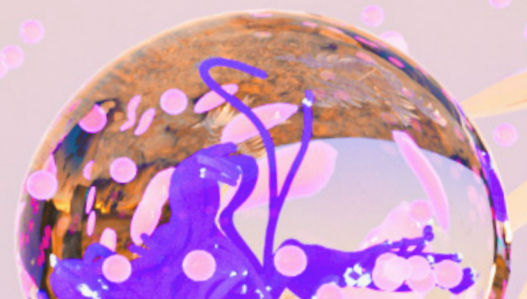


2022 Sustainability Report

Caring at Ginkgo

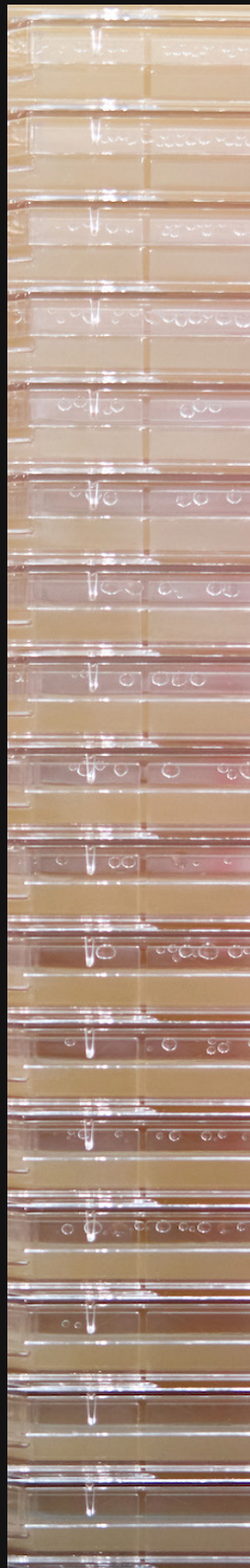


Biology is the
native language



of the
environment

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Safe Harbor Statement

This document includes forward-looking statements within the meaning of the federal securities laws. All statements other than statements of historical or current facts, including statements regarding our environmental and other sustainability plans and goals, made in this document are forward-looking. We use words such as “anticipates”, “believes”, “expects”, “future”, “intends”, and similar expressions to identify forward-looking statements. Forward-looking statements reflect management’s current expectations and are inherently uncertain. Actual results could differ materially for a variety of reasons. You should carefully consider the risks and uncertainties described in the “Risk Factors” section of Ginkgo’s quarterly report on Form 10-Q filed with the U.S. Securities and Exchange Commission (the “SEC”) on May 10, 2023 and other documents filed by Ginkgo from time to time with the SEC. These filings identify and address other important risks and uncertainties that could cause actual events and results to differ materially from those contained in the forward-looking statements. Forward-looking statements speak only as of the date they are made. Readers are cautioned not to put undue reliance on forward-looking statements, and Ginkgo assumes no obligation and does not intend to update or revise these forward-looking statements, whether as a result of new information, future events, or otherwise. Ginkgo does not give any assurance that it will achieve its expectations. Website references throughout this document are provided for convenience only, and the content on the referenced websites is not incorporated by reference into this document.

Stakeholder Materiality Assessment, GRI Standards, and Stakeholder Capitalism Metrics

This report contains the results of our stakeholder materiality assessment. It also contains reporting aligned to the applicable Global Reporting Initiative (“GRI”) standards and the World Economic Forum (“WEF”) Stakeholder Capitalism Metrics. As used herein and therein, “materiality” has the definition given to that term by the Global Reporting Initiative. GRI does not define materiality the same as the U.S. federal securities laws. Topics that are material for purposes of our stakeholder materiality assessment and GRI and Stakeholder Capitalism Metrics disclosures are not necessarily material for purposes of the U.S. federal securities laws and their inclusion in our stakeholder materiality matrix or GRI or Stakeholder Capitalism Metrics reporting should not be construed as an admission of materiality for purposes of investment or voting decisions or other purposes.

References to Years and Location

Unless otherwise specified, this report focuses primarily on activities during calendar year 2022. All references to a “year” refer to calendar years. Ginkgo’s fiscal years coincide with calendar years; therefore, information relating to financial performance is referring to calendar and fiscal years, which are the same. Unless otherwise specified, this report focuses primarily on activities that occurred in North America.

Foreword

How We Think About Caring

Biology affects all of us, and we believe cell programming will change the world. Our customers are developing products with far reaching implications in health and the environment. This potential for extraordinary impact, which reaches to the core of who we are and everything about our natural world, requires extraordinary care in how the tools of cell programming are built and used.

It has been about a year since we released our inaugural Sustainability Report, [Caring at Ginkgo](#).

That report introduced our vision for and approach to sustainability, detailed case studies across our ecosystem, and reported on data according to leading environmental, social, and governance (“ESG”) frameworks.

This release is an update to last year’s report, particularly to expand on our perspectives in three areas prioritized by the [Materiality Assessment](#) that helps guide our sustainability reporting: “Platform Governance”, “Ownership and Control”, and “Climate Change Risks and Mitigation Opportunities.” We are also providing updated data disclosures.

As with last year, our report is organized across three main sections:

- “The Impact of Cell Programming”, which describes how Ginkgo seeks to prioritize environmental stewardship throughout its operations and programs;
- “Technology isn’t Neutral”, which sets out Ginkgo’s views on its role in society and in its community; and
- “Ownership is the First Step in Caring”, which outlines Ginkgo’s governance structures and commitment to worker ownership.

We appreciate the chance to share progress, and we will continue to use these reports to spark conversation on how best to ensure our platform is used for positive purposes. Because a future where we can grow everything requires care, transparency, and many voices.



Ryan Morhard
Senior Director, Policy and Partnerships



Megan Palmer
Senior Director, Public Impact



Biology affects all of us

About Ginkgo Bioworks



Quick Facts

Our mission is to make biology easier to engineer.

Ginkgo Bioworks is the leading horizontal platform for cell programming, providing flexible, end-to-end services that solve challenges for organizations across diverse markets, from food and agriculture to pharmaceuticals to industrial and specialty chemicals. Ginkgo's biosecurity and public health unit, Concentric by Ginkgo, is building global infrastructure for biosecurity to empower governments, communities, and public health leaders to prevent, detect and respond to a wide variety of biological threats.

Timeline

Founded
2008

Began trading in 2021
NYSE: DNA

Offices

Boston, MA (HQ)
Cambridge, MA
Emeryville, CA
West Sacramento, CA
New York, NY
Utrecht, Netherlands
Melbourne, Australia

Areas of work

Agriculture
Biopharmaceutical
Governments
Industrials
Nutrition & Wellness

Statistics

1,292
employees

100+
cell programs in 2022

550k+
square ft of foundry

The Power of Our Platform

Our platform helps you discover, develop, and optimize biology for your commercial needs.

Foundry

Our automated facility

Codebase

Our accumulated knowledge

Our People

The power behind the platform

CAPABILITIES & ASSETS

Fully-automated experimental workflows

In-house DNA design, synthesis, assembly, and editing

Massively high throughput strain engineering and testing

High-throughput fermentation capabilities

Partnerships for scale-up and industrial manufacturing

Proprietary chassis, promoters, and cellular components

Billions of DNA & protein sequences across comprehensive databases

Custom software for scalable design of biology

Computational discovery and refining of proteins, pathways, and cells

350+ scientists, engineers, and technical experts

200+ infrastructure, digital tech, and data experts

Our Ecosystem



Our Commitment to our Stakeholders

As practitioners of synthetic biology, we have a responsibility to ensure our platform is used for positive purposes. We work to consider the interests of many different stakeholders when making decisions and advancing our mission to make biology easier to engineer, because their collective success is key for our business to thrive. Below are principles on how we aim to serve each of our stakeholders.

To our stockholders

We are seeking to build a company with enduring long-term value. We aim to make decisions to ensure Ginkgo is the long-term market leader. Advancing our mission is resource intensive. We expect to continue to re-invest cash back into the business to scale our platform and expand into new markets, with a focus on long-term value for the company and its stockholders. Market leadership will enable us to scale, which is critical for our platform's growth. Growth increases our future free cash flows and stockholder value.

To our customers

We are a platform company. We are here to help you program and commercialize cells for your applications of interest, freeing you to focus on the parts of your business that only you can do. We don't seek to develop our own applications and we don't pick winners. In addition to our automation scale efficiencies, we can best enable all customers to be successful by reusing genetic parts and chassis strains across customer programs. This knowledge and technology has long been fragmented and siloed within individual labs and companies, where its full benefits across markets are rarely realized. All of our customers can benefit from the improvements in our Foundry and Codebase.

To our team

The Ginkgo team is and will be our greatest strength. The team is deeply passionate and engaged in our mission. We want that to continue. That's why we chose to implement a multi-class stock structure that permits all employees (current and future), not just Founders, to hold high-vote (10 votes per share) common stock. Ownership is the first step in caring how our platform is used, and as employees, we have an outsized influence on how our platform is developed and deployed. We trust that employees, alongside a strong independent Board of Directors, will make the best decisions for the long-term value of Ginkgo and our mission. We believe that a diverse and inclusive team is the best way to ensure that our platform is used for the benefit of all.

To our suppliers

For many years, we have been bringing together the most advanced automated technologies in our Foundry for reading DNA, writing DNA, assembling DNA, engineering proteins, growing and evolving cells, and measuring and characterizing their performance. We have a history of making long-term purchase commitments for strategic technologies. We want you to be healthy and flourish. We welcome the opportunity to partner with you and collaborate on advancing these technologies.

To the academic community

Thank you. Ginkgo would not be where it is today without the ideas you've pioneered and the students you've educated. We value transparency, and we look forward to a continued mutually beneficial exchange of people, ideas and resources.

To governments around the world

We believe that biology is the key to a more sustainable economy and the long-term health of people and the planet. We are facing global-scale challenges in food, water, climate, and disease. Our food, health, environment, and materials depend on biology, and biology offers opportunities for renewable, regenerative technologies. The sector of the economy based on biological tools and manufacturing—the bioeconomy—is growing rapidly and will have an outsized impact in coming years. Likewise, as we've learned from the COVID-19 pandemic, biology doesn't recognize borders: the only robust national biosecurity is global biosecurity.



To everyone

Biology is beautiful and life fills our world with the richness of all living things. We deeply respect biology and approach our work with humility. A future where we can grow everything requires care, transparency, and many voices. Let's grow together.

Our Approach to Sustainability: Caring How Our Platform is Used

Ginkgo is building a horizontal platform for programming cells across organisms in any market and to address some of the most difficult environmental and societal challenges. We recognize that humans did not invent biology—rather, biology invented us—so we must have humility about the current limits of our understanding.

Engineers often say that technology is neutral; however, we believe that we cannot remain neutral when it comes to the use of powerful technologies—we care about how our platform is used and about the impact it has on the world. Our long-term commitment to care drives our engagement with our customers who seek positive long-term impact, efforts in building large-scale biosecurity technology, and culture and modes of governance.

Our culture is built on care. For us, that means transparency, diversity, employee ownership, engagement, and a deep, humble respect for biology. Transparency is essential to how we operate, to enable sharing of the insights and tools that enable our platform to grow, as well as to build trust and accountability with all of our stakeholders. We have advocated for more transparency in our industry, including supporting

GMO (“Genetically Modified Organism”) labeling, and seek to educate policymakers and the general public about the benefits and risks of synthetic biology through our advocacy efforts.

The following sections elaborate on our perspectives and progress as we work to realize our commitment to caring.



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The Impact of Cell Programming

2022 Update

In last year's report, we shared that we believe each organism we deliver to a customer contributes to the fight against climate change, including by enabling efforts to transition to net zero emissions. This update elaborates on that belief and describes steps we are taking to further understand and apply synthetic biology to fight climate change.

Fundamentally, meeting the targets in the Paris Agreement requires that humanity moves quickly to both cut emissions and also to actively remove greenhouse gasses from the air. Cell programs are

already contributing towards both of these goals, and further advancements on our platform will help accelerate a transition away from an economy based on fossil fuels and industrial raw materials to a more sustainable, bio-based economy.

Governments increasingly view growing the bioeconomy as part of climate action. Last fall, the U.S. government announced a new Advancing Biotechnology and Biomanufacturing Innovation [policy](#) which specifically aims to advance biotechnology and biomanufacturing towards innovative solutions for climate change. Specifically, the White House is [looking to advancements in biomanufacturing](#) to “dramatically decrease GHG emissions, increase carbon sequestration, and develop innovative products”. The [European Union](#), [China](#), [Japan](#), [Germany](#), the [United Kingdom](#), and [Singapore](#) are similarly looking to biotechnology to meet emissions reduction goals.

Biology is joining other climate technologies, such as technologies for renewable energy and electric vehicles, because meeting climate goals (and adapting to the already changing climate) requires that we change the way we make almost everything. Emissions reductions in energy and transportation capture headlines and are essential, but to make it to net zero, all sectors will need to decarbonize, particularly chemicals, food, and agriculture. Cell programming is a key tool to reduce industrial emissions.

According to the [International Energy Agency](#), industrial emissions have risen by more than 70% since 2000, driven primarily by the fossil fuel refining, petrochemical, and plastics industries. In fact, [in the coming years](#), petrochemicals are expected to be the largest driver of world oil demand. Already, according to the [U.S. Department of Energy](#), approximately 20% of every barrel of crude oil, and a significant fraction of natural gas, are used to make non-fuel products. Unless industry can reduce reliance on fossil fuel feedstocks for manufacturing, the world will struggle to reach net zero targets.

Advancements on our platform create new opportunities for our customers to produce products that replace those derived from fossil fuels. We do this by helping enable our partners to use microbes to biomanufacture chemicals, materials, and fuels using novel, lower-cost, more sustainable feedstocks, such as waste, organic byproducts, or co-products from other industrial processes. As a result, it becomes possible to produce these products with 50% - or even 90% - less emissions than traditional, petrochemical based approaches.

The chemicals sector is a major source of industrial emissions. Many industrial chemicals can be produced biologically, and advancements in cell programming are enabling even more of these chemical products to be produced using sustainable biomass resources, allowing

for the elimination of much of the associated emissions. The U.S. government [recognizes this potential](#). Over the next 5 years, the government aims to leverage synthetic biology to produce chemicals and materials with >70% reduced lifecycle GHG emissions over current production practices. Similarly, over the next 7 years, the Administration is calling for biological production of 3 billion gallons of Sustainable Aviation Fuel with at least 50% reduction in GHG lifecycle emissions relative to conventional aviation fuels. Ultimately, in the coming decades, the US aspires to produce at least 30% of the U.S. chemical demand via sustainable biomanufacturing pathways, offering dramatic potential for emissions reductions.

Many of these biomanufacturing pathways are relevant to the pharmaceutical industry. For example, many of the Active Pharmaceutical Ingredients (APIs) - the main ingredients in medicines - are produced via industrial chemical synthesis. Biocatalysis offers a sustainable and often more effective alternative to some of the steps involved. For example, Ginkgo has partnered with [Merck](#) to engineer key biocatalytic enzymes for Merck's drug manufacturing process towards making the API supply chain not only more

secure, but also more sustainable. Over the next 5 years, the U.S. government envisions using synthetic biology to produce at least 25% of APIs for small molecule drugs.

Agriculture is also a major source of industrial emissions. When it comes to climate change, how a country feeds itself is as important as the types of cars on its roads.

According to the [Intergovernmental Panel on Climate Change \(IPCC\)](#), reducing emissions in food and agriculture will require limiting conversion of forest to pasture or cropland for growing feed crops, despite predictions that as much as 30 percent of agricultural land worldwide [could become unsuitable for farming](#) in the coming decades. In this respect, the IPCC further recognizes biomanufacturing of alternative proteins as an option to more sustainably feed the world.

After all, animal agriculture is the largest GHG emitter within the food system. [Experts assess](#) that just an 11% market share for alternative proteins by 2035 would reduce emissions at a magnitude equal to decarbonizing 95% of the aviation industry. That's massive potential. At Ginkgo, we help companies discover and synthesize novel functional proteins, optimize protein production, and scale up protein manufacturing. Motif Foodworks, for example, has leveraged our foundry to make new meatless meat and dairy proteins.

In another example, our cell programs enable emissions reductions by biologically producing ingredients that are traditionally derived from land and resource-intensive agricultural practices. These ingredients are relied on for flavors, fragrances, and even pharmaceuticals. Producing these inputs using synthetic biology ultimately requires less land and results in less emissions. [In one instance](#), a partner saw an average of over 99% reduction in carbon, land, and water footprint when using a bio-based fermentation process to produce a key ingredient, as opposed to traditional, plant-based extraction.

Elsewhere, our cell programs help partners to improve agricultural yields, helping to feed the world in the face of increased droughts and changing weather patterns, while simultaneously reducing greenhouse gas emissions associated with agriculture. For example, biological solutions such as nitrogen-fixing microbes and crop protection agents can be manufactured with fermentation. In the case of nitrogen-fixing microbes, Ginkgo is working with Bayer to develop bio-based alternatives to traditional, synthetic fertilizers which are responsible for approximately 2% of total annual global emissions.

Meanwhile, the capacity for the biosphere to capture carbon is shrinking, and cell programming stands to contribute to approaches to improve carbon uptake, and enable more efficient carbon capture. For instance, soil can be engineered to better sequester carbon, and plants can be engineered for increased CO₂ removal. Engineered organisms are also being used to facilitate the removal and recycling of carbon into value-added products, such as materials and fuels.

Our potential to contribute to these and other emissions reductions activities grows with each additional program brought onto our platform, even when a given cell program isn't directly related to reducing emissions. With each program, our platform can improve in a virtuous cycle and be more readily applied to complex applications for our customers. For example, our Foundry benefits from scale economics that lower program costs, and each cell program also benefits from and generates Codebase, which improves our experimental designs and, ultimately, the odds of technical success. All together, as we scale, we're looking forward to continuing to positively transform industries and help our customers become even more sustainable.

In last year's report, we also shared that we expect that applications on our platform will far exceed our own footprint. We further suggested that no one is exempt from the carbon budget. For this reason, this year, we have completed our first greenhouse gases emissions inventory. Our inventory is focused on emissions at our Foundry, located at our headquarters in Boston, and other related facilities located nearby, in Cambridge, Massachusetts. In total, annual [Scope 1 and Scope 2 emissions](#) associated with these sites equate to the amount of carbon that less than 25 acres of preserved U.S. cropland sequesters annually (according to the [US EPA Greenhouse Gas Equivalencies Calculator](#)).

Moving forward, we will continue to assess environmental impacts associated with our platform and the cell programs we complete for our customers. For example, in addition to emissions reductions, we are also motivated by opportunities to support customers in reducing waste and water use, strengthening supply chains, including through sustainable sourcing and reducing biodiversity loss. We're looking forward to working with our partners, and with technical experts, to more systematically understand impact in these and other critical areas, and we welcome partnership from our customers and other interested stakeholders across the synthetic biology ecosystem.





Biosecurity Update

In 2022, we grew the scale and scope of our biosecurity offering, striving further towards building sustainable global biosecurity infrastructure while continuing to play a leading role in the nationwide emergency response to COVID-19 and developing new tools to support national security and public health.

We launched our biosecurity and public health unit, Concentric by Ginkgo, in 2020 to empower schools and communities across the U.S. with large-scale testing solutions to respond to the COVID-19 crisis, in partnership with state and federal public health authorities. In January 2022, we [acquired](#) Project Beacon to help increase the capacity, availability, accessibility and affordability of COVID-19 testing in Massachusetts. We operated several Express COVID-19 Testing Sites throughout the year, providing state-sponsored testing in areas with demonstrated need.

Through the end of 2022, we [continued](#) to support the national Operation Expanded Testing (OpET) program in delivering fully federally funded COVID-19 testing to vulnerable populations and under-resourced communities across the Northeastern and Southern regions of the United States. This program aimed to promote equity by serving over 1,800 K-12 schools, Historically Black Colleges and Universities, early childhood learning centers, and other congregate settings like correctional facilities, long-term care communities and homeless shelters, across 26 states.

Alongside empowering communities, we also sought to enhance national and global public health efforts. In partnership with Centers for Disease Control and Prevention (CDC) and XpresCheck, we continued to develop the Traveler-based Genomic Surveillance [program](#) (TGS), a monitoring system for detecting new and emerging SARS-CoV-2 variants entering the U.S. via air travel. We began [publishing](#) weekly data on SARS-CoV-2 prevalence and variants, [validated](#) the program's early warning capabilities, [developed](#) new tools and methodologies for monitoring aircraft wastewater, and [contributed](#) to evaluations of pre-departure testing policies.

Through CDC’s partnership, the program’s scope grew as the year progressed. As we anticipated a particularly active flu season in the fall, we [demonstrated](#) proof-of-concept for using TGS infrastructure to collect samples and detect influenza A and B viruses, and determine the feasibility of testing samples for pathogens beyond SARS-CoV-2. As public health officials grappled with the potential impacts of the end of China’s zero-COVID policies near the end of the year, we rapidly [expanded](#) the flight coverage in the TGS program to help fill in the gaps in data from China. TGS covers over 1400 weekly flights from more than 135 countries at nine locations at seven major US international airports.

These developments are emblematic of our vision to build a global pathogen monitoring network, akin to a biological “radar” system, with utility far beyond the COVID-19 pandemic—and this vision really began to take shape in 2022. We know that pathogens don’t respect political borders, so we launched a series of partnerships focused on developing and implementing biosecurity capabilities globally—signing Memoranda of Understanding in Qatar, Rwanda, Saudi Arabia, Botswana, and beyond.

Our biosecurity platform is designed to be versatile, and we added a series of new detection and analysis modules in 2022. Alongside SARS-CoV-2 and influenza detection, we worked to [integrate](#) mpox and multi-pathogen detection capabilities.

We [added](#) state-of-the-art epidemiological data infrastructure to enable us to track, model, and forecast epidemics and associated risks and impacts. This suite of capabilities boosts our impact through both existing programs and new types of projects, such as helping African Risk Capacity [launch](#) a parametric risk insurance product against high-impact epidemic risks. And, together with the Intelligence Advanced Research Projects Activity (IARPA), we [announced](#) the creation of ENDAR, a novel computational platform for early detection and characterization of engineered biology in

complex samples—a tool that could help deter misuse of engineered biology, prevent adverse consequences when engineered organisms are released, and which illustrates biosecurity’s value to both public health and national security sectors.

Incorporating these modules gets us closer to a true global “immune system” for biological threats—not just being able to detect them, but also enabling us to better respond to and prevent them. Alongside our growing biomonitoring platform, we’re expanding our cell programming platform’s ability to help advance the development and manufacturing of cutting-edge medical countermeasures, from vaccines to therapeutics, through partnerships with key biopharma industry leaders.

Even as the COVID-19 public health emergency ends, we feel a tremendous conviction to address harmful biology in all its forms and origins, especially as climate change, ecological disruption, and the increased accessibility of biotechnological tools accelerate concerns over natural and engineered biological risks. We believe that biosecurity is a critical pillar of 21st century security and resilience, and we’re committed to building the global infrastructure we urgently need.

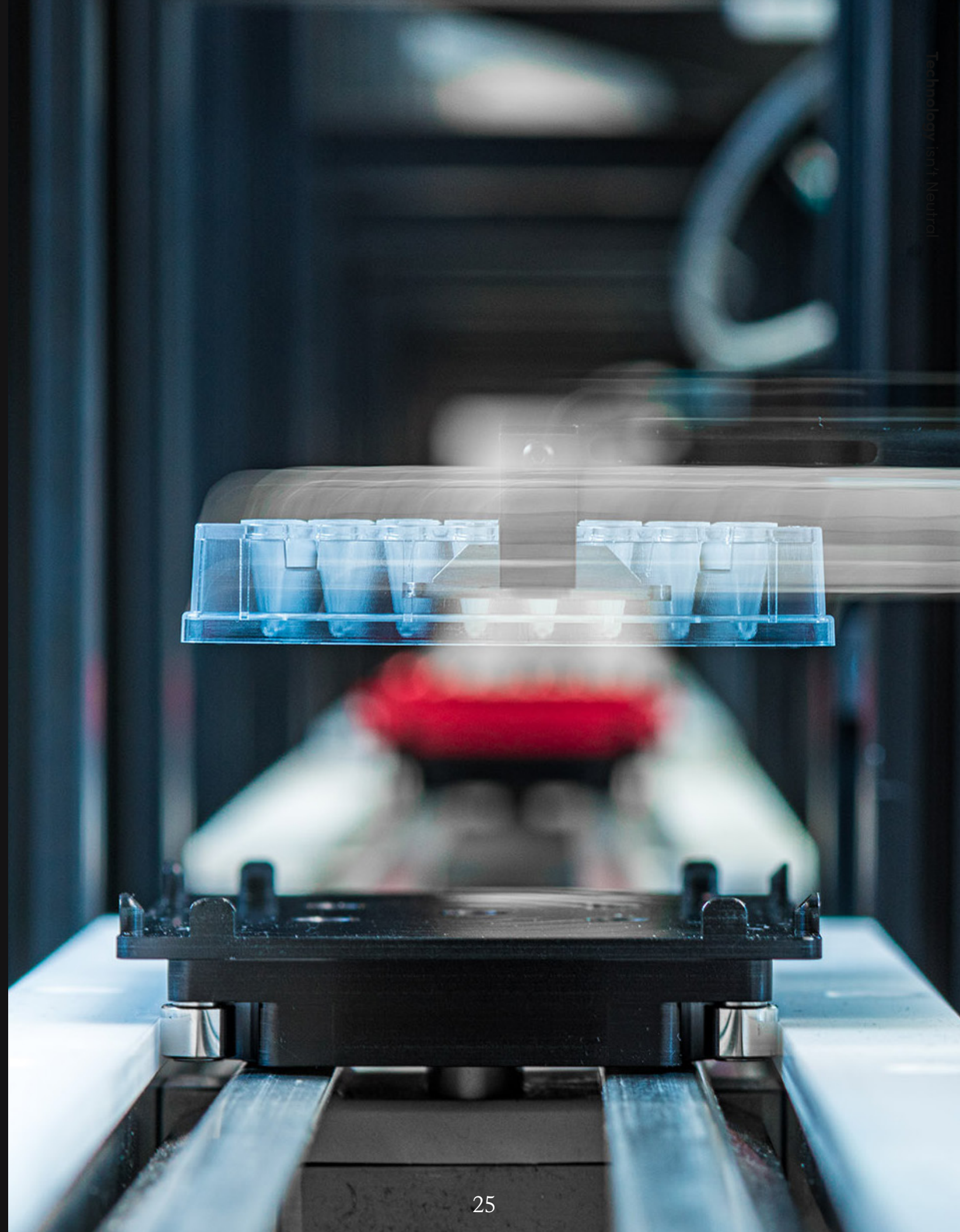


Technology isn't Neutral

2022 Update

Last year's report highlighted a core principle undergirding Ginkgo's platform design: technology isn't neutral. Our values and biases are embedded in the technologies we make, in the applications we consider, and in the ways we address problems. We embrace the complexity of determining how our beliefs are reflected in design decisions, how to direct our platform towards solving the most important challenges, and how to approach our projects and partners with care both today and into the future.

This year we took several important steps in strengthening our commitment to caring how our platform is developed and used, while recognizing we must continue to mature these processes as our platform grows. We aim to bring the same ethos and commitment to innovation and improvement in our approach to caring as we do across other aspects of our platform.



People

The most important element of our platform is our people. We believe that the form of the technologies we build and who they serve depends in large part on who is part of our platform. Just as biological ecosystems thrive with more diversity, the inclusion of many different voices is essential to growing our company. Inclusion of those who have historically been left out of the development of new technologies is critical to building equitable and positive outcomes.

This year we made significant investment in our commitment to recruiting and retaining diverse talent.

We have begun leveraging non-traditional workforce development pipelines, including apprenticeships. In 2022, Ginkgo hosted six apprentices from the MassBioEd Apprenticeship Program. This 16-month program provides opportunities for members of underserved communities by matching four months of free, stipended classroom and laboratory education by MassBioEd and Northeastern University followed by one year of paid on-the-job training at a company.

Ginkgo's first comprehensive Early Talent program was established as a long range diversity- focused strategic pipeline aligned to future early career roles. Forty-two students, BS-PhD, were hired across the enterprise into six-month co-ops and summer internships, all of which are project driven and outcomes based, with development and mentorship as the underpinning of the experience.

Internally, we launched our first pay equity audit which determined that our unadjusted pay gap for female Bioworkers was 10.7%, compared to the national average pay gap of 16.3%. After controlling for variables such as department, tenure, and job family, we found that the pay gap shrinks significantly and was close to or at parity on most teams. We continue to monitor employee compensation for pay gaps and make adjustments on a regular basis. Our Underrepresented Gender Bioworkers, open to all women, trans, gender non-conforming and non-binary Bioworkers, are engaging in the third version of a mentorship program with mentoring circles across

the company to support them wherever they are—at our headquarters, our satellite offices or remotely. These circles are open, enterprise-wide, for Bioworkers to share experiences, best practices and learn from one another across seniority and teams. To further support Bioworkers, we have invested significant resources in our Employee Resource Groups, launching a new ERG in 2023 for Bioworkers with Disabilities and partnering with WeSpire to ensure we have both technical and personal support to build strong ERGs.

We also continue to track and report on supplier diversity. As Ginkgo grows, so does the supply chain that we depend on. Within the United States and over the course of 2022, 33% of Ginkgo's spend was with diverse suppliers, and 32% of our total suppliers are characterized as diverse. Diversity within our supply chain is an important

part of our efforts to ensure equitable distribution of benefits of our platform, while also enhancing our competitive advantages.

Additionally, we recognize that our platform will have an outsized impact on the world, and access to our platform and knowledge of the benefits it can provide must be accessible at a global scale. We have partnered with [iGEM Design League](#) to support talent around the world, bringing the top teams from 2021 and 2022 to our headquarters in Boston for a week of demonstrations, tours, and talks. In partnership with Latinos in Bio, our ERG for Latino and Hispanic Bioworkers (LaB+) and other community and commercial partners, we provided networking opportunities with the intent of building a workforce and syn bio community ready to use our platform to address their needs.

We have continued to fulfill our commitment from 2020 to commit \$1M towards building a more equitable company, technology, and society by sponsoring programs for recruiting, training, and inclusion within Ginkgo, and supporting and sponsoring organizations that promote the inclusion of marginalized communities in biotechnology. Our relationship with [STEMNoire](#) remains a pillar of support for Bioworkers and helps to ensure the success of Black Women in STEM. We are also welcoming our second cohort of [Cultivate Fellows](#) as part of our program to help reduce the marginalization of Black students in STEM. The Cultivate Fellowship fosters professional networking, career planning exposure, and provides stipend-based support to help Black STEM scholars flourish.



Processes

Caring about how our platform is built and used is part of both our corporate policy and culture, and as Ginkgo grows we are strengthening our organizational processes to support our commitments.

Last summer Ginkgo held an election for a Caring Committee. Its nine elected representatives were chosen to serve the company and facilitate conversations and action around core challenges: How and why do we choose to point our platform at different applications and impacts? How do we consider opportunities and risks and identify ways to tip the scales towards positive outcomes? The election was also an opportunity to advance our commitment to employee ownership by asking Bioworkers to exercise power in building and participating in governance processes.

The committee works with business and project leads to identify the potential societal benefits and risks of new programs and facilitate assessment, deliberation, and engagement. Operationally, key questions (such as the below) are integrated within a Cost, Caring, and Risk Assessment (CCRA) scoping document as part of our program launch process:

- How might this program make the world better? Who benefits?
- Who might lose out if this program works? What is being disrupted?
- What are possible unintended consequences of this program?

These questions help the committee solicit and more deeply explore concerns and opportunities. The committee considers what needs to be true for a project to be successful and to mitigate risks, as well as the risks of not pursuing the work. We seek to lean into complex issues and determine, where possible, a careful path forward. These discussions can result in several actions recommended and facilitated by the committee, including:

- Collaborating with our policy and partnerships team to find advisors and partners to better understand and help address issues including mitigation strategies that may be beyond the scope of any particular project or the company's role, or that operate on longer timescales
- Working with our legal team to add guardrails to our contracts to address risks
- Facilitating conversations with the project team and customers about concerns and uncertainties to find both technical and social strategies to address those concerns, which can range from alternative research approaches to complementary capabilities and communication plans that engage relevant stakeholders
- Building conversations inside of Ginkgo to grow our culture of dealing with difficult topics with care so that we can refine our point of view and enable us to be rigorous while scaling
- Recommending not pursuing the project at this time

Ginkgo Biosecurity programs consider a related set of questions. They specifically look at the benefits to public health, as well as potential unintended consequences and harms to individuals, and consider solutions in terms of how the product, overall program, or contract is designed in order to address those risks. The design of the product, as well as the design of the legal contracts for any country or partner, consider, among other factors, the potential risks posed by biological surveillance, as well as the risks of engaging in contexts with human rights sensitivities. In particular, our international projects are currently structured so that data is collected anonymously, in aggregate. More specific guardrails or risk mitigation strategies for any specific new challenges arising from particular implementations of programs can also be recommended.

Between their election in July 2022 and the end of Q1 2023 the Caring Committee reviewed over 100 CCRA's spanning all our markets, including pharma, agriculture, bioindustrials, nutrition and wellness, and biosecurity. The committee considers many factors in addition to baseline considerations such as protecting genetic privacy and ensuring the platform is not used for applications that have only offensive weapons uses. Recognizing the complexity of assessing benefits and risks and mitigation options, and contending with the limits of Ginkgo's influence, the committee is leveraging its growing program portfolio to refine its frameworks and processes for robust but rapid decision making. It is also designing frameworks for caring considerations to be elicited at the earliest possible points in the business development

process. The committee is also building mechanisms for regular review and updating of these processes, beginning with reporting out regularly and establishing feedback mechanisms, including enabling all Bioworkers to identify improvements.

We also continue to invest in programs that help anticipate and contend with the complexities of the potential uses and abuses of our platform and their implications. Efforts such as Grow Magazine and our Creative Residency invite critical dialogue about how values manifest in our decisions. We also support collaborations with scholars whose work can inform strategies for building our platform and our ecosystem to do the most good. As one example, through support from the National Science Foundation, Dr. Emma Frow is examining care and control in Biofoundries, with Ginkgo as one site for her work.

These are just examples of efforts we are piloting and formalizing, and we expect these processes to evolve as we seek to continually improve them. To continue to build and facilitate initiatives for directing our platform to the greatest benefit and helping to drive broader industry standards, we also made a key hire in Q1 2023, with Megan Palmer joining Ginkgo as our new Senior Director of Public Impact. Over the last two decades Megan has led efforts to responsibly advance synthetic biology with many groups including the National Science Foundation-supported Synthetic Biology Engineering Research Consortium, the international Genetically Engineered Machine Competition, and Stanford University's Bio Policy Leadership in Society Initiative.



Public Sector Engagements

Making biology easier to engineer to address challenges ranging from climate change, to resilient manufacturing, to biosecurity requires working with many different partners. As a platform we must engage with groups that have different missions, expertise, and practices, as well as different points of view. Recognizing that our values and interests won't always align perfectly with our partners', we seek transformational rather than simply transactional relationships that can enable us to shape norms and practices so that the development and delivery of new products and services is done with care. We also seek to employ good governance practices that allow us to hold ourselves and others accountable to behaviors that reflect and reinforce our values.

Some of the most essential partners for advancing our mission to make biology easier to engineer are government agencies both in the U.S. and, increasingly, abroad. Ginkgo's existence is thanks to early U.S. public federal investments from agencies including the National Science Foundation (NSF) and the Department of Defense (DOD), as was highlighted by the NSF Director during the launch of the U.S. National Biotechnology and Biomanufacturing Initiative last fall. Recognizing the influence of technological developments in all of our lives, we seek to leverage private sector capabilities in ways that both protect and serve public interests and complement the efforts and position of governments and civil society. We do this in a number of ways:

Working with governments to identify where the unique capabilities we are developing can help them achieve their missions

- Fueled by growing public interest and investment in the bioeconomy, Ginkgo has an expanding portfolio of programs that range from cell programming services to biosecurity that are sponsored by government agencies in the U.S. and internationally. Programs such as the development of ENDAR software sponsored by IARPA, enable us to both provide leading capabilities to protect against biological threats while also giving us a seat at the table to inform how the private and public sectors can work together to prevent and detect misuses. As a platform we also have a unique opportunity to help our ecosystem of private sector customers better connect with governments and deliver on their missions.

Lending our growing expertise to informing how new capabilities might impact public interests, including to shape policy

- Leaders across Ginkgo are increasingly sought after for their unique expertise to inform policy makers and implementers, both in their professional and personal capacities. As a company we feel an obligation to ensure strategies for promoting and safeguarding biotechnology are well-informed, and seek to employ and support individuals who share this value. Bioworkers regularly share expert perspectives with governments and international organizations, including the OECD, and frequently contribute to working groups and foundational reports. We are proud that our employees have also been asked and entrusted to take on public service roles in their individual personal capacities, including our CEO serving on the U.S. National Security Commission on Emerging Biotechnology.

Building bridges with the public sector with an eye towards operational scale and good governance

- We are teaching the public sector how to leverage the latest technological developments. We also seek to recruit talented experts with experience working in government to help build systems bridging the needs of scale, pace, cost-effectiveness and good governance.

Participating in fora to debate and discuss how our broader ecosystem can advance standards that protect and empower all people and other life on this planet

- With growing public attention to synthetic biology, we are in a critical moment for imagining what biological futures are possible and preferred, and forming coalitions to deliver those futures. We continue to participate in fora that foster public-private partnerships, such as our Senior Director of Public Impact co-chairing a World Economic Forum Global Future council on synthetic biology. Events we convene such as Ferment and Thrive also invite a broad community to learn about our platform and consider how we advance it with care.



We take these different roles and responsibilities seriously and seek to employ the best governance practices to manage where interests may be in tension—but also seek to align them where possible. We also seek to advance points of view and practices that differ from business as usual when we see opportunities to advance our values and our mission. While respecting the unique responsibilities of governments, we recognize our responsibility to work against historic and systemic injustices, to point out where new developments and insights reveal insufficiencies in current approaches, and to be wary of the harms that can also come from accepting the status quo.

Ownership is the First Step in Caring

2022 Update

As we noted last year, the individuals who work at Ginkgo and build our platform care deeply about how that platform is used and the impact our company will have in the world. Ownership is the first step in caring how our platform is used and, as employees, we have an outsized influence on how our platform is developed and deployed.

We continue to believe that a workforce with strong equity ownership will make the wise decisions needed to build long-term value for our company, and to build a company whose long-term impacts will make them proud. That is why we have implemented a multi-class stock structure that permits all employees (current and future), not just Founders, to hold high-vote (10 votes per share) common stock. We believe that our multi-class stock structure will help maintain the long-term mentality we have benefited from as a Founder-led company.

Whereas some companies might mention “ownership” as a feeling or a culture, ownership is baked into Ginkgo’s governance structure. But why? And what exactly does that mean for Ginkgo?



Ownership Positions Us to Care How Our Platform is Used

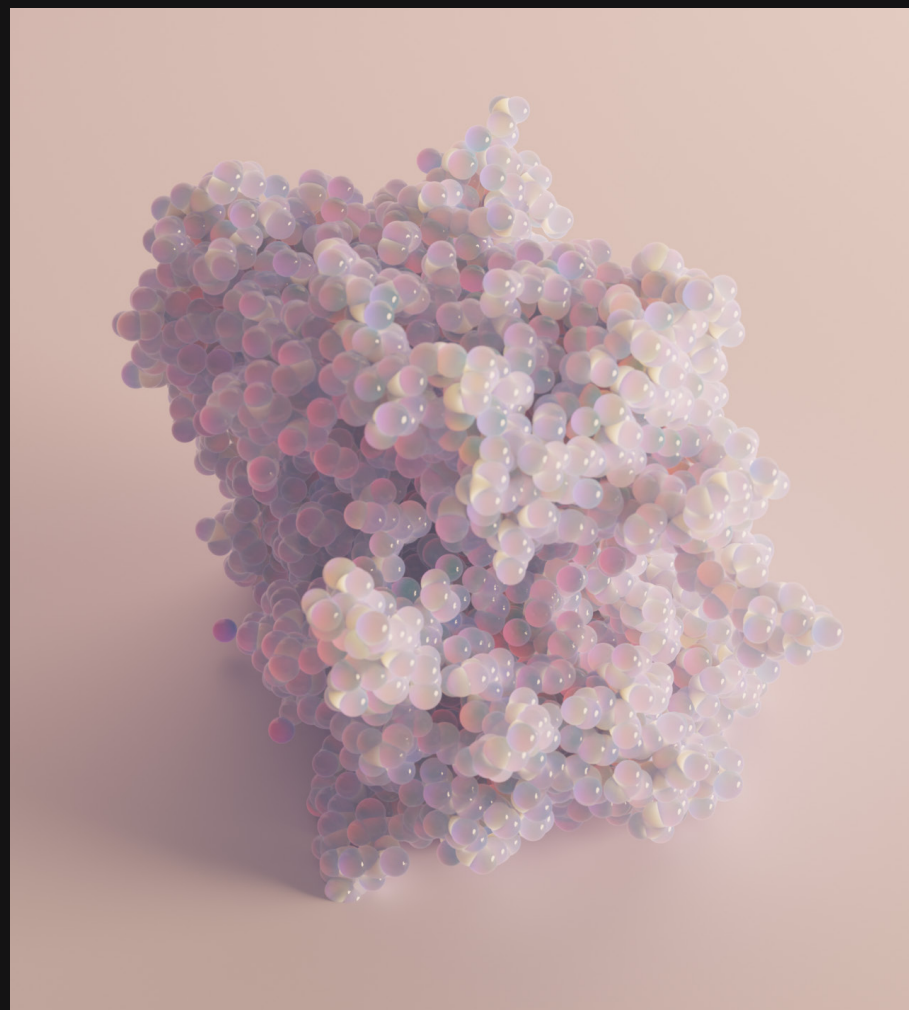
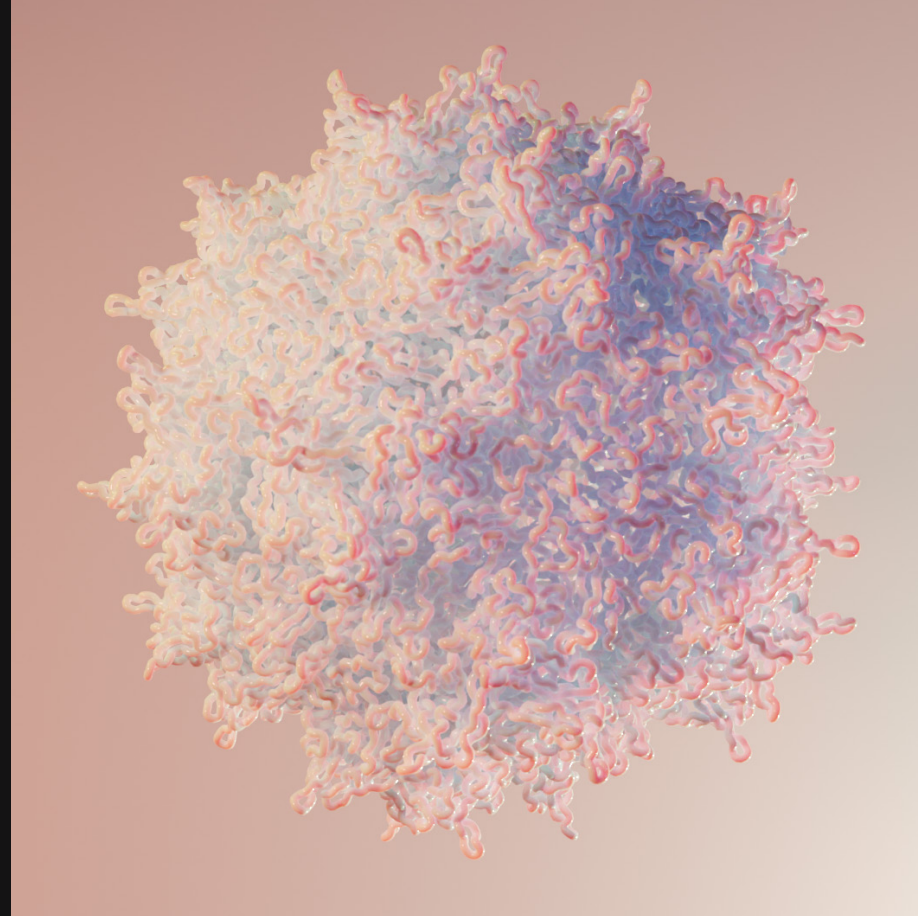
We don't think of our platform as neutral. We seek to employ governance models and practices that we believe will help ensure it is used for good, and we believe that we are best positioned to determine the path of the platform and to do good when we are owners.

Innovation in other industries can lead to heavy social and environmental costs despite the best intentions. We are seeking to avoid these outcomes, and believe employee ownership can help.

One of our foundational principles as a platform is a principle of care. Our principle of care reminds us that ownership is not an end in itself, but the means by which we are able to care about stakeholders – employees, customers, the public, the environment, and others – and create long-term value for our stockholders. We believe ownership of the platform is an effective tool for evolving our governance processes to better reflect our stakeholders' interests.

We believe that the employees doing the work of Cell Programming and Biosecurity – the Bioworkers – are best positioned, in consultation with other important stakeholders, to ensure that our platform reflects our stakeholders' interests, including our stockholders' interest in long-term value creation. But employee equity ownership is only the foundation for the development of further mechanisms that integrate active care into the work being done at Ginkgo. Caring, then, is the *raison d'être* for ownership, and ownership is the beginning of caring.

As Bioworkers further develop our culture of ownership, we see a culture of care as fundamental to what it means to be an owner, from the enshrining of care into Bioworker onboarding programs to the risk assessment work of the Bioworker-elected Caring Committee.



Worker–Ownership as a Competitive Advantage

In 1987, scholars Michael Quarrey and Corey Rosen published [a study](#) on the performance of companies for five years before and after they transitioned to worker-ownership. They found that while employee stock ownership by itself had a minimal impact, companies that paired employee ownership with participatory management – in other words, a *culture of ownership* – grew 8% to 11% per year faster than they would have been expected to grow. [The study has been repeated dozens of times](#) in different iterations since then and the results have been consistent: worker ownership can be a competitive advantage, but without the existence of both real material ownership *and* an ownership culture, the effect is lost.

To us, this feels intuitive: when *everyone* at a company has skin in the game and a stake in the outcome, they are more likely to see the big picture and make the company better. If the drive and investment of a founder-owner can be replicated one thousandfold, the results could be astonishing.

We believe Ginkgo will succeed when every Bioworker is committed and invested in the outcome. A culture of ownership can unlock the potential of every Bioworker to contribute as much as they can and build wealth in the process. While employee equity holdings represent real material ownership, we are also committed to building an ownership culture. Toward this end, we are developing initiatives that provide Bioworkers with a platform to generate and share ideas and processes to improve Ginkgo's outcomes. We are developing our culture, norms, and mechanisms to help give every Bioworker the ability to act like an owner of Ginkgo.

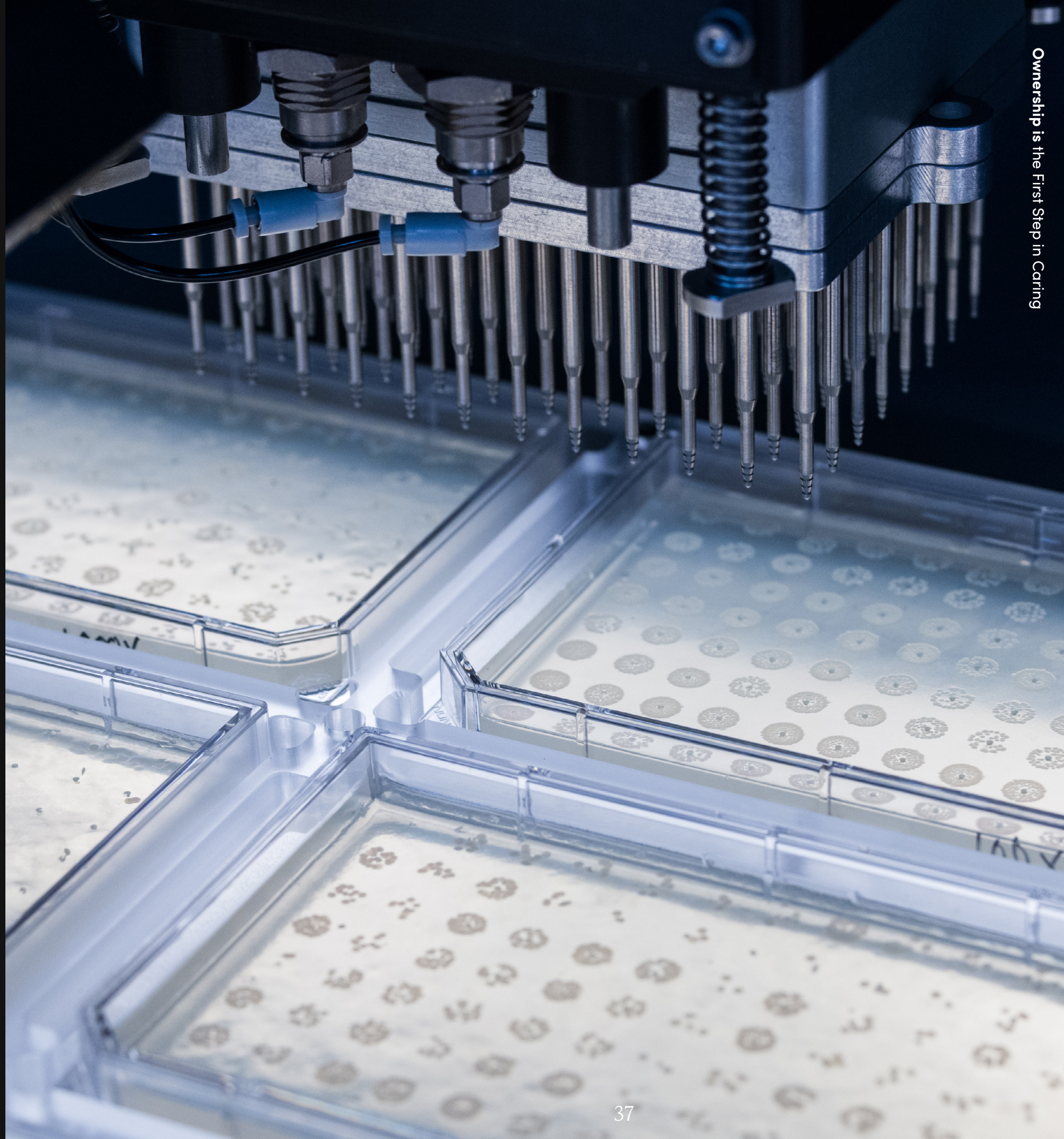
We Are Part of a Growing Movement

Employee ownership is a rare area where there has been bipartisan consensus in an increasingly polarized political environment: advocates from both sides of the aisle – from [Ronald Reagan](#) to [Bernie Sanders](#) – have long argued that it reduces inequality, keeps wealth in communities that produce it, and makes American industry more competitive in the global economy. In an exciting development, employee ownership has begun to gain political traction in recent years. Legislation expanding employee ownership has recently picked up momentum at the federal and state levels, with the 2018 Employee Ownership Equity Act, the [WORK Act](#), and a [litany of state-level bills](#) from [Washington](#) and [New York](#) to [Tennessee](#) and [Texas](#).

[There are around the same number of Americans who are employee-owners](#) as those [who are members of a union](#) (~14 million). However, most employee-owned companies in America are privately owned. Taking lessons from established examples of worker-owned companies and cooperatives across the globe, we want to support this growing movement by developing a model of employee ownership that can work for both start-ups and publicly traded companies.

It is our hope that our employee-ownership structure can provide a replicable model for companies like us. We see our model of worker-ownership as having implications for the bioeconomy and beyond. What if *all employees* had a stake in the outcome of their work? How might that impact the technologies a company may develop? How might it affect the distribution of the wealth that they generate? We want our example to provide a data point for this thought experiment.

Our mission is to make biology easier to engineer, but *how* we do so, and the degree to which doing so leaves us with a better world, is also critical. At Ginkgo, we believe in a world of abundance powered by biology. We believe that innovation on both social and technological scales can help us realize such a world. Ginkgo's model of worker-ownership offers a hypothesis to address some of the biggest non-technological obstacles that stand in the way of that world. By creating our own version of the worker-owned firm, we hope Ginkgo will demonstrate what can happen when the people building a technological platform take a real ownership stake in its creation.



Closing Thoughts

At Ginkgo, we believe that technologies reflect the values of the organizations that build them. For that reason, our commitment to care underscores everything we do.

We appreciate the chance to share updates on our efforts to ensure that the tools of cell programming are built and used with care.

We will continue to advance our sustainability reporting capabilities. Specifically, we are looking forward to sharing some of the exciting ways in which our customers are using our platform to address the major societal and environmental challenges facing the world.

We are looking forward to using this report, and future reporting activities, to inform our work to make biology easier to engineer.



Appendix

Intro

ESG reporting at Ginkgo is driven by our Policy and Partnerships, Legal, and Investor Relations teams, relying on regular input from a large, cross-company “ESG Reporting Working Group”, which includes Bioworkers from Facilities, Environmental, Health and Safety, Finance, People Operations, and Marketing, and regularly engages with Ginkgo leadership ([page 54](#)).

Reporting at Ginkgo is guided by several key ESG frameworks and standards, as well as a third-party led materiality assessment which was informed by thorough stakeholder engagement.

Stakeholder Engagement

Stakeholder engagement is a critical input that informs our broader ESG strategy ([page 14](#)). In preparation for our inaugural report, we engaged with several key stakeholder groups, including customers, community partners, investors, suppliers, employees, regulators, and ESG raters, either via interview, survey, or research as a proxy, to consider ESG topics and assess impacts on/of the organization.

These stakeholder insights were leveraged to evaluate the importance of key ESG topics. Experts across the business and within our ESG Reporting Working Group determined the opportunities and risks associated with each of these topics.

For the purpose of our stakeholder materiality assessment, we relied on the Global Reporting Initiative (“GRI”) definition of “materiality.” According to GRI, material topics represent an organization’s most significant impacts on the economy, environment and people, including impacts on their human rights.

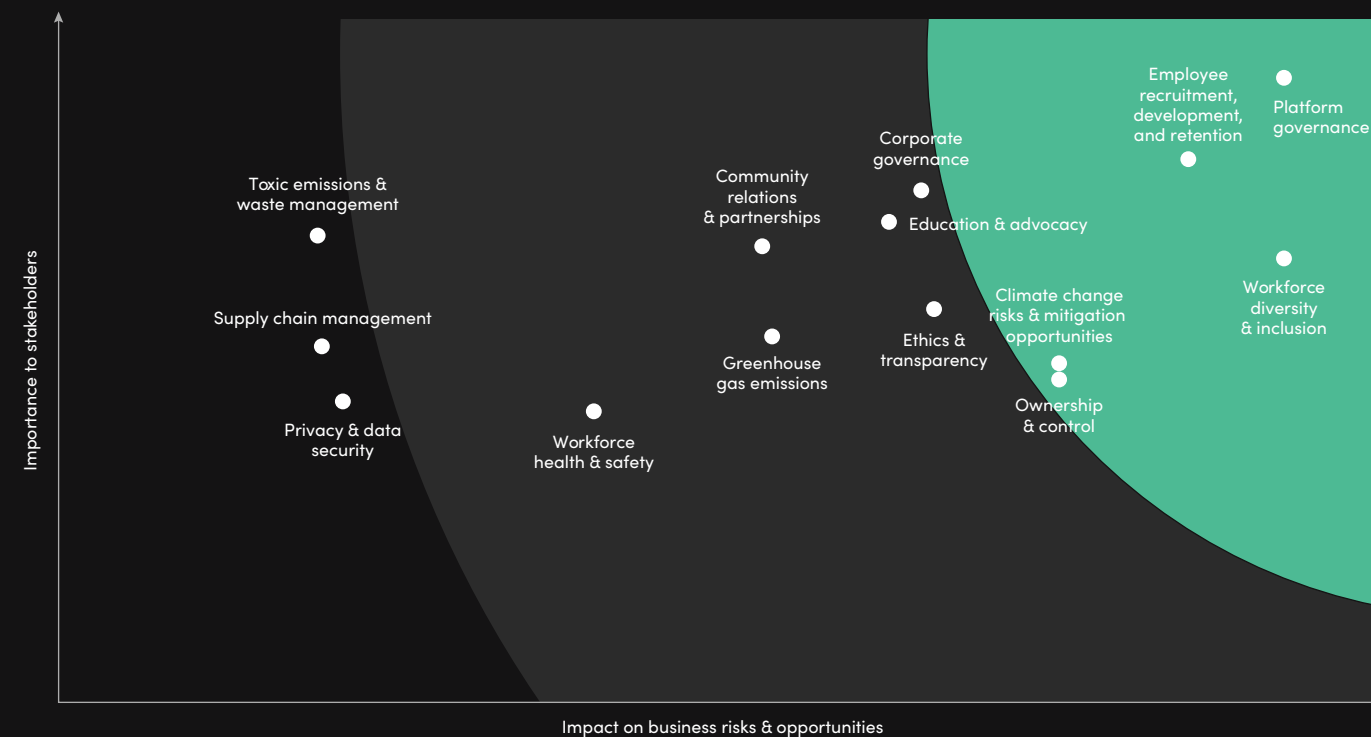
Based on stakeholder input, topics were grouped into the following matrix. Going forward, we intend to continue to align our ESG performance and reporting to these topics, as well as regularly revisit these topics to ensure that we remain focused on our stakeholders’ evolving top priorities where we can have the biggest impact.

ESG Materiality Assessment: Process Overview

A systematic process for stakeholder engagement and feedback prioritization



ESG Materiality Matrix



For the avoidance of doubt, even if a topic is not considered “critical” or reflected on the ESG Materiality Matrix, the Company gives due consideration to such topics, as needed, for legal and compliance purposes and to promote good governance practices within the organization. The Company is focused on applicable CSR- and ESG- related matters as part of its compliance initiatives.

Reporting Frameworks

Global Reporting Initiative

The Global Reporting Initiative (“GRI”) Sustainability Reporting Standards identify the most relevant issues for inclusion in sustainability reports. The standards enhance the comparability and quality of information on economic, environmental and social impacts organizations have. They also create a common language to communicate that information to various stakeholders.

“Materiality” has the definition given to that term by the Global Reporting Initiative. GRI does not define materiality the same as the U.S. federal securities laws. Topics that are material for purposes of our GRI disclosures are not necessarily material for purposes of the U.S. federal securities laws and their inclusion in our GRI reporting should not be construed as an admission of materiality for purposes of investment or voting decisions or other purposes.

The reported GRI topics and disclosures below refer to GRI 1: Foundation 2021.

GRI standard	Disclosure	Location	Page(s)	
GRI 2: General Disclosures 2021	2-1	Organizational details	FY22 Form 10-K	Cover page, 40
	2-2	Entities included in the organization’s sustainability reporting	Ginkgo Bioworks Holdings, Inc.	
	2-3	Reporting period, frequency and contact point	Unless otherwise indicated, this report pertains to the period of January 1, 2022 – December 31, 2022. Ginkgo intends to issue reports on an annual basis. Please contact Ryan Morhard (Senior Director, Policy and Partnerships) at rmorhard@ginkgobioworks.com with any ESG reporting inquiries.	
	2-4	Restatements of information	Not Applicable	
	2-5	External assurance	No external assurance has been pursued at this time.	F-2
	2-6	Activities, value chain and other business relationships	FY22 Form 10-K	1–31
	2-7	Employees	FY22 Form 10-K	31
	2-8	Workers who are not employees	At this time, Ginkgo treats this information as confidential.	
	2-9	Governance structure and composition	Board Composition	
	2-10	Nomination and selection of the highest governance body	Nominating and Corporate Governance Committee Charter	1
	2-11	Chair of the highest governance body	The Board Chair is Marijn Dekkers .	
	2-12	Role of the highest governance body in overseeing the management of impacts	Ginkgo’s Charter and Bylaws	Charter: Article VII – Directors; Bylaws: Article III – Directors
	2-13	Delegation of responsibility for managing impacts	The Board oversees but delegates day-to-day affairs, including Ginkgo’s impacts on the economy, environment, and people, to executive management as outlined in the Bylaws .	Bylaws: Article III – Directors
	2-14	Role of the highest governance body in sustainability reporting	2022 Sustainability Report	40
	2-15	Conflicts of interest	Code of Business Conduct and Ethics	4
	2-16	Communication of critical concerns	Code of Business Conduct and Ethics	1–2
	2-17	Collective knowledge of the highest governance body	2023 Proxy Statement	9–15

GRI standard	Disclosure	Location	Page(s)
GRI 2: General Disclosures 2021 (continued)	2-18 Evaluation of the performance of the highest governance body	Nominating and Corporate Governance Committee Charter	2
	2-19 Remuneration policies	2023 Proxy Statement	35–44
	2-20 Process to determine remuneration	2023 Proxy Statement	35–44
	2-21 Annual total compensation ratio	Ginkgo plans to report on this ratio in the future.	
	2-22 Statement on sustainable development strategy	2022 Sustainability Report	12
	2-23 Policy commitments	2022 Sustainability Report	13
	2-24 Embedding policy commitments	2022 Sustainability Report	40
	2-25 Processes to remediate negative impacts	Code of Business Conduct and Ethics	1
	2-26 Mechanisms for seeking advice and raising concerns	Code of Business Conduct and Ethics	1–2
	2-27 Compliance with laws and regulations	Code of Business Conduct and Ethics	5–7
2-28 Membership associations	Education and advocacy are priorities for Ginkgo. We engage in advocacy organizations (e.g., the Biotechnology Innovation Organization, the Synthetic Biology Coalition), educational initiatives (e.g., the International Genetically Engineered Machine Competition), and with industry consortia (e.g., the International Gene Synthesis Consortium).		
2-29 Approach to stakeholder engagement	2023 Proxy Statement	17–18	
2-30 Collective bargaining agreements	As of December 31, 2022, none of our U.S. employees are covered by collective bargaining agreements.		
GRI 3: Material Topics 2021	3-1 Process to determine material topics	2022 Sustainability Report	41
	3-2 List of material topics	2022 Sustainability Report	41
	3-3 Management of material topics	2022 Sustainability Report	41
GRI 201: Economic Performance 2016	201-1 Direct economic value generated and distributed	FY22 Form 10-K	97
	201-4 Financial assistance received from government	None	
GRI 205: Anti-corruption 2016	205-2 Communication and training about anti-corruption policies and procedures	We follow our Anti-Corruption Policy and the legal team holds trainings for new employees regarding the content of this policy.	
	205-3 Confirmed incidents of corruption and actions taken	None	

GRI standard	Disclosure	Location	Page(s)
GRI 306: Waste 2020	306-1 Waste generation and significant waste-related impacts	2021 Sustainability Report	26–27
	306-2 Management of significant waste-related impacts	2021 Sustainability Report	26–27
	306-3 Waste generated	At our Foundry in Boston, MA: 62.25 mt	
	306-4 Waste diverted from disposal	At our Foundry in Boston, MA: Diverted: 39.48 mt Hazardous: 38.85 mt Recycling: 34.88 mt Other Recovery (Fuel Blending): 3.97 mt Non-Hazardous: 0.63 mt Recycling: 0.63 mt	
	306-5 Waste directed to disposal	At our Foundry in Boston, MA: Disposed: 22.77 mt Hazardous: 6.98 mt Incinerated for energy: 1.82 mt Incinerated: 3.51 mt Landfill: 1.65 mt Non-Hazardous: 15.79 mt Incinerated for energy: 13.47 mt Incinerated: 0.59 mt Landfill: 1.73 mt	
GRI 403: Occupational Health and Safety 2018	403-6 Promotion of worker health	We are committed to building a culture of empowered employees dedicated to maintaining a safe and healthy workplace, and managing any potential Environmental Health and Safety risks. The number and rate of fatalities as a result of work-related injury was zero. High-consequence work-related injuries (excluding fatalities) was zero. Recordable work-related injuries were 4. Main types of work-related injury were first aids, minor lacerations, contusions, burns, and ergo discomfort. The number of hours worked was 1,279,605.	
	403-9 Work-related injuries	Code of Business Conduct and Ethics	8–9
GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	Ginkgo plans to implement mechanisms to report this information in the future. Today, in addition to onboarding training and regular health and safety training, where appropriate, Ginkgo also offers a variety of training for professional development, including: People Management Academy; Level Up with BetterUp Leadership Coaching; Character Club; and a new course on Program Management. All Bioworkers also have access to a third-party professional coaching service.	
GRI 405: Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	2022 Sustainability Report	49

Reporting Frameworks

Stakeholder Capitalism Metrics

In September 2021, Ginkgo joined over 100 of the world's leading companies in committing to report on the Stakeholder Capitalism Metrics. These metrics are the result of a collaboration between the International Business Council at the World Economic Forum, along with Deloitte, EY, KPMG and PwC, and are meant to improve the ways that companies measure and demonstrate their performance against ESG indicators and to enable positive contributions towards achieving the United Nations Sustainable Development Goals ("SDGs"). The metrics and disclosures are drawn from existing standards.

There are instances where reporting is not yet feasible, or where we determined that the disclosure is not relevant to our business. We aim to expand our disclosures in the future.

Pillar 1: Principles of Governance

Core Metrics	Disclosures	Response and/or Reference
Governing Purpose		
Setting purpose	The company's stated purpose, as the expression of the means by which a business proposes solutions to economic, environmental, and social issues. Corporate purpose should create value for all stakeholders, including stockholders	A letter from our Founders —Ginkgo Bioworks
Quality of Governing Body		
Governance body composition	Composition of the highest governance body and its committees by: competencies relating to economic, environmental, and social topics; executive or non-executive; independence; tenure on the governance body; number of each individual's other significant positions and commitments, and the nature of the commitments; gender; membership of under-represented social groups; stakeholder representation	Board of Directors Committee Composition 2023 Proxy Statement (pg. 9–20)
Stakeholder Engagement		
Material issues impacting stakeholders	A list of the topics that are material to key stakeholders and the company, how the topics were identified, and how the stakeholders were engaged	<p>We've identified the following as Ginkgo Bioworks' material issues (in alphabetical order):</p> <ul style="list-style-type: none"> • Climate Change Risks and Mitigation Opportunities • Community Relations and Partnerships • Corporate Governance • Education and Advocacy • Employee Recruitment, Development, and Retention • Ethics and Transparency • Greenhouse Gas Emissions • Ownership and Control • Platform Governance • Privacy and Data Security • Supply Chain Management • Toxic Emissions and Waste Management • Workforce Diversity and Inclusion • Workforce Health and Safety <p>For more information about our approach to materiality and stakeholder engagement, see page 40–41.</p>

Core Metrics	Disclosures	Response and/or Reference
		Ethical Behavior
Anti-corruption	<p>1. Total percentage of governance body members, employees and business partners who have received training on the organization's anti-corruption policies and procedures, broken down by region</p> <p>2.(a) Total number and nature of incidents of corruption confirmed during the current year but related to previous years (b) Total number and nature of incidents of corruption confirmed during the current year, related to this year</p> <p>3. Discussion of initiatives and stakeholder engagement to improve the broader operating environment and culture, in order to combat corruption</p>	<p>1. Anti-bribery and anti-corruption training is mandatory for all full-time Ginkgo employees.</p> <p>2. Ginkgo does not have a record of any corruption incidents.</p> <p>3. Ginkgo emphasizes a culture of compliance, and maintains mechanisms to give heightened attention to areas identified as presenting potential anti-corruption risk. Among the steps taken, employees working in higher risk jurisdictions receive additional, live training from outside counsel.</p>
Protected ethics advice and reporting mechanisms	<p>A description of internal and external mechanisms for</p> <p>1. Seeking advice about ethical and lawful behaviour and organizational integrity;</p> <p>2. Reporting concerns about unethical or lawful behaviour and organizational integrity</p>	<p>Code of Business Conduct and Ethics—Ginkgo Bioworks</p> <p>Ginkgo maintains an Ethics Point hotline for employees and affiliated parties.</p>

Pillar 2: Principles of People

Core Metrics	Disclosures	Response and/or Reference
		Dignity and Equality
Diversity and inclusion (%)	Percentage of employees per employee category, per age group, gender and other indicators of diversity (e.g. ethnicity)	<p>(i) Gender: Female – 41.4% Male – 57.7% GenderX – 0.6% Not Disclosed – 0.3%</p> <p>(ii) Age group: Under 30 – 24.4% 30 to 50 – 64.5% Over 50 – 11.1%</p> <p>(iii) Ethnicity: Asian – 20.2% White – 55.2% Underrepresented Minority – 13.9% Not Disclosed – 10.7%</p>
Pay equality	Ratio of the basic salary and remuneration for each employee category by significant locations of operation for priority areas of equality: women to men; minor to major ethnic groups; and other relevant equality areas	<p>To ensure compensation decisions are consistently made based on merit and not subject to bias due to gender and/or race/ethnicity, Ginkgo centralizes pay decisions to a hiring committee. This committee currently consists of two of our Founders, our Chief People Officer, and our Director of Total Rewards. The committee reviews all hiring requests and approves total compensation for each candidate. A subgroup of this team is responsible for regular pay adjustments for existing team members. In addition to this centralized review process, Ginkgo regularly runs the following programs to ensure consistent and fair practices:</p> <ul style="list-style-type: none"> • Talent review & promotion planning • Performance reviews • Annual salary adjustments • Internal pay equity analyses Given Ginkgo's significant headcount growth and its commitment to ensuring a fair and equitable review process. <p>Internally, we launched our first pay equity audit which determined that our unadjusted pay gap for female Bioworkers was 10.7%, beating the national average pay gap of 16.3%. After controlling for variables such as department, tenure, and job family, we found that the pay gap shrinks significantly and was close to or at parity on most teams. We continue to monitor employee compensation for pay gaps and make adjustments on a regular basis.</p>

Core Metrics	Disclosures	Response and/or Reference
Wage level		At Ginkgo we are committed to fair and equitable pay for all Bioworkers. We strive to pay competitive salaries to both attract and retain our talent, but further to drive ownership across our entire team to ensure our employees achieve financial success in line with Ginkgo’s success. All employees receive equity at Ginkgo. Our salary bands are regularly reviewed against a reputable third-party compensation survey to ensure every Bioworker is competitively paid for their contribution to making biology easier to engineer. We align salary bands to ensure all team members are paid at or above the median salary of the market for their role and geographic work location.
	1. Ratios of standard entry-level wage by gender compared to local minimum wage	Our entry level base salaries are at least two times the local minimum wage regardless of gender or race across all of our locations and labs both US and globally.
	2. Ratio of CEO’s total annual compensation to median total annual compensation of all employees (excluding the CEO)	Ginkgo plans to report on this ratio in the future.
Risks for incidents of child, forced or compulsory labour	An explanation of the operations and suppliers considered to have significant risk for incidents of child labour, forced or compulsory labour. Such risks could emerge in relation to type of operation (such as manufacturing plant) and type of supplier; or countries or geographic areas with operations and suppliers considered at risk.	Not believed to be material, given the nature of our business.
Health & Wellbeing		
Health and safety (%)	1. The number and rate of fatalities as a result of work-related injury; high-consequence work-related injuries (excluding fatalities); recordable work-related injuries, main types of work-related injury; and the number of hours worked	(i) 0 fatalities (ii) 0 high-consequence work-related injuries (iii) 4 recordables in 2022 (iv) Main types of injury were first aids, contusions, lacerations, ergonomic discomfort and illness (v) 1,279,605 hours worked
	2. An explanation of how the organization facilitates workers’ access to non-occupational medical and healthcare services and the scope of access provided for employees and workers	Ginkgo provides full-time and part-time employees working 20 hours or more per week with a comprehensive benefits package. Workers have the choice between three medical insurance plans which are part of a nationwide network and provide coverage for in-network and out-of-network services. The benefits package also provides options for H.S.A/ FSA, dental, vision, life and AD&D, accident, group legal, critical illness, hospital indemnity, and STD/LTD.

Core Metrics	Disclosures	Response and/or Reference
Skills for the Future		
Training provided (#)	1. Average hours of training per person that the organization’s employees have undertaken during the reporting period, by gender and employee category (total number of trainings provided to employees divided by the number of employees) 2. Average training and development expenditure per full time employee	Ginkgo plans to implement mechanisms to report this information in the future. Today, in addition to onboarding training and regular health and safety training, where appropriate, Ginkgo also offers a variety of training for professional development, including: People Management Academy; Level Up with BetterUp Leadership Coaching; Character Club; and a new course on Program Management. All Bioworkers also have access to a third-party professional coaching service.

Pillar 3: Principles of Planet

Core Metrics	Disclosures	Response and/or Reference
Climate Change		
Greenhouse Gas (GHG) emissions		Greenhouse gas emissions data is reported based on a FY2022 Greenhouse Gas (GHG) Inventory, which was completed in accordance with the principles and guidance of the Greenhouse Gas Protocol’s Corporate Accounting and Reporting Standard (Revised Edition) and the GHG Protocol Scope 2 Guidance – An Amendment to the GHG Protocol Corporate Standard. The inventory methodology is designed to meet accounting and reporting standards. This GHG emissions inventory prioritizes calculation for five facilities, including our headquarters in Boston, MA and extending to nearby facilities in Cambridge, MA. 27 Drydock, Boston MA 02210 25 Drydock, Boston MA 02210 23 Drydock, Boston MA 02210 10 Wilson Rd, Cambridge MA 02138 45 Moulton St, Cambridge MA 02138
	For all relevant greenhouse gases (e.g. carbon dioxide, methane, nitrous oxide, F-gases etc.), report in metric tonnes of carbon dioxide equivalent (tCO2e) GHG Protocol Scope 1 and Scope 2 emissions.	Scope 1: 1,060.819 GHGs (MT CO2e) Scope 2: 2,254.255 GHGs (MT CO2e)

Pillar 4: Principles of Prosperity

Core Metrics	Disclosures	Response and/or Reference		
Employment and Wealth Generation				
Absolute number and rate of employment	1.Total number and rate of new employee hires during the reporting period, by age group, gender, other indicators of diversity and region	(i) Gender	Count	%
		Male	528	57.20%
		Female	389	42.15%
		(Not Disclosed)	3	0.33%
		GenderX	3	0.33%
		(ii) Race/Ethnicity*	Count	%
		White	464	50.27%
		Asian	211	22.86%
		(Not Disclosed)	53	5.74%
		I Do Not Wish to Answer	49	5.31%
		Black or African American	33	3.58%
		Hispanic or Latino	75	8.13%
		Two or More Races	30	3.25%
		American Indian or Alaska Native	4	0.43%
		Native Hawaiian or Other Pacific Islander	4	0.43%
		(iii) Age Group	Count	%
		20 to 29	229	24.81%
		30 to 39	380	41.17%
		40 to 49	188	20.37%
		50 to 59	101	10.94%
		60 to 75	22	2.38%
		Not Disclosed	3	0.33%
		(iv) Work Country	Count	%
United States of America	877	95.02%		
Netherlands	9	0.98%		
France	16	1.73%		
Switzerland	20	2.17%		
Taiwan	1	0.11%		
2.Total number and rate of employee turnover during the reporting period, by age group, gender, other indicators of diversity and region	(i) Gender	Count	%	
	Male	146	51.41%	
	Female	134	47.18%	
	(Not Disclosed)	3	1.06%	
	GenderX	1	0.35%	
	(ii) Race/Ethnicity*	Count	%	
	White	122	42.96%	
	Asian	83	29.23%	
	(Not Disclosed)	16	5.63%	
	I Do Not Wish to Answer	18	6.34%	
	Black or African American	15	5.28%	
	Hispanic or Latino	20	7.04%	
	Two or More Races	8	2.82%	
	American Indian or Alaska Native	1	0.35%	
	Native Hawaiian or Other Pacific Islander	1	0.35%	
	(iii) Age Group	Count	%	
	20 to 29	76	26.76%	
	30 to 39	128	45.07%	
	40 to 49	49	17.25%	
	50 to 59	26	9.15%	
	60 to 75	3	1.06%	
	(iv) Work Country	Count	%	
	United States of America	272	95.78%	
Netherlands	7	2.46%		
France	1	0.35%		
Switzerland	4	1.41%		

* US employees only (2022)

Core Metrics	Disclosures	Response and/or Reference
Economic contribution	1. Direct economic value generated and distributed (“EVG&D”) – on an accrual basis, covering the basic components for the organization’s global operations, ideally split out by: a. Revenue b. Operating costs c. Employee wages and benefits d. Payments to providers of capital e. Payments to government f. Community investment	1. Pages 93 and 105, FY22 Form 10-K
	2. Financial assistance received from the government – Total monetary value of financial assistance received by the organization from any government during the reporting period	None
Financial investment contribution disclosure	1. Total capital expenditures (“CapEx”)–Depreciation supported by narrative to describe the company’s investment strategy	1. Pages 101 and F-5, FY22 Form 10-K
	2. Share buybacks + Dividend payments supported by narrative to describe the company’s strategy for returns of capital to stockholders	2. Page F-4, FY22 Form 10-K . The Company does not currently return capital to stockholders through a dividend payment program.
Innovation in Better Products and Services		
Total R&D expenses (\$)	Total costs related to research and development	Pages 95–97, FY22 Form 10-K
Community and Social Vitality		
Total tax paid	The total global tax borne by the company, including corporate income taxes, property taxes, non-creditable VAT and other sales taxes, employer-paid payroll taxes and other taxes that constitute costs to the company, by category of taxes	Pages 95–97, FY22 Form 10-K

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Biology affects
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