



CIFAR STRATEGY:

Bold Exploration to Transform Futures



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PRESIDENT'S MESSAGE

CIFAR STRATEGY: BOLD EXPLORATION TO TRANSFORM FUTURES



To the global CIFAR community:

I am delighted to share with you our refreshed Strategy.

The Strategy comes at a time when we are experiencing rapid and sweeping changes in the global research community. Since COVID-19, the research world has seen greater cross-border collaborations, particularly in combating pressing issues such as climate change. Meanwhile, AI and machine learning are poised to open groundbreaking paths in research. What these trends indicate is that there is no better time than now for CIFAR to strengthen its unique model and build a blueprint that enables us to make greater contributions to Canada and the world.

A strategy is not a 'plan'. It is a framework that must be adaptable and open to reconsideration.

I take great pride in how our community's shared purpose shines through in this Strategy. It is a culmination of deep collaboration and comprehensive input from our members over the course of a year. I hope you enjoy learning about our new and ambitious directions for the next few years. Together, we have an opportunity to explore boldly, help transform the world around us and make tangible, meaningful impact in our communities.

STEPHEN J. TOOPE, OC, LLD, FRSC
President & CEO

WHO WE ARE

The Canadian Institute for Advanced Research (CIFAR) is a globally influential research organization proudly based in Canada. Across its 15 research programs and the Pan-Canadian AI Strategy¹, CIFAR convenes close to 400 of the world's top researchers from 141 institutions in 20 countries. Our community of Fellows, Chairs, Scholars and Advisors is among the most influential in the world, and has included 20 Nobel Prize laureates and three Turing Award winners. Our early-career programs attract and support some of the most exciting young researchers in the world today.

¹ CIFAR's leadership of the Pan-Canadian Artificial Intelligence Strategy is complementary to CIFAR's core research programs. On behalf of the Government of Canada, the Pan-Canadian Artificial Intelligence Strategy is currently developing its own forward strategy in collaboration with the three national AI Institutes (Amii, Mila and the Vector Institute). However, we will work to better leverage the insights from that Strategy into CIFAR's research programs.

WHAT WE DO: OUR UNIQUE MODEL

For over 40 years, CIFAR has pursued a unique research model. Unlike traditional research agencies that fund research projects and labs, CIFAR builds and continuously challenges global networks of researchers who want to push boundaries and take risks. We convene the world's greatest minds to solve the most pressing, complex questions facing science and humanity. We bring in promising early-career researchers to ensure that the freshest, boldest thinking is at the heart of our work. We support interdisciplinary and deeply collaborative fundamental research that inspires new directions of inquiry, builds new knowledge, and yields breakthroughs across borders and disciplines. We stick with ideas over the long term if they yield positive results, always insisting on intellectual renewal and rigorously assessing outcomes. We minimize red tape and value nimbleness.

Our global community of researchers has transformed the world around us — from launching a revolution in artificial intelligence (AI), to changing how we understand the critical early years of human life. Today, CIFAR is a global powerhouse, enabling researchers to generate exciting new ideas, insights and knowledge that improve lives and help ensure a better future for generations to come. Partnerships with other research organizations, foundations, corporations, media, philanthropists and governments are critical for amplifying our impact.

The work conducted in CIFAR programs contributes to a platform of robust, reliable knowledge that can feed new technologies, processes and public policy. In an era when the very concept of 'fact' is widely doubted, when scientific knowledge is treated as just another opinion, CIFAR's work is more important than ever.

Our new Strategy supercharges the CIFAR model to be even bolder and more impactful over the decades to come.



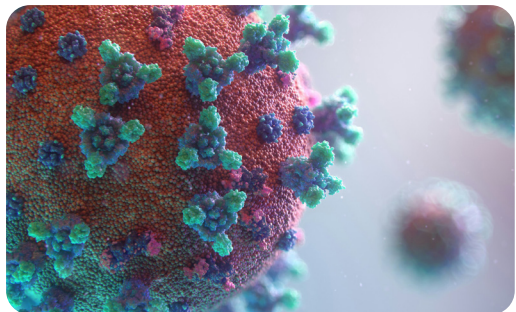
THE WORLD WE SEE

The world is a very different place now than it was when CIFAR launched its last Strategy in 2017 — and the pace of change is only accelerating. We see greater societal anxiety and even widespread fear. Geopolitics is unstable, science is under threat, and trust in expertise and institutions is dwindling. The research enterprise as a whole continues a long-term trend of producing ever-more publications, but these are increasingly less disruptive — largely associated with reliance on narrow bodies of previous research.² Many research funders are becoming impatient, looking for immediate outputs that solve ‘global challenges,’ or produce new economic opportunities and social progress in the short-term, while giving up on the possibility of long-term breakthroughs that change the world. The enthusiasm for uncertain but potentially transformational research is atrophying rapidly.

At the same time, the COVID-19 pandemic and rapidly escalating effects of climate change have prompted extraordinary advances in global ‘team research.’ There is more collaboration amongst disciplines, resulting in greater familiarity with a variety of methods, and fresh insight. International collaboration is also rising, going beyond the well-known, non-Western science powers like China and India. Yet, fears around research security and risks to national economic development are also growing.

Though progress is slow, more inclusive research communities and teams are developing new ideas that draw on a much wider range of perspectives.

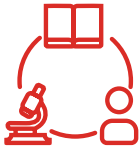
Finally — and perhaps most dramatically — applications of AI and machine learning are opening up entirely new ways for our community to conduct research. In particular, generative AI is leading to radically disruptive tools in the research space.



2 Park, Leahey & Funk, 613 Nature (2023) 138-144, doi.org/10.1038/s41586-022-05543-x

CIFAR'S NEW DIRECTIONS

Over the last year, we have consulted with our staff, researchers, partners, board members, funders and experts from across the global research community. We heard that the foundations of the CIFAR model remain inspiring and profoundly important, that the model has produced real breakthroughs, and that it can lead to exciting new ideas, insights and knowledge in the future. We also heard that, with some important adjustments and reorientations, we could have even more impact. Here, in summary, are our new directions, designed to position CIFAR for its next few years of work, followed by a more complete explanation of the Strategy, which will be reviewed and revised as needed through the coming years. We will:



Double down on our pinnacle aspiration, to convene and mobilize bold, forward-looking researchers who work across geographic and disciplinary borders on some of the toughest issues facing science and humanity.



Extend more and richer opportunities to early-career researchers from around the globe, connecting them to the leaders in their fields, both in Canada and abroad.



Achieve greater focus in our work by identifying profoundly important issues and opportunities, and creating a portfolio of Impact Clusters to address them.



Expand our capability to explore issues and opportunities 'on the horizon' that could be productively addressed through the CIFAR model.



Reinforce our capability to identify talent wherever it is found, widening the geographic scope of our research community, with particular effort to engage more talent from the Global South and from communities that face barriers to accessing top-flight research teams.



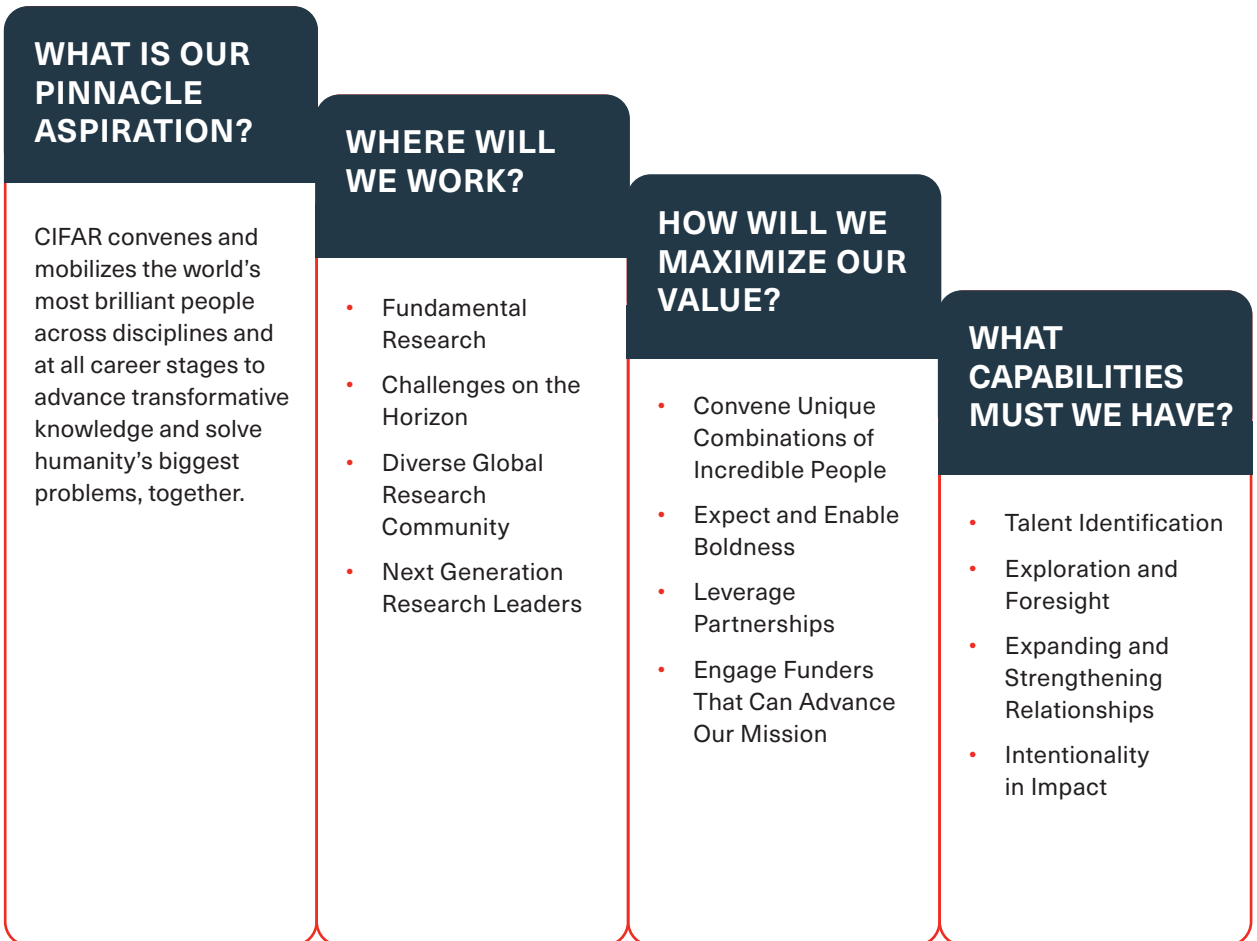
Develop more robust strategic partnerships with other research organizations, foundations, corporations, media, philanthropists and governments that share complementary ambitions to help deepen and scale our work.



Focus our work where there is potential for greatest impact, enabling our programs to identify their own impact agendas (in both knowledge creation and sharing), and then facilitating their efforts.

OUR STRATEGIC CHOICE CASCADE

After a thorough review, CIFAR adopted a modified version of the strategy framework developed by Roger Martin and A.G. Lafley, which requires clear answers to a few key strategic questions, as shown in the Strategic Choice Cascade below. This methodology keeps the analysis focused and forces choice. It also connects high-level aspirations to concrete operational capabilities. In other words, a strategy developed within this framework must be rooted in the reality of the organization. Strategy is also an evolving process, not a plan: we will implement the Strategy through a CIFAR Theory of Change on a rolling timescale of 3-4 years and annual operating plans.



PINNACLE ASPIRATION

CIFAR convenes and mobilizes the world's most brilliant people across disciplines and at all career stages to advance transformative knowledge and solve humanity's biggest problems, together.

WHERE WILL WE WORK?

WE WILL DEEPEN OUR COMMITMENT TO FUNDAMENTAL RESEARCH

CIFAR targets fundamental, high-risk/high-reward research that may take time to reveal its full potential. When combined with diverse groups of exceptional minds, this focus on fundamental research creates great promise of new ideas, insights and knowledge that can reshape fields and enable exciting possibilities for humanity.

Although we have the rare ability to focus on more speculative but potentially high-reward research, we will look to identify impact at every stage of a program, and work with impact partners to move new ideas, insight and knowledge into the world as they emerge.

WE WILL EXPLORE CHALLENGES ON THE HORIZON

CIFAR will target areas that are likely to be at the forefront of attention in 10, 20 or more years as serious threats to, or opportunities for, the health and prosperity of people around the world.

WE WILL BUILD MORE DIVERSE AND INCLUSIVE GLOBAL RESEARCH NETWORKS

Given our current networks and relationships, deliberate efforts will be required for broader community and institutional outreach, while being ever mindful of research security imperatives. In particular, we must reach further into the Global South.

We will need to deploy existing CIFAR networks more effectively and draw upon the talent identification of other organizations that have well-established networks in geographies where there is currently a small CIFAR presence. We will set clear geographic priorities as we implement this Strategy.

WE WILL IDENTIFY AND SUPPORT NEXT-GENERATION RESEARCH LEADERS

With our long-term focus, CIFAR supports and draws extensively on the ideas, passion and forward-looking orientation of early-career researchers. These researchers are an exceptional source of insight on potential futures and we will take advantage of this by helping them assume an active leadership role in scoping and articulating new ideas, insights and knowledge across disciplines and geographies.

We will expand opportunities for early-career researchers to lead collaborations with scholars across career stages, giving them freedom to follow their instincts, and highlight the potential of their work.

WHAT IS A CHALLENGE 'ON THE HORIZON'?

This refers to a challenge or opportunity which:

Is likely to dramatically increase in importance over the next decade or two

Is unlikely to be resolved through incremental improvements or purely technical progress

Has significant implications for humanity's collective well-being and welfare

Is not the target of major investment by others, often because the challenge or opportunity has not yet been clearly recognized

Is more targeted than themes, disciplines or topics; is amenable to deep questions

FUNDAMENTAL RESEARCH FOR SCIENTIFIC AND SOCIETAL IMPACT

CIFAR embraces the extraordinary contributions that fundamental research can make towards transformative impact. We will leverage these opportunities through a portfolio approach. Most of CIFAR's research programs will be clustered around future-oriented challenges or opportunities where they could unlock entirely new knowledge and new opportunities to change the world for the better.

Critically, programs are not tasked with solving specific predetermined problems. The work is highly exploratory and focused on developing transformative knowledge. In many cases, that new knowledge will be actively diffused during the life of a research program to give the world new ways to shape the future towards one we desire. In other cases, the impact of new ideas, insights and knowledge will take longer to unfold.

Organized into Impact Clusters, programs will identify very different questions to explore, using a wide range of disciplines, informing a

variety of pathways towards addressing our biggest problems or unlocking tremendous opportunities. Each of these programs can contribute to transformative impact in a bottom-up fashion, identifying their own core questions for investigation. In parallel, we will retain a small collection of stand-alone programs that are even more high-risk and might identify entirely new Impact Clusters for the future.



HOW WILL WE ACHIEVE CIFAR'S HIGHEST VALUE?

WE WILL CONVENE UNIQUE COMBINATIONS OF INCREDIBLE PEOPLE

As international, interdisciplinary collaboration and team-based research is recognized more and more to be essential for disruptive progress, CIFAR creates unique value by building research networks of exceptional people who would not otherwise interact. We will facilitate introductions and draw people together from well beyond 'the usual suspects.'

We make progress on difficult questions by thoughtfully constructing diverse and extraordinarily talented research groups — with established leaders and emerging talent from various sectors, lived experiences, disciplines and geographies — to approach questions from different perspectives and traditions. We will embrace diverse ways of knowing to create insights for the future from every possible angle. Our activities will be guided by an updated Action Plan on Equity, Diversity and Inclusion.

WE WILL EXPECT AND ENABLE BOLDNESS

As an independent not-for-profit with diverse funders and a relatively low-cost model, we have the opportunity to embrace a higher risk threshold than most other organizations. We take advantage of this unique positioning by expecting bold new ideas that can make the world take notice.

We are bold in choosing to support research that other organizations may consider too risky. We also create conditions to share knowledge and challenge accepted ideas, through trusted networks and flexible research support that allow more adventurous exploration.

WE WILL LEVERAGE PARTNERSHIPS

We look for ways in which the capabilities of other organizations can complement ours to advance our mutual or respective goals. Building on our strong history of partnerships in research and communications, we will seek to expand this approach to new areas.

The primary pathway by which CIFAR can achieve heightened impact is through partnerships with organizations that are interested in and can benefit from the diffusion of new ideas, insight and knowledge generated in CIFAR programming. We will work with organizations in the public, private, academic and civil society sectors.

WE WILL RALLY FUNDERS TO ADVANCE SHARED AMBITIONS

CIFAR's funders — whether individuals, foundations, corporations, governments or research partners — have been instrumental to our success. They have supported existing and new research programs, and helped us build new lines of programming, dramatically extending our impact. Critically, funders are not simply sources of financial support. They provide advice, extend our networks, help identify talent, and participate in the diffusion of new ideas, insights and knowledge.

CIFAR will focus on leveraging the expertise and networks of existing supporters, while also engaging new allies that can drive impact through financial, intellectual and strategic contributions.

WHAT CAPABILITIES MUST WE HAVE TO SUCCEED?

IDENTIFYING TALENT AND BUILDING NETWORKS

CIFAR actively helps its research programs build trust and respect across disciplinary lines, come together as a cohesive and inclusive community, and develop a shared research trajectory to ensure that each gathering is making progress towards the program's goals. This culture of CIFAR programs is perhaps the most critical factor in their success. We will reinforce our program culture while diversifying the talent pool. We will reinforce our already strong capability to deliver impeccably organized, intellectually adventurous program meetings.

CIFAR will grow its capacity to search broadly to identify and recruit world-leading researchers with the capability and desire to engage across disciplines, expanding our existing networks beyond the elite academic institutions of North America and Western Europe. We will build this capacity by deploying our existing networks with an intention to diversify, using technology, improving internal processes and developing targeted institutional relationships, especially in the Global South.

EXPLORING THE HORIZON (BEYOND FORESIGHT)³

CIFAR must have the ability to identify research opportunities that are as forward-looking and high-potential as possible. This has happened implicitly throughout CIFAR's history and led to some of our greatest successes.

We will intensify and formalize this capability to help us select and build research programs and other initiatives, while recognizing that serendipity still has a role to play. We will do this work in partnership with well-established not-for-profit groups that share a commitment to exploration and research foresight. We will also build capacity and mechanisms to identify ideas, insights and knowledge from our programs and their impact agendas that can contribute to exploratory practices and scenario planning at CIFAR and other organizations.

EXPANDING AND STRENGTHENING RELATIONSHIPS

CIFAR fundamentally depends on strong relationships with other innovative organizations and bodies, including governments, donors, and research and impact partners. We will enhance our capability to develop and sustain these relationships through staff, volunteers and leveraging technology. This will allow us to expand and diversify our funding, as well as deliver on the new capabilities and lines of activity outlined in this Strategy.

CREATING A DELIBERATE DIFFUSION OF IDEAS AND IMPACT

CIFAR recognizes that while it can deploy traditional mechanisms of diffusion of new knowledge in research journals, it cannot provide direct benefits to people around the world on its own.

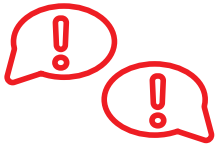
CIFAR will not become an agent of public policy, commercialization or other forms of societal impact. However, we will take deliberate actions to encourage researchers in our networks to define where and how their collective work could create impact. We will also ensure that world-leading research is accessible and legible, and make its relevance and potential impact as visible as possible to policy, business and civil society actors, as well as within the academic community. Equally, we will work to facilitate impact partnerships with organizations that can take new ideas, insight and knowledge from CIFAR programs and turn them into positive change in the world.

³ Foresight is a discipline that uses specific methodologies and analytical rigour to create and explore scenarios. It is neither predicting the future, nor is it simple reliance on collective gut feelings. However, as currently practiced, much foresight activity can be path-dependent, linked to what we see now. Our intention is to build capability on the outer edge of foresight – trying to see what is just appearing on the horizon. CIFAR has achieved this in the past – our earliest program was in artificial intelligence (launched in 1983) and we pioneered work in early childhood development (beginning in 1992).

OUR COMMITMENTS

As we engaged in broad consultation on our Strategy over the last year, the CIFAR community identified the need to refresh and sharpen the commitments that we make to one another, and as an organization to the wider world.

AT CIFAR, WE STRIVE TO:



Be unafraid to advance bold new ideas and actions, and create space for others to do so too



Bring the best version of ourselves to all our interactions, and recognize others doing the same



Work openly and collaboratively within CIFAR's community



Focus our efforts and resources on the areas with the highest potential impact

AS AN ORGANIZATION, WE:



Actively consider the ethical implications of the research we support, both now and in the interests of future generations



Ensure that our actions advance reconciliation, promote equity, improve diversity and foster inclusion



Take responsibility for the sustainability impact of our work

We will embed these Strategic Actions and Commitments in the work goals of individual CIFAR staff members, in the self-evaluation of our Board of Directors, and in the assessments of the President and the Executive team.

CONCLUSION

CIFAR and the world face profound challenges as well as significant opportunities — and that is why CIFAR must evolve. As we bring the CIFAR Strategy to life over the next few years, some things will become clearer and new uncertainties will arise. A strategy is not a 'plan'. It is a framework that must be adaptable and open to reconsideration. The Strategy provides CIFAR with an exciting frame for critical choices. We will assess progress each year, but in three years we will undertake a more thorough strategy review to see how we are doing. We will consider what course corrections may be required. Meanwhile, our strategy consultation reaffirmed that CIFAR is a strong organization with a unique model of global research convening. We will look to our whole community and to our expanding group of strategic partners to help us explore boldly for new knowledge with even greater societal impact.



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