



Rensselaer

Shirley Ann Jackson, Ph.D.
President

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Mr. President, Spark a Legacy of Innovation

Dear Mr. President:

Forty-five years ago, President John F. Kennedy made an extraordinary appeal to Congress that captured the nation's imagination—one that led to Neil Armstrong stepping out of a lunar landing craft eight years later.

President Kennedy's "man on the moon" speech is so memorable for the way it galvanized our nation, launching a space and science race. I personally owe him a great debt. Had it not been for the new spirit of discovery he engendered and for the new streams of science funding to schools all over the country, I and many in my generation of scientists might never have found our current path.

It is time for a similar galvanizing message to the American people because this nation is losing the innovation edge that Kennedy's vision gave us. We are in the thick of what I call the "Quiet Crisis"—a crisis made not by the shock of an attack, but by the quiet convergence of economic and demographic factors. These factors expose our nation's growing shortage of talent in the sciences and technology and the waning commitment to, and funding for, basic research.

The "Quiet Crisis" I have spoken about for several years—as described in Thomas Friedman's best-seller "The World is Flat"—is already becoming "louder" as \$100 per-barrel oil looms. It will be louder yet when China graduates a million engineers this year as U.S. graduation rates decline.

Mr. President, our science and technology position is a looming national crisis because it robs us of our capacity for innovation—so critical for our economic and national security. Investing in our nation's capacity to innovate now will not only strengthen our economy, but may, by addressing global challenges such as energy security, help to allay geopolitical tensions that make for such alarming headlines today.

But even beyond this, the link between innovation and productivity is clear. Economists estimate that productivity gains fueled by innovation generated half of the growth in U.S. GDP over the last 50 years. One-third of all jobs in the U.S. require competency in science or technology—yet only 17 percent of our college graduates are earning degrees in technical fields. That is 10 points behind the worldwide average, and further behind China.

We are past the point of needing to document that there is a problem. I have been involved with a range of organizations that have done just that. The facts and forecasts that have emerged from these efforts moved me to urge a national conversation to generate a solution.

The much-needed national conversation is beginning to take hold. The American Association for the Advancement of Science has had the issue at the top of its agenda. It is also a core platform for the Council on Competitiveness—expressed in its National Innovation Initiative, subtitled “Innovate or Abdicate.” It is of deep concern to business leaders, as the agendas of the National Association of Manufacturers and The Business Roundtable indicate. The National Academies report, “Rising Above The Gathering Storm: Energizing and Employing America for a Brighter Economic Future,” has garnered national attention.

As a result of the rising crescendo, legislative policy initiatives have emerged at the local, state, and federal levels. For example, a bi-partisan group of U.S. Senators just this week announced plans to introduce legislation aimed at helping America maintain its leading edge in science and technology.

I am glad the conversation is becoming louder and broader. Our nation cannot be quiet on this issue any longer.

But we need to do more. To be fully effective, the directive must come from the highest office in the land. It is a crisis that you, Mr. President, have the power to remedy. A galvanizing call to action during your State of the Union address will unite the growing chorus of voices. Outlining a national science and technology agenda to spark new research, ignite education, and entice our youth will provide the leadership we need at this critical moment.

I suggest such an agenda must be built around meeting global energy needs to ensure our energy security. We can no longer just drill our way to energy security; we must innovate our way there. This requires innovative extractive and transportation technologies for fossil fuels, innovative conservation technologies, and innovative alternative fuel technologies.

Just as President Kennedy galvanized the nation in response to the Soviet launch of Sputnik, so too could you galvanize the nation around energy security—indeed, energy security is the “space race” of the 21st century.

We are a confident nation. So far, we have not lost our confidence. We have a legacy of innovation and the sustaining essentials needed for continued success.

It is your turn now, Mr. President. A newfound American strength in science can be your legacy.

Yours sincerely,



The Honorable Shirley Ann Jackson, Ph.D.

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