



CALIFORNIA EMERGING TECHNOLOGY FUND (CETF)

Board of Expert Advisors

Panel Presentation and Conversation on Artificial Intelligence (AI)

Thursday, April 16 | 9:00 a.m.–12:00 p.m.

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I. Convening and Welcome

- **Sunne Wright McPeak**, President and Chief Executive Officer, California Emerging Technology Fund
- **Luis Arteaga**, Chair, CETF Board of Expert Advisors

Luis Arteaga

09:04:12

Thank you, everyone, for being on time for this panel discussion. First, my name is Luis Arteaga. I serve as Chair of the Board of Expert Advisors. I want to thank all of the speakers for the work you have done in preparing for today. As I mentioned, this conversation is both timely and critical, and it is important that CETF and all of us remain informed and engaged on this topic.

I also want to thank Sunne Wright McPeak and the CETF team for pulling this together. There are many logistics involved in organizing a convening like this, and I want to acknowledge Alana O'Brien, Agustin Urgiles, and others who supported this effort.

As reflected on the agenda, we have very tight timeframes to cover these topics over the next three hours. That means I will be very succinct. With that, I will turn it over to Sunne.

Sunne Wright McPeak

09:05:07

Thank you, Luis, and thank you to everyone for joining us today. It has been my pleasure to work with Luis Arteaga for more than three decades. He has served as an advisor to CETF for all of the years CETF has been in existence. It has now been 20 years since the California Public Utilities Commission directed the establishment of the California Emerging Technology Fund through merger orders in 2005. Luis, who was then the Chief Executive Officer of Latino Issues Forum, was one of the leaders who ensured that this public benefit was realized.

Like all of you, CETF has been discovering both the power and the challenges of Artificial Intelligence. As an organization, we have explored and embraced opportunities to use AI effectively in education, healthcare, and in supporting the summarization of curated research and documents. Last month, in March, the CETF Board of Directors determined that it was time for CETF to undertake a much deeper examination of Artificial Intelligence, in collaboration with all of you, to explore how AI can accelerate progress in closing the Digital Divide, promoting Digital Inclusion, and achieving Digital Equity. At the same time, it is essential to be mindful of the challenges, including environmental impacts, equity considerations, and the risk that AI could exacerbate the Digital Divide.

CETF has worked for decades to ensure that low-income households are connected, digitally proficient, and able to participate fully in programs within the public benefit arena. This convening provides an opportunity to hear from an outstanding group of panelists on how AI fits within that mission.

I would also like to acknowledge that many of CETF's Directors are joining us today. We are joined by our Chair, Renée Martinez; our Treasurer and Chief Financial Officer, Rich Matta; and founding Director and former California State Senator, the Honorable Martha Escutia. We are also joined by Francis Gibson, Jim Kirkland, and we expect Tim McCallion and Jeff Campbell to join us. You will hear from CETF Directors today who are presenting and moderating panels, including our Secretary, former California State Chief Information Officer Carlos Ramos, and Barb Johnston Yellowlees, a pioneer in telehealth in California. Panelists will also include Lenny Mendonca, former Chief Economic and Business Advisor to Governor Gavin Newsom.

We are delighted by the participation of our Directors, Expert Advisors, and partners. At the beginning of the program, you will hear a report from our Director of Policy and Communications, Kyle O'Ryan, on CETF's legislative work. I want to underscore that CETF is a nonpartisan organization. We consistently seek bipartisan agreement on our issues. You will hear a very encouraging update from Kyle, followed by a brief presentation from our Senior Vice President, Kat Zigmont, who will summarize a book recommended by Director Jim Kirkland. With that, I will turn to Kyle O'Ryan to provide a brief overview of CETF's legislative work.

CETF Policy Update

- **Kyle O'Ryan**, Director of Policy and Communications, California Emerging Technology Fund

Kyle O'Ryan

09:09:43

Thank you, Sunne. As Sunne mentioned, my name is Kyle O'Ryan, and I serve as Director of Policy and Communications at CETF. I will provide an update on CETF's legislative work. The first bill that CETF is sponsoring this year is the **Regional Broadband Consortium Empowerment Act**, Assembly Bill 2279, authored by Assemblymember

Mike Gibson. Last week, AB 2279 passed out of the Assembly Communications and Conveyance Committee with unanimous support, nine to zero, and without opposition. The bill has three primary objectives. First, it expands the authority of Regional Broadband Consortia to engage in all aspects of broadband deployment and adoption to close the Digital Divide, promote Digital Inclusion, and achieve Digital Equity. Second, it provides sufficient funding for Regional Broadband Consortia to support the full range of stakeholders identified in statute. Third, it reforms grant payments by shifting from reimbursement-based funding to performance-based payments tied to milestones and an annual work plan template developed in collaboration with the consortia.

The second bill CETF is sponsoring this legislative year is the **Education Technology Empowerment Act**, Assembly Bill 2675, authored by Assemblymember Joaquin Arambula. AB 2675 is scheduled to be heard in the Assembly Education Committee next week, on Wednesday, April 22. AB 2675 has five core objectives. First, it establishes state policy to harness the power of computing and Internet technologies to accelerate student academic achievement. Second, it delineates ten principles of best practice that will form the foundation for statewide implementation. Third, it directs the California Department of Education to compile and publish best practices for using technology to support instruction.

The third bill CETF is focused on this year is the **California Home Internet Lifeline Act**, Senate Bill 716, authored by Senator María Elena Durazo. CETF has worked on this bill for more than a year. SB 716 is currently on the Assembly Floor, and CETF continues conversations with legislative leadership. SB 716 would allow the California Public Utilities Commission to include home Internet service as part of the California Lifeline Program. By way of background, SB 716 passed through the Senate and onto the Assembly Floor last legislative year. CETF continues to work closely with Senator Durazo to identify a path forward that includes both legislative leadership and the Governor's Office. Thank you.

Sunne Wright McPeak

09:12:41

Thank you very much, Kyle. I want to underscore how helpful it has been that members of our Board of Expert Advisors and our partners have submitted letters of support for each of these bills. The breadth of support makes a significant difference. We are particularly encouraged that AB 2279 currently has no opposition. There has been opposition in the past, but there is none currently. These bills are fundamental to the next stage of closing the Digital Divide. Institutionalizing support for Regional Broadband Consortia, education technology empowerment, and affordable home Internet access is essential at this point in California's history. California will soon see a new administration, new constitutional officers, and a new Superintendent of Public Instruction, and more than half of the Legislature is relatively new. This makes the present moment especially important.

We appreciate your continued support and will continue to keep you updated on legislative activity. Kyle will provide ongoing updates as the bills proceed through the Legislature. I will now turn to our Senior Vice President, Kat Zigmont.

CETF Overview “Co-Intelligence: Living and Working with AI”

- **Kat Zigmont**, Senior Vice President, California Emerging Technology Fund

Kat Zigmont

09:14:15

Today I will be presenting a brief overview of *Co-Intelligence: Living and Working With AI* by Ethan Mollick. This book explores how Artificial Intelligence is changing how we work, learn, and make decisions.

Rather than focusing on fear or the idea that AI will replace humans, Mollick introduces the concept of “co-intelligence,” which describes humans and AI working together as collaborators. In this partnership, humans contribute judgment, creativity, and ethical decision-making, while AI contributes speed, scale, and pattern recognition. A central idea of the book is that the future is not humans versus AI, but humans working alongside AI to produce better outcomes. One of the most useful aspects of the book is its practical guidance for using AI effectively.

Mollick explains that AI performs better when users clearly define its role or “personify” it, for example, as a teacher, editor, or subject-matter expert. This added context leads to clearer and more useful outputs. He also describes AI’s value as a brainstorming partner that can quickly generate ideas for projects, programs, or writing, while emphasizing that humans remain responsible for evaluating and refining those ideas.

AI is most effective when treated as a collaborative partner through ongoing dialogue, iterative prompting, and refinement. Over time, this approach allows AI to function as a coach or tutor that reflects the user’s needs and thinking style. Human judgment remains critical. By intentionally aligning AI use with organizational values, such as CETF’s mission and voice, AI can remain a supportive tool rather than something that operates outside institutional intent.

One example Mollick offers compares AI adoption to the introduction of calculators in schools. When calculators were introduced, there were concerns that students would stop learning basic math. Over time, educators found that calculators freed students to focus on higher-level thinking and problem solving. Mollick argues that AI will follow a similar trajectory. The book presents AI as powerful but imperfect. Its impact depends on how people choose to use it. One quote that stood out to me was: *the AI you use today is the worst AI you will ever use.*

In conclusion, *Co-Intelligence* argues that future success will depend on our ability to work effectively with AI. By combining human judgment with AI capability, we can improve learning, decision-making, and problem-solving. AI is not replacing humans; it is reshaping how we work, and those who learn to collaborate with it will be better prepared for the future. Thank you.

Sunne Wright McPeak,

09:19:26

Thank you, Kat. You were asked to summarize a major book in five minutes, and you accomplished that exceptionally well.

I would like to note that this session is being recorded and will be available online. We will also be responding to participant questions submitted through the chat. Questions will be curated, and approximately three will be addressed during each panel discussion.

Before moving to the next segment, I want to thank Alana O'Brien and the CETF team for organizing this convening.

Director Comment and Transition to Panel Moderation

Jim Kirkland, Director, California Emerging Technology Fund

09:20:32

Thank you. I will try to be succinct. Kat, you did an outstanding job summarizing the book, which I strongly recommend. Ethan Mollick also maintains a Substack where he goes into greater depth on current developments in Artificial Intelligence.

I want to highlight a few points that I believe will come up today. Mollick is by no means naïve about the social and individual impacts of AI, including its potential psychological effects on children and other populations. There is a significant public policy dimension to this work. The intersection of Artificial Intelligence and public policy is, in my view, a central part of today's agenda.

One of the most important takeaways from the book is that AI is ultimately something humans must control. Mollick discusses a range of what some might describe as "doomsday scenarios," but he does not take a definitive position on them. Rather, his thesis is that Artificial Intelligence requires responsible policy choices. There are many issues associated with AI, including social impacts, personal impacts, and policy implications.

I am very much looking forward to what I expect will be a robust discussion on these issues today.

Sunne Wright McPeak

09:21:55

Thank you, Jim. I want to note that it was on March 5 that CETF's Board of Directors unanimously agreed that we needed to deepen our engagement with Artificial Intelligence. Today's convening is the direct result of that decision.

Alana O'Brien took on the responsibility of organizing this session, and we now have an exceptional program. CETF Directors have stepped forward to play active roles, including moderating today's panels.

Jim recommended this book, and we appreciate that contribution. I would also note the exchange between Eduardo Gonzalez and Kat Zigmont regarding the use of AI to produce summaries. Kat shared that she prefers to collaborate with AI rather than rely on it without oversight.

CETF Directors, including Carlos Ramos, Barb Johnston Yellowlees, and others, have been encouraging thoughtful use of AI for some time. CETF has taken this guidance seriously, using AI to curate libraries, summarize extensive materials, and analyze large datasets, including those related to telehealth.

At the same time, CETF remains mindful of the risks associated with AI use, including hallucinations and inaccuracies when systems are not used carefully or intentionally.

With that, it is my pleasure to turn moderation of the panel discussions over to CETF Directors Carlos Ramos and Barb Johnston Yellowlees.

II. Artificial Intelligence Panel Introduction and Opening Remarks

- **Carlos Ramos**, Director, California Emerging Technology Fund and former California State Chief Information Officer
- **Barb Johnston Yellowlees**, Director, Chair of Nominating and Telehealth Committees, California Emerging Technology Fund

Carlos Ramos

09:24:36

Thank you. I am pleased to be here and to help moderate today's discussion. Kat, I appreciated how you framed your presentation.

Over the holiday weekend, my family had a robust discussion about Artificial Intelligence. Participants approached the subject from very different perspectives. Some viewed AI as transformative and overwhelmingly positive, while others expressed deep concern about potential catastrophic outcomes.

What became clear was that these differing perspectives reflected different levels of understanding of AI. In my experience as a Chief Information Officer, I found it essential to ensure that everyone was operating with a shared understanding of basic terms and concepts. By way of brief framing, I think of Artificial Intelligence as a field of computing focused on creating systems that analyze information, learn from data, and make predictions or decisions. Unlike traditional rule-based computing systems, AI systems learn and improve over time.

Traditional computing can be compared to following a fixed recipe, where each step must be precisely defined. AI, by contrast, is more like an experienced chef who can adapt, adjust, and improve based on experience. This flexibility makes AI powerful, but it also raises significant questions about equity and access.

Over the past five to ten years, AI has moved from research labs into everyday applications across education, government, and the private sector. Because AI relies on Internet access, computing power, and digital literacy, it has the potential either to reduce inequality or to exacerbate existing gaps. As we begin today's discussions, I encourage everyone to keep three questions in mind: Who benefits from Artificial Intelligence? Who may be left behind? And what should be done about it?

Barb Yellowlees

09:29:17

Good morning. I would like to offer a few brief comments on Artificial Intelligence and healthcare. AI is increasingly used in healthcare and has the potential to positively or negatively affect marginalized communities. It can significantly improve healthcare for underserved populations by enhancing access to telemedicine, improving diagnostic accuracy, and supporting more personalized care. However, Artificial Intelligence also risks exacerbating existing health disparities if implemented using biased algorithms, which can introduce new inequities. Marginalized communities are often underrepresented in medical datasets, resulting in AI tools that are less accurate for those populations.

The high cost of AI infrastructure can further limit access for rural hospitals and clinics that serve low-income communities, widening the technology gap. For example, devices such as smartwatches commonly used for monitoring or diagnosing cardiac conditions may be cost-prohibitive for many individuals. At the same time, AI-driven applications can offer health information and education in patients' preferred languages. In California, it is particularly important that Artificial Intelligence serves as a tool to promote equity.

Achieving this requires validation of AI tools across diverse populations and intentional efforts to include underrepresented data, with the goal of closing rather than widening existing gaps in care. These considerations, together with the points Carlos Ramos has raised, are key reasons the CETF Board is deeply interested in this topic. We are encouraged by the strong participation today. This is clearly an important and complex issue. With that, I will turn it over to Carlos, who will introduce our first panel.

III. Artificial Intelligence in Education – Equity, Safety, and Access

Panelists

- **Mike Lawrence**, District Director of Information and Technology, ABC Unified School District, Member, CETF Board of Expert Advisors
- **Rae Fearing**, Director of Programs, California Association for Leading Innovation in Education (CALIE)
- **Dr. Ruth Perez**, Deputy Superintendent, Los Angeles County Office of Education

Moderator

- **Carlos Ramos**

Carlos Ramos

09:31:33

We are very fortunate today to begin our first panel with Mike Lawrence, District Director of Information and Technology with the ABC Unified School District; Rae Fearing, Director of Programs with the California Association for Leading Innovation in Education; and Dr. Ruth Perez, Deputy Superintendent with the Los Angeles County Office of Education.

The focus of this panel is Artificial Intelligence in schools, with particular attention to equity, safety, and access. With that, I will turn it over to the panelists.

Agustin Urgiles Executive Manager, School2Home, California Emerging Technology Fund
09:32:17

Thank you. Each participant will begin by reviewing the materials they have prepared, followed by time for discussion before transitioning to the next speaker.

Mike Lawrence

09:32:30

Thank you. I will keep my comments brief so we can stay on schedule. From a transitional kindergarten through grade twelve perspective, Artificial Intelligence is often met with a mix of fear and excitement, similar to what we see in other industries.

One of our early priorities has been encouraging teachers to use AI for productivity and exploration, so they can understand what the tools can and cannot do. The primary message we share with staff and students is that the best approach combines human intelligence and Artificial Intelligence. HI plus AI is far more effective than either in isolation. When users prompt AI systems, the response should not be copied and pasted directly. Instead, human intelligence must be applied—evaluating accuracy, applying professional judgment, and ensuring the content reflects the user’s voice.

We provide guidance on human-centered inquiry and on framing prompts in ways that support iterative dialogue with AI. We view this as an ongoing process—HI plus AI plus

HI plus AI—because the interaction improves over time. We have created district guidance and toolkits for staff and students, which are posted on our district website. These include resources for teachers and a separate AI guide for students.

Importantly, we framed this work as guidance rather than formal policy. Policy is difficult to update and can constrain responsiveness. Instead of seeking Board adoption of new AI policy language, we released guidance and invited public input. We also convened community roundtables to bring families, educators, and union representatives into the conversation.

Professional learning has been embedded directly into curriculum and instructional practice. Rather than offering stand-alone AI training, teachers learn how AI can support feedback, assessment, and instruction. This approach addresses the common concern of “one more initiative,” by integrating AI into existing pedagogy.

We also created a Responsible Use addendum linked to our existing Responsible Use Policy. The addendum clarifies expectations around respect, integrity, attribution, privacy, and data use as they relate to AI. Existing standards still apply—AI-generated content does not change expectations around originality or academic integrity.

Finally, we developed a conversational approach to disclosure. Staff and students are encouraged to indicate when AI has been used through a set of voluntary badges that communicate levels of AI involvement. This transparency removes stigma and supports constructive conversations rather than accusations. Our objective is to normalize responsible AI use and ensure that equity, trust, and professional judgment remain central.

Carlos Ramos

09:38:53

Thank you, Mike. That was very informative and inspiring.

Rae Fearing

09:38:59

Thank you. I appreciate following Mike because it provides a concrete example of what intentional implementation can look like. CALIE is a nonprofit with more than forty years of experience supporting educators in California and internationally. We work directly with teachers, schools, and districts to support quality teaching with technology.

Much of today’s discussion has focused on access to devices and platforms. While that remains critical, I want to focus on other divides that affect educational equity.

Increasingly, the divide is not whether technology exists, but how it is designed and used. We are seeing what we describe as a digital design divide and a digital use divide. Teachers vary widely in how effectively they integrate technology, and students

experience technology in very different ways depending on instructional design. AI will widen these gaps if implementation is inconsistent and unsupported.

AI has tremendous potential to personalize learning, provide language access, and remove barriers for diverse learners. However, those benefits are only realized when educators are supported with foundational AI literacy, clear expectations, and sustained professional learning.

Teachers bring different levels of comfort and expertise with technology. If districts deploy AI tools without addressing educator capacity, inequities will widen classroom by classroom. This is not a teacher problem; it is a systems problem. Schools that invest in educator capacity adapt more quickly to technological change and make more effective decisions about long-term technology investments. Schools that do not risk tool fatigue, inconsistent practice, and limited evidence of impact on learning outcomes.

CALIE recently published Effective Technology Guidelines to support districts in moving from intention to implementation. These guidelines apply directly to Artificial Intelligence and emphasize clarity, consistency, and evaluation of impact.

If AI is not improving student learning measurably, then it should not be adopted. Equity requires intentional design, not accidental outcomes.

Dr. Ruth Perez

09:47:18

Thank you. I'll take it from here. Good morning, everyone. My name is Ruth Perez, and I am the Deputy Superintendent at LACOE, as mentioned. We partner closely with our districts that are moving forward with Artificial Intelligence integration and instruction, and we are also working extensively with families, providing training on how to use AI alongside teachers, educators, and students. In the interest of time, I want to add to what you have already heard. You have heard from an outstanding district, ABC Unified, that is using AI and intentionally integrating it into classroom instruction, and you have also heard from CALIE. One perspective I would like to highlight is that we serve 80 school districts across Los Angeles County, which allows us to see where Artificial Intelligence is being integrated—and where it is not—as well as how technology adoption varies across districts.

I appreciated Carlos's comments because I strongly believe that this **technology divide—this AI divide—will continue to increase** if districts do not embrace AI with intentionality in how it is rolled out across schools. Unfortunately, it is always underserved students who suffer most when this intentionality is missing.

I am a heavy user of Artificial Intelligence myself, and I also have a senior in high school at home. Just last night, I called him upstairs and asked, as we have many times before, whether his teachers were using AI in the classroom. He said no. This is a young person

who, on his own, used AI to study for AP exams and earned a five on three of those exams. He did this independently.

This is happening regardless of whether educators engage with it, and if we do not step into this space intentionally as educators, it will continue without guidance. There is no way to stop it. I want to highlight what I see as a **leadership divide**. Even though, as Rae mentioned, we provide teachers with tools to use Artificial Intelligence, teachers are often given the choice of whether to use them. We also offer an extensive range of professional development opportunities across Los Angeles County. However, if leaders do not assume responsibility with intention and focus on how AI is used in classrooms—supporting the kinds of efforts you have heard about today—I truly believe the gap will widen for many underserved students.

In the midst of all that is happening, leadership is essential. Rolling out Artificial Intelligence requires clear expectations, equitable access, adequate resources, and sustained support. It also requires engaging communities and families, talking with parents, and helping them feel comfortable with the use of AI when it is implemented intentionally and with appropriate guardrails.

When AI is introduced this way, communities can see and understand how it accelerates learning and instruction. Without that leadership, the **leadership divide** will continue to expand, and I truly believe we are at risk if leadership is not part of this conversation. I was encouraged by Carlos's comments and by what I am hearing about CETF's legislative work and the intentionality behind it. I wanted to share this perspective from the lens of the 80 districts we serve across Los Angeles County.

Carlos Ramos

09:51:35

Thank you, Dr. Perez. I appreciated your framing of the leadership divide. Across this panel, the themes that emerged include literacy, access, educator training, appropriate guardrails, and leadership.

I encourage participants to submit questions through the chat, which we will curate and address later in the session. With that, I want to thank our panelists for an excellent discussion.

IV. Artificial Intelligence Investment and Economic Risk

Panelists

- **Lenny Mendonca**, Director, California Emerging Technology Fund; Former Chief Economic and Business Advisor to Governor Gavin Newsom; Senior Partner Emeritus, McKinsey and Company
- **Martin Neil Baily**, Senior Fellow Emeritus, Brookings Institution; Senior Advisor, McKinsey Global Institute

Moderator

- **Barb Yellowlees**, Director, California Emerging Technology Fund

Barb Yellowlees

09:52:35

Our next two panelists are Lenny Mendonca and Martin Neil Baily. Lenny is a Director of the California Emerging Technology Fund, former Chief Economic and Business Advisor to Governor Newsom, and Senior Partner Emeritus with McKinsey and Company. Martin is a Senior Fellow Emeritus at the Brookings Institution and Senior Advisor to the McKinsey Global Institute. This session will focus on Artificial Intelligence, investment, and economic risk. Lenny will begin.

Lenny Mendonca

09:53:11

Thank you. I will provide some context before turning to Martin, who will do most of the substantive presentation, as he is one of the leading experts globally on financial markets, regulatory issues, and economic risk.

Martin has spent considerable time examining whether Artificial Intelligence could trigger financial instability and how regulators and policymakers should think about these risks. Together, we authored a paper—*An AI Bubble Will Not Trigger a Financial Crisis*—which is included in the reading materials. We also have an upcoming paper focused on what policymakers should pay attention to if AI does not pose systemic financial risk.

Martin served as Chair of the Council of Economic Advisors to President Clinton and has held senior academic and policy roles in both the United States and the United Kingdom. He has spent decades examining productivity, competitiveness, and inclusive economic growth. The objective of this discussion is to examine why AI is unlikely to trigger a financial crisis, draw lessons from historical investment cycles, and address concerns people have about personal financial security, including retirement savings.

Barb Johnston Yellowlees

09:58:11

I want to add that I hear a lot of anxiety in my community regarding the financial impacts of AI. People worry about retirement accounts, banking systems, and whether Artificial

Intelligence could undermine financial security. I hope this discussion addresses those concerns.

Martin Neil Baily

10:01:39

I will begin by addressing why we do not believe Artificial Intelligence is likely to trigger a financial crisis.

The primary reason is that the bulk of AI investment is being financed directly by large technology companies with substantial cash flows. Companies such as Google and Meta generate significant revenue and can finance large capital expenditures on compute, data centers, and AI development.

While these companies are not yet generating sufficient revenue from AI models to justify their full level of investment, they view AI as a long-term strategic technology that they must develop to remain competitive. This does not resemble the leveraged financial structures that contributed to the 2008 financial crisis.

Some concerns have arisen around the role of private credit in financing AI-related investments. Private credit institutions, including asset managers and banks, provide loans, some of which are funded by pension funds and insurers. There have been withdrawals from certain private credit funds, reflecting investor caution, but this does not indicate systemic risk by pension funds and insurers. There have been withdrawals from certain private credit funds, reflecting investor caution, but this does not indicate systemic risk.

Financial supervision has improved significantly since 2008 through reforms such as the Dodd-Frank Act. Large banks are required to hold more capital and have clearer resolution mechanisms. Although supervisory fragmentation remains a challenge, there is no evidence that AI-related investment poses imminent systemic risk. In short, AI investment is occurring within a far more resilient financial system than existed prior to the last crisis.

Lenny Mendonca

10:09:42

Martin, I want to explore the issue of concentration risk. In the technology sector, we see heavy investment in specialized components such as advanced chips. Could failures in one firm—or supply chain concentration—create broader financial instability, similar to past bubbles?

California, and particularly the Bay Area, experienced this during the dot-com collapse. That downturn was painful for investors but did not produce a systemic financial crisis.

Martin Neil Baily

10:10:50

That is a useful comparison. The dot-com crash resulted in significant market losses, but while it caused a recession, it did not undermine the financial system. Much of the physical infrastructure built at that time—such as fiber-optic networks—eventually proved beneficial. With AI, failures of individual companies or reductions in valuations could certainly occur. This would affect investors and specific regions, but it is unlikely to cascade into systemic collapse. Diversification remains the primary protection for institutional investors and pension funds.

Lenny Mendonca

10:14:32

I agree. The risk is less about systemic collapse and more about over-concentration. Pension funds and institutional investors are diversified and not dependent on any single firm. AI is best understood as a general-purpose technology. Its impact will unfold over many years rather than overnight. We may be in a period of enthusiasm and elevated valuations, but that does not translate into system-wide financial fragility.

Martin Neil Baily

10:17:29

I would add that AI is not merely hype. Innovation continues rapidly, particularly in model capability and agent-based systems. However, translating those advances into broad productivity gains takes time. Predictions of massive unemployment in the immediate term are not supported by evidence. Job disruption will occur, but not at the pace or scale suggested by some extreme forecasts.

Audience Questions and Discussion

Carlos Ramos

10:22:41

One question from the chat asks: If AI investments are not yet profitable, what is the risk of loan defaults?

Martin Neil Baily

10:22:53

When lending is backed by companies such as Google or Meta, default risk is minimal. For private credit more broadly, default rates currently range between approximately 2 and 9 percent, which is comparable to other non-bank credit markets and does not indicate crisis-level risk.

Carlos Ramos

10:24:03

Another question concerns how AI may affect jobs and skill requirements.

Martin Neil Baily

10:24:17

Certain occupations, including coding and legal research, are already seeing disruption. However, impacts vary globally and by role. The more significant challenge is that the United States lacks robust systems for retraining displaced workers. Preparing the workforce for transition is essential to ensuring that AI benefits are widely shared.

Lenny Mendonca

10:26:46

I would add that similar fears arose during the transition from an industrial to a white-collar economy. Policy responses were insufficient then. AI presents an opportunity to address workforce transition more intentionally, rather than repeating past mistakes.

Carlos Ramos

10:27:33

Thank you both. Additional questions will be addressed later in the session. With that, we will move to the next panel.

V. **Artificial Intelligence and Scientific Innovation**

Panelists

- **Louis Fox**, President and Chief Executive Officer, Corporation for Education Network Initiatives in California (CENIC)
- **Tom DeFanti**, Professor Emeritus, University of Illinois Chicago and University of California, San Diego
- **Joy Sterling**, Chief Executive Officer, Iron Horse Vineyards; Member, CETF Board of Expert Advisors

Moderator

- **Carlos Ramos**, Director, California Emerging Technology Fund

Louis Fox

10:30:43

CENIC is a 501(c)(3) nonprofit organization chartered by its member institutions. Our mission is to advance education and research statewide by providing a world-class network essential for innovation, collaboration, and growth. Our membership includes all public higher education in California, along with selected private universities, K–12 institutions, hospitals, scientific and cultural organizations such as NASA Ames and the

Chan Zuckerberg Biohub, environmental and biomedical research organizations, and Tribal nations.

We currently connect approximately 12,000 sites across California using an 8,000-mile fiber backbone. On any given day, these institutions collectively serve roughly half of California's population.

CENIC AIR is part of the National Research Platform, which connects major research universities across the United States and provides access to shared resources such as the National Data Platform. These curated datasets are critical for effective research and education.

We collaborate nationally and internationally, supporting research networks that extend to Asia-Pacific, Europe, Africa, and Latin America. Beyond connectivity, CENIC provides planning, engineering, operations, and outreach to enable AI education and research. We are fortunate to partner with the San Diego Supercomputer Center as a major contributor to our statewide efforts.

Louis Fox

10:32:55

Much of the discussion around AI emphasizes private-sector cloud platforms. CENIC operates a shared academic cloud using a "bring-your-own-device" approach. Our current infrastructure includes more than 1,000 GPUs, 1,400 CPUs, and approximately 10 petabytes of storage.

This cloud is built on existing campus facilities rather than new data centers, using existing power, cooling, and rack space. Any participating institution in California can access these resources for education and AI research.

Only a small percentage of California colleges can independently afford to offer AI in classrooms. CENIC AIR exists to serve the remaining institutions, particularly community colleges and regional campuses.

Providing AI access earlier gives students an advantage when transferring to California State University or University of California campuses. Without access, students enter with a significant deficit.

In summary, we operate a university community-owned cloud that reduces barriers to AI participation. Access is provided at no cost to authenticated users. We also now offer campus network-as-a-service for institutions lacking staffing capacity.

Our next phase focuses on public libraries and community colleges, localizing AI applications to specific community contexts.

Joy Sterling*10:38:30*

I am honored to participate and to serve on the CETF Board of Expert Advisors. I have worked on rural broadband for more than ten years, and CETF has been an early and important partner. This year marks the 50th anniversary of Iron Horse Vineyards. Rather than focusing only on the past, this collaboration with CENIC allows us to look toward the future. Precision agriculture requires connectivity. AI is not the bridge across the Digital Divide; broadband connectivity is. Without connectivity, none of this is possible.

The Iron Horse test bed is designed to be open source and open data. It serves as a proof point of what is possible and as a training environment for students and technologists using off-the-shelf tools. The project also addresses skills gaps. Students learn how to gather, process, analyze, and interpret agricultural data, which would be impossible without AI.

Iron Horse is a remote, hilly estate with diverse microclimates, making it an ideal environment for testing precision agriculture. We now host wildfire detection cameras supported by high-capacity broadband that feeds directly to state fire alert systems. For agriculture, nuance matters. AI supports judgment; it does not replace the farmer or winemaker. Human expertise remains essential. In addition to improving vineyard management and water conservation, this work helps train the next generation of agricultural and technology professionals. My goal is to attract more young people into agriculture through technology.

Tom DeFanti*10:47:25*

My role is to work with technologists and students to deploy and refine the infrastructure at Iron Horse Vineyards. We currently operate more than 112 low-power sensors across varied vineyard locations to capture environmental and crop data. These sensors feed live data accessible by phone and computer, both in the field and remotely.

We also deploy multispectral drones equipped with multiple cameras to monitor crop health. This allows real-time analysis and long-term data storage. Accurate geospatial mapping was essential. We implemented high-precision surveying to map vines for consistent data reference. Students from Sonoma State University, UC Santa Cruz, UC San Diego, and community colleges participate directly in data capture, drone operation, and analysis. Their practical involvement is central to the project. Data flows from sensors and cameras through CENIC AIR and into the National Data Platform, ensuring open access and scalability.

The next phase will involve building AI models and developing a digital twin of the vineyard over time. This is a long-term effort that will support experimentation, prediction, and learning. Fire detection cameras installed on the site provide real-time monitoring across a 30-mile radius and are integrated into state alert systems.

Panel Questions and Responses

Carlos Ramos

10:56:35

Is the CENIC network available to local communities interested in similar projects?

Louis Fox

10:57:36

Yes. Projects must be undertaken in partnership with a higher education institution to align with our education and research mission.

Carlos Ramos

10:57:55

What skill sets are most lacking, and what challenges exist in building digital twins?

Joy Sterling

10:58:00

The primary challenge is managing and interpreting large volumes of data. AI is essential for making the data usable. Learning how to capture, process, and analyze this data is a critical skill gap.

VI. Data Center Environmental Impacts

Presenter

- **Cynthia Mackey**, Chief Executive Officer, Winning Strategies; Chair, Tech Exchange; Member, CETF Board of Expert Advisors

Moderator

- **Barb Yellowlees**, CETF Director

Barb Yellowlees

10:59:18

Our next speaker is Cynthia Mackey, a member of the CETF Board of Expert Advisors, Chief Executive Officer of Winning Strategies, and Chair of the Tech Exchange. Cynthia will be speaking about data center environmental impacts. Welcome, Cynthia.

Cynthia Mackey

10:59:45

Thank you. Good morning, everyone. For those of you who do not know me, my background is in engineering, specifically human factors and industrial engineering. I approach technology with a systems perspective. I first worked on Artificial Intelligence

in 1987 while supporting a military contractor, long before Internet-scale data existed. At that time, AI systems relied on structured human input. Since then, I have worked across manufacturing and Silicon Valley during the rise of the Internet, which gives me perspective on how AI is being deployed today.

If you take away one message from this presentation, it is this: Artificial Intelligence cannot exist without data centers. The two are inseparable. While AI offers enormous benefits, it also brings significant environmental and community impacts that must be addressed through policy and regulation. A data center is essentially a large industrial warehouse that stores rows of computing racks processing tens of thousands of requests per second. When people interact with AI, their requests are processed through fiber networks and routed to these facilities—sometimes locally, sometimes across the globe. This infrastructure is what people refer to as “the cloud.”

AI data centers require massive amounts of electricity and fresh water, particularly to cool specialized processors such as GPUs. These requirements are comparable to heavy manufacturing facilities, even though the environmental footprint is often invisible to end users. One of the primary issues is resource usage. The rapid expansion of AI was not incorporated into pre-pandemic energy forecasts or climate planning. Data centers are now placing unexpected strain on local energy grids and water supplies.

Another major concern is environmental justice. AI data centers are increasingly sited in low-income and marginalized communities—often communities of color or regions experiencing economic decline. In many cases, residents were not informed of the scale or impact of these facilities. Communities have reported significant increases in utility costs, with electricity bills rising dramatically. Additionally, diesel generators—often presented as backup power—are being used as primary energy sources in some facilities. These industrial diesel engines produce air pollutants with known health impacts.

The scale of these facilities is substantial. Many data centers occupy between 100,000 and 200,000 square feet, while hyperscale facilities can exceed one million square feet. Some global facilities reach many millions of square feet.

Energy consumption is projected to increase significantly. By 2028, data centers could consume up to 12 percent of total U.S. electricity usage. Water consumption is also rising. Standard facilities can consume hundreds of thousands of gallons of fresh water daily, while hyperscale facilities may use millions of gallons per day.

These impacts affect communities directly. Reports include noise pollution, air quality degradation, and increased health issues. Promised community economic benefits often do not materialize, as construction labor and services are brought in from outside the area. Regulation has not kept pace with growth. In some instances, permitting requirements have been relaxed to attract development. California has begun addressing these issues through legislation focused on energy and water accountability, but more comprehensive oversight is needed. Communities themselves are leading resistance efforts, raising concerns and pushing back against projects that threaten local health and

resources. In 2025, multiple data center projects were canceled following community action.

Longer-term solutions may include improved efficiency, alternative cooling methods, floating data centers, or even space-based infrastructure. However, these are not near-term replacements for responsible regulation on the ground. We cannot think about AI without considering its environmental footprint and community impacts. Responsible adoption requires coordinated policy, transparency, and accountability.

Discussion and Questions

Carlos Ramos, CETF Director

11:22:23

Cynthia, there is a question regarding whether community benefit agreements can mitigate harm when data centers are located in historically underserved communities.

Cynthia Mackey

11:22:52

Community benefit agreements can be part of a multi-step solution, but they are not sufficient on their own. Immediate physical harms—such as air and water impacts—must be addressed first.

Carlos Ramos

11:23:16

Are diesel generators now being used for day-to-day operations rather than as backup systems?

Cynthia Mackey

11:23:34

In many cases, yes. Communities are discovering after installation that diesel generators are operating continuously, not just as backup systems.

Carlos Ramos

11:25:15

Some data centers are difficult to identify. From a community perspective, there may be uncertainty about what is happening behind secured facilities.

Cynthia Mackey

11:25:28

Exactly. That lack of transparency undermines trust. If people's first interaction with Artificial Intelligence is negative—such as environmental harm near their homes—they will not trust the technology.

Carlos Ramos

11:25:43

A question was also raised regarding satellites and whether this is primarily related to private providers such as Starlink.

Cynthia Mackey

11:25:43

Satellite deployment raises similar governance questions. While satellite systems may provide connectivity benefits, large-scale deployment without oversight creates long-term environmental and safety risks. These impacts must be addressed proactively.

Carlos Ramos

10:59:11

Thank you to the panelists for an outstanding presentation.

VII. Observations and Conclusions

Carlos Ramos

11:26:38

Before moving to the observation and conclusion section, I want to address one additional question that came in for Cynthia regarding data centers being placed in communities that are predominantly Black and Brown.

The question is whether community benefit agreements can balance or mitigate harm and possibly produce benefits for those communities.

Cynthia Mackey

11:26:52

Community benefit agreements can be part of a multi-step solution, but they are not sufficient on their own. The physical harm—particularly related to diesel emissions and environmental exposure—must be stopped first.

Carlos Ramos

11:27:16

It has been several years, but when I was responsible for the State Data Center in Rancho Cordova, diesel generators were primarily used as backup power. Are they now being used more routinely?

Cynthia Mackey

11:27:34

Yes. In many cases, diesel generators are being used as primary energy sources. Communities often discover this after installation, despite being told the generators would be used only as backup systems.

Carlos Ramos

11:27:59

Thank you. With that, we will move into the observations and conclusions portion of the agenda. This discussion is open to CETF Directors, Expert Advisors, panelists, and participants.

One of the central questions posed for today is whether Artificial Intelligence will widen the economic gap faster than public policy can respond. Another is identifying ways AI is already widening inequities, particularly around access and literacy.

Lenny Mendonca

11:28:36

I will offer an initial response. The real concern is that the benefits of Artificial Intelligence will accrue primarily to those who own AI—companies, senior leadership, and shareholders—without being broadly shared. The appropriate policy response is not to slow innovation. California must remain at the forefront of AI development. However, protections must be in place to ensure benefits extend widely.

Three areas are critical. First is broadband access—ubiquitous, affordable connectivity accompanied by digital literacy. That is foundational to CETF's mission. Second, employers must be actively involved in workforce transition efforts. We cannot predict future jobs without engaging those who will hire. Third, displaced workers must have access to meaningful retraining and lifelong learning opportunities. The United States has historically performed poorly in this area. Other countries, including Denmark and Singapore, demonstrate more effective models. California has an opportunity to lead by testing and implementing such approaches before national adoption. This transition will occur over five to ten years, not months. The work must begin now.

Carlos Ramos

11:32:09

Thank you, Lenny. A follow-up question relates to guardrails. One area we have not addressed fully today concerns data. Artificial Intelligence systems depend on historical data, which often reflects exclusionary practices. For example, AI models trained on executive resumes may reinforce existing lack of representation. Where does responsibility lie for ensuring inclusive data representation—at the local, state, or national level?

Lenny Mendonca

11:33:58

That is a complex question. I do not believe this is solved solely through platform regulation. It requires innovation, potentially supported through public or nonprofit funding models. We must avoid slowing innovation while also ensuring representation improves. Some mechanisms, such as targeted funding or incentives, may help create space for inclusive data initiatives. As for responsibility, meaningful workforce transition policies will likely need national scale. However, California can play a leadership role in piloting solutions. Engaging the business community is essential. State agencies alone cannot manage labor re-deployment effectively. This presents an opportunity for leadership from the next administration in California.

Cynthia Mackey

11:37:55

I would like to add that we must consider broader economic models. Major technology companies are laying off tens of thousands of workers. Recent public statements suggesting future jobs will be limited to certain technical roles are alarming and contribute to public anxiety. Even modest percentage job displacement affects millions of people. We must seriously examine transition models, potentially including phased approaches or basic income mechanisms, to ensure people can survive economic shifts.

Lenny Mendonca

11:39:43

I strongly disagree with statements suggesting that Artificial Intelligence will eliminate the majority of jobs. Such comments are irresponsible. That said, public policy must ensure that the value created by AI is shared, not simply redistributed as income assistance. The goal should be participation in growth, not compensation for exclusion. Achieving this likely requires national policy, but California can lead.

Carlos Ramos

11:41:10

Another question raised concerns governance at the point of user interaction with AI. What does responsible governance look like at the individual user level?

Vera Hempel

11:41:53

At the system level, governance discussions have been valuable. At the user level, questions remain about data accumulation, consent, and limits. What kinds of data should not be collected, and how should governance address those boundaries?

Lenny Mendonca

11:42:44

Europe offers one model by requiring opt-in consent for data use rather than default collection. In the United States, governance must be consistent with the First Amendment, but there are clear boundaries society already enforces. Defining unacceptable uses—while preserving free expression—is difficult but necessary. This is not a technical problem; it is a policy and values question.

Carlos Ramos

11:45:08

I would add that data is largely commoditized and monetized. Profit incentives create resistance to stronger consent requirements. Requiring opt-in consent would represent a significant policy shift, but it is worth serious consideration.

Kat Zigmont

11:47:55

One question from the chat asks what would happen if large-scale quantum computers became more accessible.

Carlos Ramos

11:48:16

Based on recent discussions, the combination of quantum computing and AI poses serious cybersecurity risks. Existing encryption methods may become vulnerable. This will require significant reassessment of current systems before widespread deployment.

Lenny Mendonca

11:49:47

That concern is real. Security communities are already addressing it, and it must be treated as a national security issue. At the same time, California should participate in these advancements to ensure benefits accrue domestically rather than elsewhere.

Cynthia Mackey

11:55:03

I would also urge attention to how younger generations are using AI. Many young people consult AI for deeply personal decisions. There is documented evidence of AI influencing self-harm ideation among youth. This raises serious ethical and social concerns. AI must be understood as a tool—not a surrogate for human judgment or relationships.

Carlos Ramos

11:57:44

Thank you. These perspectives underscore additional areas CETF must consider moving forward. Before closing, I ask all participants to complete the feedback survey shared in the chat. I want to thank Sunne Wright McPeak, Alana O'Brien, Kat Zigmont, and the CETF team for organizing this convening. I also thank Chair Arteaga, the panelists, and all participants for contributing to a substantive discussion.

Sunne Wright McPeak

11:59:36

CETF's Board will hold a special meeting in the coming weeks to review today's discussion. Panel recordings will be posted, and all participants and invitees will be notified. We intend to convene a follow-up discussion with the Board of Expert Advisors focused on next steps rather than presentations. As CETF approaches its 20th anniversary, this moment represents an opportunity to pivot toward the future with leadership and intention.

Luis Arteaga

12:02:10

The meeting is adjourned. Thank you to all participants and panelists. Here's to the next twenty years.