



The Creativity Imperative: A National Perspective

By **Deborah L. Wince-Smith**, president, Council on Competitiveness

Many of the other essays in this issue look at the importance of creativity from the perspectives of students, faculty members, and educational institutions. And clearly, each of these constituencies has a stake in encouraging creative behavior. My interest, however, lies in the connection between creativity and national prosperity. Creativity and innovation have become essential to generating the jobs that we will need in order to sustain our standard of living over the coming decades. And as the process of innovation itself evolves and demands new skills, our colleges and universities must rise to the task of fostering creativity among students, faculty, and the broader community. Creativity may be about fun and games, but it is also America's single greatest comparative advantage in an increasingly competitive global marketplace.

At one of our recent meetings, John Young, the founder of the Council on Competitiveness and former CEO of Hewlett Packard, explained, "Our standard of living is not a birthright. We have to earn it in the marketplace every day." Today the United States has the highest standard of living in the world. The flip side of this is that we also have very high labor costs compared to other countries. We will never be able to compete directly with countries like China and India on the basis of cost, and, as low-wage nations around the world develop skilled workforces and adopt cutting-edge technology, we can no longer assume that we will win on quality either.

The solution involves one of the basic tenets of corporate strategy—focus on what you do best and do it

better than anyone else. And what we in America do best is to innovate—to generate new ideas, design new products, deliver sophisticated services, and introduce new business strategies. The jobs that are most vulnerable to low-wage competition tend to be the least creative. If it is routine or rule-based, if it can be digitized or reliably codified, then it can be "offshored" to a location with lower labor costs.

Thankfully, despite the concerns raised in many of the essays in this issue, America's colleges and universities are some of the best in the world when it comes to encouraging creativity, innovation, risk taking, and entrepreneurship. But we can do better, and we must do better as the rest of the world builds up capacities that were once our unique advantage.

The Global Innovation Race

The world has changed dramatically over the past two decades. Many nations have embraced market economies and moved toward political democratic norms. Billions of people have joined the global trading system. And this is a good thing. Despite the sometimes dislocating effects of global trade, overall standards of living are rising rapidly around the world. Opportunities that were once undreamt of are now within reach for millions of people.

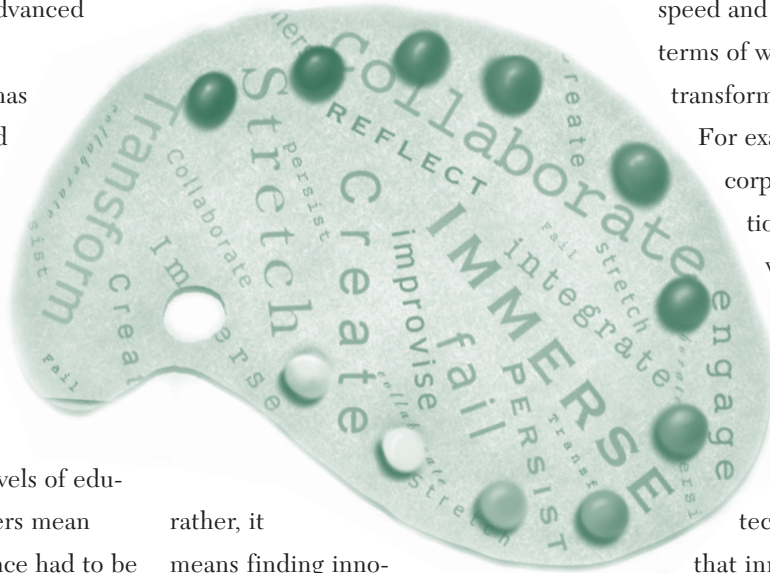
Taking their cue from America's success, countries around the world have also realized that they must focus on innovation by investing in education, research, and infrastructure. In the 1980s, the United States faced almost no competition in the

arena of innovation. Even today, with only 5 percent of the world's population, we employ nearly one third of all science and engineering researchers, account for 40 percent of global research and development spending, and publish 35 percent of all scientific articles in the world. But our lead is narrowing. We have seen the rapid rise of advanced manufacturing in places like Korea, Taiwan, and China. Recently, China even surpassed the United States in exports of advanced technology products. And, as high-technology production has moved overseas, research and development activities have begun to follow.

Now, even the service sector has opened up to global competition. Widespread deployment of high-speed telecommunications combined with rising levels of education and falling trade barriers mean that white-collar work that once had to be physically located in the United States can now be performed overseas—not just technical support and software development but even financial research, legal services, or x-ray analysis.

While some people see offshoring as a “hollowing out” of the U.S. economy, I see a rapid ascent up the value chain. Activities that were once considered highly sophisticated, like manufacturing electronic components or developing custom software, have become routine and commoditized. As India, China, and others move up the value chain, it is

imperative that we continue to find new ways to generate value that cannot be generated elsewhere. We need to add new rungs to the ladder as others move up behind us. In today's economy, that means focusing on the most creative aspects—generating intellectual property, emphasizing design, and taking risks on completely new ways of doing business. This does not mean abandoning traditional industries like manufacturing;



rather, it means finding innovative ways to create value within those industries.

Innovating on Innovation

For this reason, we at the Council on Competitiveness believe that innovation will be the single most important factor in determining America's success through the twenty-first century. Two years ago we launched the National Innovation Initiative to better understand the importance of innovation for U.S. competitiveness and to identify a set of actions that the public and the private sector should

take to increase our innovation capacity. The result is laid out in our National Innovation Initiative's report, *Innovate America: Thriving in a World of Challenge and Change*.

Our research indicates that innovation has changed tremendously from the days of large industrial research laboratories and ivory tower universities. Where, how, and why innovation occurs are in flux—across geography and industries, in speed and scope of impact, and even in terms of who is innovating. We see this transformation in a number of areas.

For example, while in the past large corporations pushed out innovations that they hoped customers would buy, now the customers are getting involved and suggesting (or demanding) new directions for companies to pursue.

As the complexity of technology increases, we also see that innovation is becoming more collaborative. Each new product or service now requires a range of organizations and individuals with different assets and skills to come together. The rise of open-source methods in software development illustrates just one of many new models for collaboration. This rapid rise in complexity requires collaboration not only across organizations but also across established academic disciplines. Cross-disciplinary teams are now essential to tackle the most critical problems confronted by business, academia, and society.



It is important to recognize that while science and technology are critical to the innovation process, innovation is not the sole preserve of scientists and engineers. A truly cross-disciplinary team must span the arts, humanities, and social sciences as well as the sciences. And that is why creativity must be a fundamental goal of liberal education. Not only must scientists and engineers learn to think creatively in a range of areas, but also all liberal arts students need to learn how to think about problems with a

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scientific or technological component. An innovative economy depends on creative people in the arts, literature, design, marketing, management, and a range of other areas. Ultimately, innovation involves looking at the world in new ways, finding new approaches to existing problems, and applying models or theories from one field to another. These are all skills that a creative liberal education should stress.

Educating Innovators

While these trends that I have described—the growing importance of innovation for our national prosperity and the changing nature of innovation itself—have opened up exciting opportunities, they also challenge existing institutional structures. Our educational institutions were created in a world defined by boundaries that are now dissolving—disciplinary boundaries, organizational boundaries, national and regional boundaries, even boundaries between teachers

and students or professors and entrepreneurs. While they have evolved significantly from their origins as seminaries and professional schools, few colleges or universities today see their role as the education of truly creative, entrepreneurial innovators.

And yet, while our colleges and universities perhaps were not designed for the tasks that lay ahead, they are better positioned than any of our other institutions to meet the needs of an innovative society. They are the institutions that we

rely on for nurturing talent, performing frontier research, and generating breakthrough ideas. They serve as the epicenters for regional innovation hotspots, linking together small and large businesses, state and federal initiatives, entrepreneurs, and researchers. Critical to their ability to play this role—both in their local communities and at the national level—will be the degree to which creativity can become a central value in a liberal education.

The United States has many advantages when it comes to creativity, including freedom of thought and speech, a diverse population, an open society, capital markets that quickly move to support new and exciting ideas, and a heritage of risk taking and pushing back frontiers. For these reasons, the changes in the global environment play to our strengths. We are well positioned to maintain and even increase our prosperity over the coming decades, and colleges and universities will play a critical role in this national endeavor as centers for a creative liberal education. ■

For more information about the Innovate America Initiative, visit the Council on Competitiveness Web site, www.compete.org.