Testimony of Dr. Gary D. Butler
Chairman and CEO, Camgian

United States Senate Committee on Commerce, Science, and Transportation

Legislative Hearing on the Endless Frontier Act

April 14, 2021

Good morning. Chair Cantwell, Ranking Member Wicker, and distinguished Members of the Committee, thank you for the opportunity to testify today. In my previous career, I worked here in the Beltway for a Cambridge, Massachusetts-based advanced technology research and development firm, leading applied research programs funded by organizations such as DARPA. In 2006 I made the decision to move to Mississippi, my home state, where I founded Camgian. My objective was to leverage our organic talent to build a leading high-tech company and limit the brain drain from our state, which we have done.

Since that time, Camgian has grown into an award-winning high-tech company, which today is building solutions addressing our country's most pressing national security issues and providing information products and services to some of the world's leading financial institutions. Our business model is built on artificial intelligence (AI) and software and their combined ability to drive new levels of decision automation. This from a high-tech company headquartered in a state with a greater than 20% poverty level and a county classified as "at-risk" by the Appalachian Regional Commission where a portion of the county is classified as economically distressed, and in the bottom 10-25% economically of all counties in the United States.

As today's discussions reflect on the innovation needed to maintain our global leadership, I will use my time to focus on a technology area identified in the Endless Frontier Act that I believe is vital to our country's future. This technology is AI. Make no doubt, the US is in a global AI race. In July 2017, the State Council of China released a plan to build a domestic AI industry worth nearly $150 billion with a target to become the leading AI power by 2030. Global efforts to increase funding and government-led support of AI technology development have resulted in an increase in new high-tech companies and applications that are radically transforming the battlefield. As such, Camgian is deeply engaged in addressing these emerging threats by developing AI-enabled solutions that help our warfighters think and act faster than our competitors.

The primary source of our funding is from the Department of Defense (DoD). This funding supports our applied research and development efforts, which in turn fuels our technology and product development. I want to leverage our know-how, processes, technologies, and talent to address *national competitiveness issues* in AI and expand our business in the broader commercial market. However, funding sources and opportunities to pursue this strategy for small high-tech companies like Camgian are extremely limited.

To address this critical gap, I applaud Congress for taking the bold move to expand the scope of the National Science Foundation (NSF) to include applied research in the organization's mission but would ask that you consider the vital role that high-tech entrepreneurial companies play in technology commercialization. Speaking on behalf of this community, I would advocate for an implementation plan to facilitate a public-private partnership between our country's best academic minds and our best high-tech entrepreneurs.

Applied to our national competitive gaps, this approach would catalyze those on the front lines of our global technology competition, the high-tech entrepreneurial companies. As an agile high-tech business, our advantage is speed. We cannot survive by being distracted, complacent, cautious thinkers, or incrementalists. Innovation and a sense of urgency must be in our DNA or we die at the hands of large corporations. Coupled with our skills in product development and marketing, a strong academic and entrepreneurial high-tech sector partnership would deliver future technologies and applications to the market to address our national competitive gaps.

More importantly, a prominent role for small high-tech businesses would establish the framework for protecting our country's valuable intellectual property. To emphasize the importance of this point, one of the breakthroughs in AI is deep

learning, which was created almost entirely through academic research in the United States, Canada, and the United Kingdom. Capabilities derived from AI research are shared across the globe through the open-source community and deep learning technologies now underpin many products and systems that directly compete against the US both commercially and militarily. Quoting from the book *AI Super-Powers* by Kai-Fu Lee, "The West may have sparked the fire of deep learning, but China will be the biggest beneficiary of the heat the AI fire is generating."[1]

In closing, I would like you to consider three takeaways from my testimony today.

First, I would recommend using the DARPA applied research model, which is proven and would provide small high-tech companies the ability to directly apply to the new NSF for grants to support technology development and prototyping. Expanding investment in the NSF without an effective commercialization process will have a minimal effect on US global competitiveness. According to the National Science Board, academic institutions accounted for only 2% of the patents granted in 2016 and many generate less revenue from licensing their inventions than the

[1] Kai-Fu Lee, Ai Superpowers: China, Silicon Valley, And The New World Order (Houghton Miffin Harcourt Company, 1st Edition, September1, 2018) page 12

cost of managing them, per a 2020 Washington Post article[2]. This is not meant to be a criticism of universities, but to highlight that moving research from the lab to the market is complex and is best suited for America's small high-tech sector who has the technical talent, organizational infrastructure, and business processes to fill this role immediately. Most importantly, America's high-tech entrepreneurs will bring the sense of urgency, competitive drive, and speed necessary to meet the accelerated pace of the emerging challenges to our global technical leadership.

Second, I would call on Congress to develop policy that ensures inclusivity of the entire country, not just the traditional tech-hubs and large tech firms, in a unifying mission that leverages the power of our nation's diversity. This includes the diversity of thought, culture, and socioeconomics that exists across our great country to build the next-generation technologies, products, and workforce of 21st century America.

Finally, history shows that if you give the US entrepreneurs the mission and funding, the US will win this race.

[2] John Markus (January 17, 2020) *Think universities are making lots of money from inventions? Think again.* Washington Post https://www.washingtonpost.com/local/education/think-universities-are-making-lots-of-money-from-inventions-think-again/2020/01/16/3989e448-362f-11ea-bb7b-265f4554af6d_story.html

Chair Cantwell, Ranking Member Wicker, and Members of the Committee, thank you again for the opportunity to testify before you today. On behalf of Camgian and other high-tech small businesses across America, bipartisan solutions with legislation such as this are essential as a catalyst to maintain the US as a global technology and innovation leader.