduce waste, and promote biodiversity while addressing resource scarcity.



WHY THIS IS IMPORTANT

The recent COVID-19 pandemic has reminded us of the intrinsic and intricate links between mankind and the natural environment upon we depend, and how its destruction undermines our own ability to thrive. Moreover, the natural resources this environment provides are vital to nearly everything we create or consume. They've been fueling tremendous economic growth in the past two and a half centuries, beginning with the first industrial revolution. Particularly in the past 50 years, the extraction of raw materials has surged rapidly, currently with no prospect of diminishing global demand.

This trajectory of runaway growth of "linear" global raw material production and consumption has been impacting humankind's future ability to thrive in two ways: First, a growing number of raw materials, some of which are labeled as "critical" for

economic purposes, are under threat from increased use. Second, our limits to future raw material use are not only determined by direct scarcities in physical stocks but also by the detrimental effects of their use which has started to affect society in unacceptable ways. Resource extraction and processing, as well as their (excessive) consumption, are estimated to contribute to over 90 percent of global biodiversity loss and water stress and more than half of the effects of climate change.³ This includes, e.g., the agricultural sector, with animal farming responsible for nearly 15 percent of GHG emissions,⁴ which is greater than all transport emissions combined. Furthermore, a considerable part of deforestation is driven by the desire to free up more land for agricultural commodities. High CO₂ levels, agricultural runoff, and plastic pollution also contribute to acidifying and choking the oceans.

Global discussions about climate change, biodiversity loss, and freshwater scarcity often continue to overlook raw material demand as a systematic cause of present-day or future harmful impacts. It was only in 2018 that the International Panel for Climate Change (IPCC), in its special report on the impacts of global warming of 1.5°C above pre-industrial levels, emphasized the interconnection between high consumption levels, unsustainable use of resources, and global warming.⁵

As a result, our never-ending hunger for resources has now led to the sixth global wave of mass extinction to hit our planet in the past 440 million years, with the current wave having the potential to wipe out over three-quarters of all species over the course of just a few hundred years. Whereas the previous five waves were fueled by natural causes, our current predicament is almost entirely human-made. The rapid degradation of nature also fuels an increase in zoonotic diseases such as dangerous viruses, as wild animals come in even closer contact with humans due to ongoing habitat destruction.

³ UNEP (2019), "UN calls for urgent rethink as resource use skyrockets," <https://www.unep.org/news-and-stories/press-release/un-calls-urgent-rethink-resource-use-skyrockets>

⁴ FAO (2023), "Key facts and findings," <https://www.fao.org/news/story/en/item/197623/icode/>

⁵ IPCC (2018), "Global Warming of 1.5°C," <https://www.ipcc.ch/sr15/>



of current food production is almost impossible without encroaching further on remaining natural areas. A breakthrough will have to come from order-of-magnitude improvements in technological capabilities, one that will dramatically decrease our dependency on transforming specific resources.

And this future is already here: innovations such as precision fermentation and cellular agriculture can help us shift from a model in which we grow plants and animals to break them down into the things we need to a creation-based model whereby foods can be built up from precisely-designed molecules and cells. This could have profound impact, allowing as much as 70 percent of agricultural land and water currently used for animal husbandry to be freed up for alternative uses.⁷

Next, imagine what could be done with all this land if we had the technologies to leverage nature-based solutions to restore biodiversity and drawdown huge amounts of CO₂e from the air. After all, getting to net zero is not sufficient – we should also aim to return atmospheric concentrations of CO₂e to safe levels as already emitted greenhouse gases will continue to drive global warming (and its impacts) for a long time to come.

Moreover, nature-based and regeneration-driven solutions show us how we can truly work with rather than against nature. Innovative programs from, e.g., reforestation to coral restoration have shown us the immense potential for such solutions to provide multiple and long-lasting benefits for both nature and local communities. And often these come at a considerably lower long-term cost than man-made “hard” infrastructure that provides us with similar services.

This is why RESPOND is calling on those who dare to dream big and put experimentation and reimagination at the center of their approach to regenerate our ecosystems, restore balance, and create conditions where all of life can thrive.



Nonetheless, just as humans have actively designed their separation from the natural world, we can aim to reverse-design this to bring our connection to the natural world back in.

WHY INNOVATORS ARE A CRUCIAL PART OF THE SOLUTION

It's easy to underestimate the potential for innovation to lead to rapid and widespread disruption of current paradigms. History shows us long periods of relative technological stability, punctuated by rapid technological and resulting economic and social transformations. Conventional thinking therefore often assumes relatively steady and incremental rates of technology uptake. Instead, the reality of how disruptive technologies spread resembles more an S-curve, in which we see exponential growth because of rapid feedback loops.

Together with declining costs and the superior capabilities of such new technologies, they can become dominant in just one to two decades – or sometimes much shorter periods of time. And with many solutions embracing a more decentralized and democratized approach, less-developed nations may finally be able to leapfrog over previous barriers to human development and level the playing field.

And yet, with the clock ticking on many of our most pressing environmental challenges, it's all hands on deck to keep humanity in the “safe operating space”,⁶ and embracing innovation from the edges will be crucial. As we start to respond to the call to reimagine our shared future, innovators show us what this new future may look like by setting their sights on new frontiers and charting new territory.

Let's imagine, for instance, that we can move from an extraction- to a creation-based system of resource production with an exponential decline in cost and an equally exponential increase in efficiency. Take, for example, our food system, which has contributed to, among other things, soil degradation, deforestation, and increasingly unstable ecosystems. Despite a rapidly growing global population, the geographical expansion

⁶ See the work of Kate Raworth (Doughnut Economics) to read more about the safe operating space for humanity.

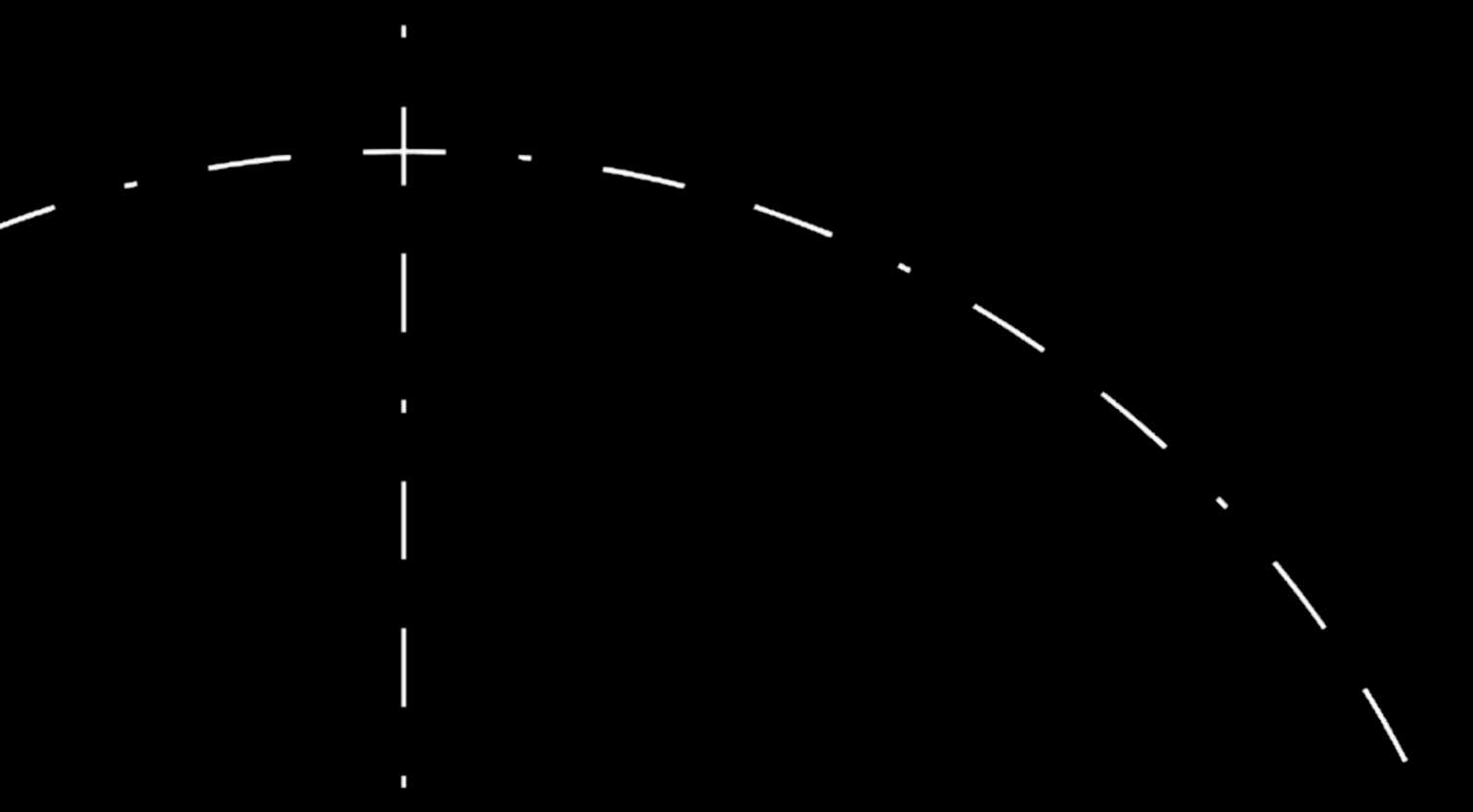
⁷ Parts of this section have been inspired by RethinkX's “Climate Implications” report, available at <https://www.rethinkx.com/climate-implications>.

1 PROTECT & RESTORE ECOSYSTEMS

WE'RE INTERESTED IN INNOVATIONS:

Here are some examples of what we're interested in. Don't let this deter you: this is by no means meant to be an exhaustive overview of what we're looking for, however we are keen to see concepts that have the potential to be truly transformational and which push the boundaries of 'how things are done here'.

- | operating in the space of massive carbon drawdown by leveraging (natural) carbon sinks
- | focusing on switching from extraction-based to creation-based production of agro-commodities
- | focusing on nature-based solutions, including biomimicry-inspired innovations
- | focusing on holistic landscape regeneration as a powerful means of responding to the multiple crises of our time
- | focusing on preserving the genetic diversity of threatened flora and fauna species, e.g., Frozen Ark or seed banks; or using satellites, GPS, or automated acoustic devices to track
- | real live migration movements, animal vocalizations, deforestation activities, etc.



2 TRANSFORM INDUSTRIES

THE INDUSTRY LOGIC OF TAKE-MAKE-WASTE IS FAILING US

We're looking for solutions that encourage fair and sustainable production processes - whether by reducing energy consumption and CO2 emissions, extending the lifecycle of products, creating local supply chains, or through other innovative approaches. Founders can contribute to this in several ways: from promoting transparent supply chains to implementing circular resource flows to designing sustainable processes and materials.



WHY THIS IS IMPORTANT

The extraction and processing of materials to turn them into finished products accounts for over one-third of global GHG emissions, making it the world's second largest source of emissions after the energy sector. Just five materials – steel, cement, aluminum, plastics, and chemicals – are responsible for nearly two-thirds of current industry emissions, and the total volume of these so-called embodied emissions is still going up.⁸ Global steel production, for instance, more than doubled between 2000 and 2020. Fossil-fuel based plastics production has also doubled in the past two decades, and there is a surge of new plastic production plants because of the important role plastics play in packaging, electronics, fashion, automotive and other sectors. As demand for these materials continues to increase, current measures to reduce the energy and CO₂ intensity of production are being outpaced by increasing emissions from higher levels of production.

Moreover, in March 2020, the World Bank warned that the ambitious 2050 goals of curbing carbon from operational carbon emissions - such as in construction, transport and energy - are liable, if not managed properly, to substantially increase resource pressures, exacerbate deforestation, increase fresh water use and waste generation, and raise embodied carbon emissions as a result of the tremendous volume of metals and minerals mining that are expected to be required between now and 2050 to fuel the renewable energy transition.⁹

Among the more technical reasons for why we are operating a production and consumption system with immense inefficiencies and externalities are our heavy dependence on non-renewable resources such as fossil fuels; the historically low levels of recycling and repurposing of in-use resources, with only an estimated 9 percent of resources globally returning to the economic system after end-of-use; and the major inefficiencies that are built into many parts of the system, examples being single-use packaging, the low utilization rates of many assets from passenger vehicles to washing machines, office buildings that sit empty after hours, or fashion items that are thrown out after just a few uses.

Measures to deal with these adverse aspects often focus on either cleaning up the supply side or reducing direct demand related to existing products and services. This, however, often only leads to incremental improvements at best. It's far more interesting to understand the real need that a product or service is trying to meet and to use innovation to satisfy those needs in novel and transformative ways.

After all, we don't actually need light bulbs; what we need is light.¹⁰ This is something that innovators in the circular economy realized quite early on, leading to a suite of innovative business

⁸ Mission Possible Partnership (n.d.), "Circular Economy for Net-Zero Industry Transition," <https://ceclimate.weforum.org/>

⁹ World Bank (2021), "Minerals for Climate Action: The Mineral Intensity of the Clean Energy Transition," <https://pubdocs.worldbank.org/en/961711588875536384/Minerals-for-Climate-Action-The-Mineral-Intensity-of-the-Clean-Energy-Transition.pdf>

¹⁰ In the early 2010s, Thomas Rau, an architect and circular economy expert, came up with the concept of Light as a Service (Pay per Lux): instead of selling light bulbs, lighting is offered as a service. The idea here is bringing about a change in perspective, taking as starting point the need rather than the means, in order create new insights and ways of serving people's needs.

models that put the focus on the customers' needs rather than the means to get there first. So, let's put a spotlight on how we can bring about a society that does not conflate the means with the ultimate goal, which is for humanity to thrive within the "safe operating space"¹¹ of our planetary ecosystem.

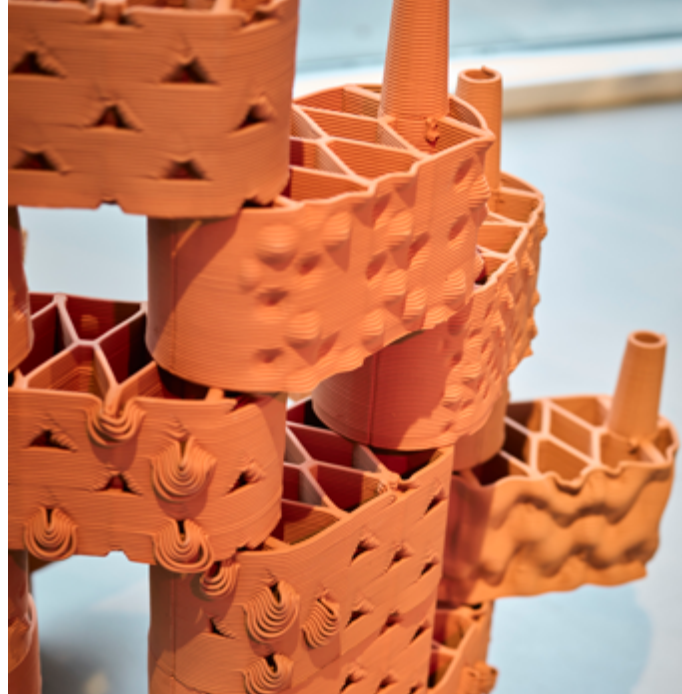
WHY INNOVATORS ARE A CRUCIAL PART OF THE SOLUTION

By now it's clear that our modern world appears to have an insatiable demand for more virgin resources, more energy, and in fact more of everything that can be consumed. And the more we consume, the more we seem to pollute and emit as the promised decoupling between economic growth and, e.g., carbon emissions has yet to truly materialize. With gross domestic product (GDP) having become a shorthand for economic progress, even though it merely represents the monetary value of goods and services in an economy, we basically reward ever greater consumption as a sign of economic well-being.

A few percent of annual GDP growth – which is what most countries still strive for - may not seem like much; however, if we continue the current recipe, we will, in a span of just 25 years, approximately double the amount of energy and materials we use as well as the amount of waste we generate. And if we double this again every 25 years, we will be using 16 times as much a century from now. One day, however, we will hit the final doubling;¹² and when that happens, businesses will go bankrupt, investment funds will go broke, unemployment will soar, and in the worst case we may go to war over whatever useful resources are left.

The solutions to these problems often evoke visions of austerity and of a future in which we have to drastically reduce consumption while at the same time developing technologies that use and pollute less. Nonetheless, a rapid reduction at that scale would wreak such economic havoc that it would stifle the capital available to drive innovation.

However, it does not need to be that way: rather than seeing market forces as working against us in the desire to transform to



a regenerative economy, we can leverage and accelerate them for our benefit. This is exactly what innovative entrepreneurs are doing by redefining and reinventing how we can best serve human needs, in ways that are both radically more efficient and effective. The convergence and multiplier effects of these solutions have the potential for widespread impact across society.

Such system innovators can be characterized as "radical reframers," disrupting dominant and conventional ideas around how resources can be deployed and creating novel alternatives. In doing so they often mobilize a wide suite of resources across society: tangible and intangible, financial and human resources, public and private, new and old technologies, supply and demand side. This in turn shows to others how things can be reconfigured in new and better ways, allowing the innovation to act as a "visible attractor" that can fuel a wave of investment in the opportunity that has just opened up.¹³

Think, for example, how cars replaced horses after thousands of years of being the dominant transport mode. This didn't just change our means of transportation but the entire system around it. In essence it led to a paradigm shift and with it a massive transformation of the transport system that had ripple effects across many sectors. The same has happened with information and communication technology over the past 70 years: as many continue to look for solutions within the prevailing model, innovative entrepreneurs instead look well outside the box at completely novel approaches.

As Albert Einstein famously said: "We cannot solve problems by using the same kind of thinking we used when we created them." If you're the kind of leader that's stepping out of our cultural comfort zone and pushing the status quo, RESPOND is interested in hearing from you.

¹¹ See the work of Kate Raworth (Doughnut Economics) to read more about the safe operating space for humanity.

¹² See the work of environmental economist Herman Daly and the blog entry by Richard Heinberg (2022), "The Final Doubling," <https://www.postcarbon.org/the-final-doubling/>

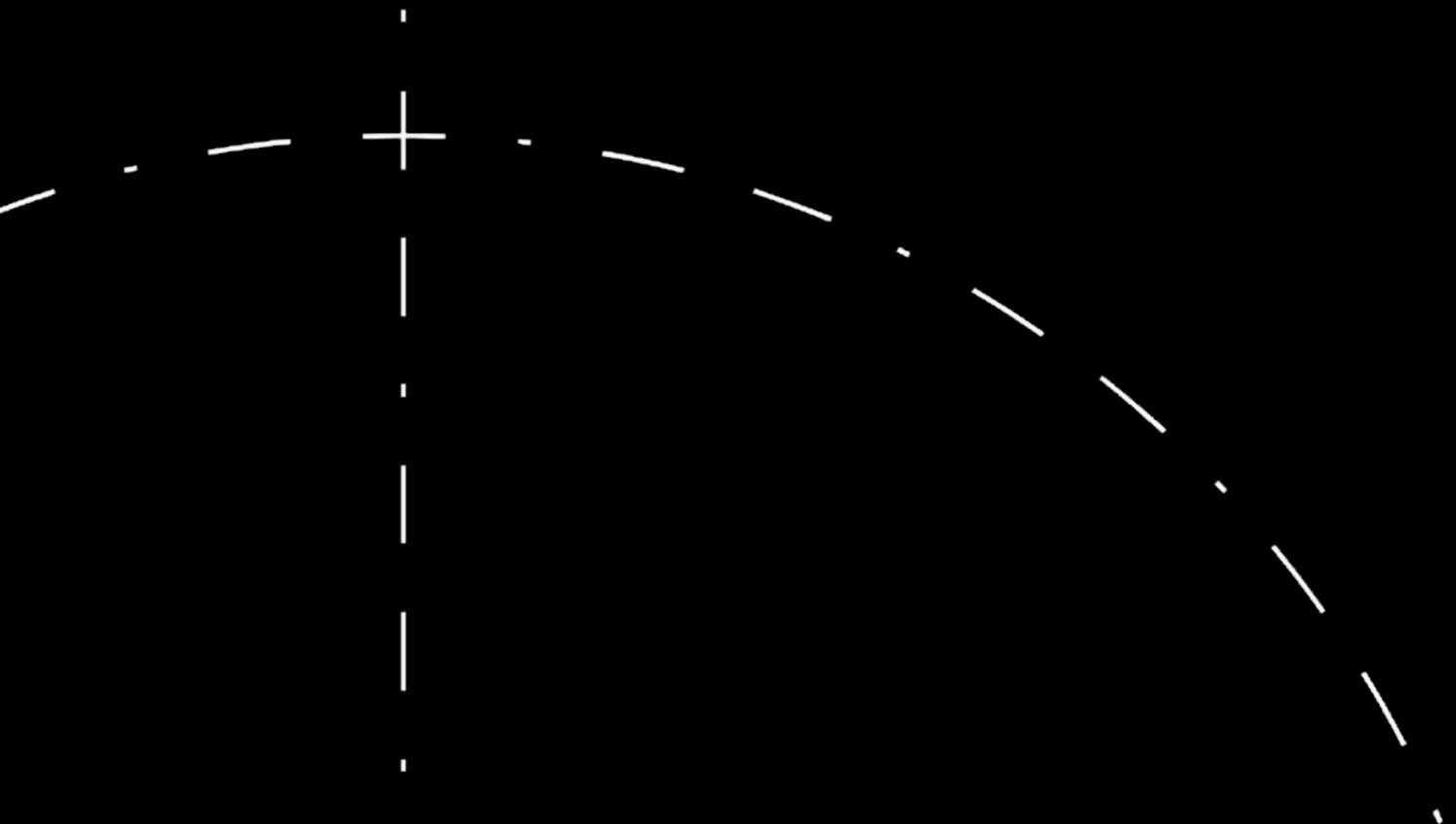
¹³ Jennie Winhall and Charles Leadbeater (2022), "Resourcing Systems Innovation," <https://www.systeminnovation.org/article-resourcing-systems-innovation>.

2 TRANSFORM INDUSTRIES

WE'RE INTERESTED IN INNOVATIONS:

Here you can find a few examples of what we're interested in. These areas of interest are definitely not set in stone – rather they provide a flavor of innovations that have the potential for unlocking widespread technology-driven societal change and can help us overcome what may sometimes seem near-insurmountable challenges.

- | operating in the space of massive carbon drawdown by leveraging technology for carbon capture
- | focusing on switching from extraction-based to creation-based production methods, “building” materials and products from the molecular structure up
- | that serve human needs in novel and innovative ways by transforming the system through which these needs are provided as products or services
- | using bio-mimicry, circular, regenerative or similar approaches to solve material and/or product level challenges in carbon or resource intensive sectors
- | that provide novel solutions to overcoming sticky supply chain challenges.



3 REBOOT THE SYSTEM

THE ECONOMY IS DESIGNED TO PRIORITIZE PROFIT

Innovative answers to our systemic crisis can help us rewire business and finance, redesign processes and governance models, and fundamentally align economic activity with planetary and social wellbeing. From decentralization, web3 and A.I. to community-driven ecosystems and democratic participation, we're on the lookout for technological answers to systemic problems.



for humanity to bring patterns of life back to a positive relationship with the Earth.

Crises, however, play an important role in fueling system innovation, because they expose the underlying strains in current systems and create windows of opportunity in which solutions previously thought of as impossible may suddenly find fertile ground. While the COVID-19 pandemic has been a wake-up call for many and accelerated change across various sectors, at the same time it has also shown us that the economic uncertainty in the wake of a crisis can easily result in decision-makers taking short-sighted decisions. As they're firefighting in response to current priorities, their focus isn't necessarily on ensuring long-term beneficial environmental and societal outcomes.

While there are many forces at play at the macro-economic level that will keep actors tied to the current systems and ways of doing, it's at the micro level that we see innovators stepping beyond these boundaries and performing acts of radical innovation: acts that contain a kernel for a different kind of operating system and that have the potential for creating a catalytic effect and shifting the way that our larger systems work.¹⁴

WHY THIS IS IMPORTANT

We live in an economy in which maximizing profit is incentivized, whereas operating within planetary boundaries and fostering community resilience are not. A major culprit is the way we have organized our current economic system. Built on a short-sighted and linear model of extraction and exploitation, in which externalities remain mostly unaccounted for, today's economy is fragile and deeply exposed to shocks — a model unfit and lacking the resilience for 10 billion people to thrive on the only planet we call home.

Although our profit-first driven model claims to create affluence, it does so through wealth concentration rather than distribution. Looking at the OECD, which is almost exclusively composed of higher-income nations, income inequality is the highest it's been in several decades. Despite continued GDP increases, in many OECD countries ratings of life satisfaction and happiness have actually deteriorated. Add to this the fact that a rising number of people worldwide are struggling to retain access to basic services such as energy, clean water, and nutritious food.

Highly unequal societies often aren't hotbeds of beneficial innovation; rather, they're rife with fights for power and wealth while the rest tries to survive. In this regard, the climate crisis as well as the equity crisis are just two aspects of a larger imperative



¹⁴ See the Rockwool Foundation's System Innovation Initiative at <https://www.systeminnovation.org/>.

WHY INNOVATORS ARE A CRUCIAL PART OF THE SOLUTION

Even though some may argue that the rapid transformation required to prevent environmental and social catastrophe can only be accomplished by the institutions that are already in place, we should focus our efforts on supporting alternative solutions that hold the potential to succeed those that are systemically failing.

Here, entrepreneurs play a crucial role as pioneers and pathfinders, as they're often the first to step into a future system without really knowing what the actual pathway to change and its next steps may look like. Those innovators who put mission before market are doing truly trailblazing work by constructing new "minimum viable systems" which show us a way forward into a new leadership paradigm, smoothing the way so that others can follow.

These approaches tend to be local and need-based rather than means-based; and they are solution- rather than problem-oriented, looking beyond sector or institutional boundaries. The people behind them may also seek out collaboration with unusual suspects and tactically make use of the right moments to introduce a radically new concept. Overall, they don't shy away from tackling larger, complex problems rather than settling for more specific, small-scale solutions.

In recent years, a wide array of such novel and radical solutions has emerged which challenge the fundamental beliefs and structures of our contemporary operating systems: from blockchain to Web3, from decentralized finance to the emergence of novel democratized governance models. Although often still experimental, many of them share the core premise of putting power into the hands of the consumers and communities closest to the context and allowing them to determine their own values and future.

Consider, for example, regenerative finance (ReFi), where money is seen as a tool through which to address systemic problems, supporting the creation of systems that restore and preserve natural resources and the communities living alongside. ReFi is anchored in decentralized finance, pointing



to the democratization of financial goods and services, thereby taking a relationship-based rather than transactional approach to finance. Its rapid emergence is being galvanized by a desire to address the failure of traditional markets to effectively allocate resources and account for negative impact.

Another promising technology is the emergence of Web3, which upends the power structure of the current World Wide Web, shifting it back to its users. Rather than centralizing control in large platforms and aggregators, control is widely distributed through blockchains and smart contracts which help establish collective intelligence at scale. Although the jury is still out on whether Web3 provides the blueprint for our digital future, its emergence could certainly mark a shift in business models by making disintermediation – e.g., the removal of intermediaries - a core element, thus giving users and creators the upper hand and fostering the collective democratization of innovation.

Let this serve as an inspiration for trailblazers and path-finders, who are comfortable with discomfort in the search for new answers. To those who understand that our current operating systems are merely human constructs rather than fundamental truths and can therefore be reimagined and reinvented: we're looking for you!

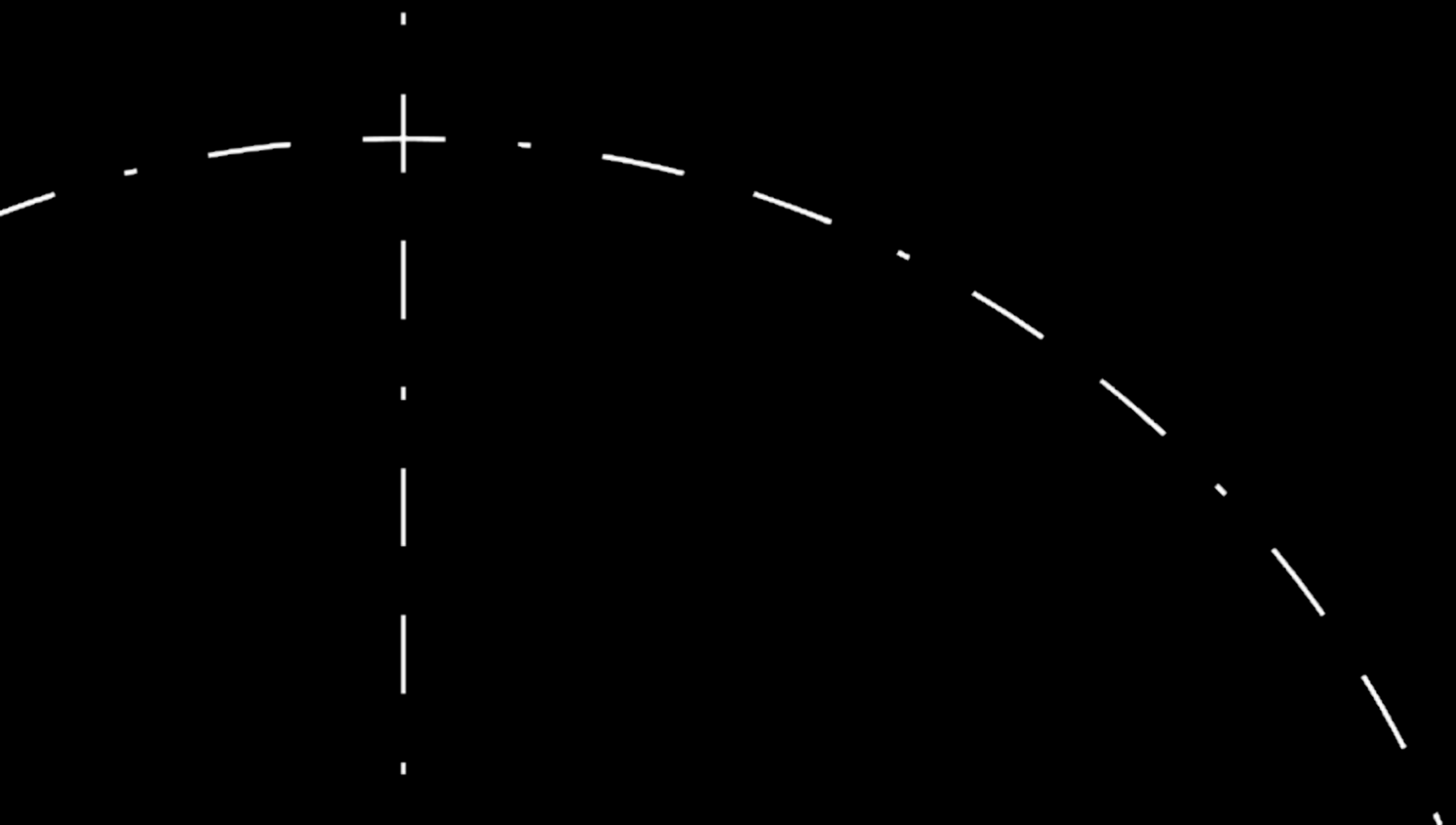


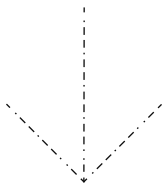
3 REBOOT THE SYSTEM

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- | Innovations using Web3 technology to reverse degeneration and foster regeneration of natural and societal systems
- | Innovations leveraging decentralized technologies and approaches to empower local change makers to tackle sticky climate and other environmental challenges
- | Innovations creating alternative governance systems that provide or revive more regenerative ways of value creation
- | Innovations building novel solutions which support democratic ownership, optimize community benefit, and foster radical inclusion.





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