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# Will America yield its position as the world's leader in science and technology?

OPINION BY *Eric S. Laide*

As President Trump prepares for his first State of the Union address, Washington is consumed by arguments—from petty squabbles to fundamental debates about American values. But what worries me most is an argument we're not having.

It's the argument about whether America will yield its position as the world's leader in science and technology. For the first time since World War II, our primacy is in jeopardy. Choices we make today will determine whether we continue to reap the outsized rewards to our economy, welfare, and military power that come from being at the cutting edge.

Yet no one seems to be arguing about what needs to be done. Among the president's nearly 4,700 tweets, the words "science" and "technology" have never appeared. On "Meet the Press," mentions of science and technology have plummeted since the early 2000s.

In the second half of the 20th century, the federal government was the world's most successful investor in the future—driven by competition, necessity, and opportunity. When the Soviet Union launched Sputnik, the United States responded by launching careers—expanding federal funding for college and graduate students in science and math. When early semiconductors were

too expensive to support a commercial market, the government provided demand to drive down prices. Federal agencies placed visionary bets that gave us the Internet and GPS.

The government set ambitious goals

grabs. While scientific opportunities have never been brighter, we're facing unprecedented competition abroad and challenges at home.

We need clear answers to six big questions.

To begin, do we care if China surpasses America as the leading spender on research and development? In 2000, China and the United States accounted for roughly 5 and 40 percent,

respectively, of global R&D. In 2015, the figures were 21 and 29 percent. At this pace, the lines will cross before 2020. While the average quality of American science remains higher, that gap is closing too.

To be clear, being the global hub of innovation isn't about bragging rights. It's about the prosperity that comes with it.

Two, can the United States afford to lose its edge in artificial intelligence? Five years ago, AI researchers began making stunning progress on vision and speech recognition. Fed by big data, AI is now spilling out into self-driving cars, robotics, financial markets, business logistics, and health systems. China played no role in launching the AI revolution, but is making breathtaking progress catching up. According to some experts, China lags us by less than six months and has recently established a national roadmap to be the unrivalled leader by 2030. (China's playbook closely resembles a plan outlined in 2016 by the US government, but which has received little attention.) AI is not just a matter of economic competition. The Pentagon is coming to realize that AI will be key to the future of warfare, in little

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Three, will America be a leader in energy technology? Spurred by climate-change concerns, federal incentives for consumers, and research funding, the cost of renewable energy has been falling dramatically over the past decade—solar by four-fold, wind by three-fold—and the decline is expected to continue for the foreseeable future. But, alone among