

## The case for building intellectual capital

*This column originally appeared in the March 2, 2008, issue of the Sunday Gazette-Mail (Charleston).*

**By Paul L. Hill, Ph.D.**

There's a lot of talk these days about intellectual capital as the currency of the 21st century. But what is intellectual capital and why do we need it?

The simple answer is that intellectual capital is the result of the creation of knowledge and innovation. It manifests itself in patents, commercial licenses and new products.

Today, science, technology, engineering and mathematics skills are driving global advancement of the knowledge economy over the industrial economy of the last century. If the United States is to compete successfully in this new world economy, we must improve the scientific and technological expertise of our workforce. We must build intellectual capital.

While it is critical to compete on a global level, West Virginia has a vital role to play and much to gain from building intellectual capital right here at home. And it is important to remember that intellectual capital is not something we can buy--we must create it.

A recent analysis, "The 2007 State New Economy Index," released by the Ewing Marion Kauffman Foundation and the Information Technology and Innovation Foundation, ranked West Virginia 50th in the country in creation and retention of high value-added, high-wage jobs.

So it is no coincidence that we often find our state at or near the bottom of national rankings in everything from education level to health to average income. We simply do not have enough research and development activity in West Virginia. Studies show that communities that have built intellectual capital with more science, technology and engineering professionals in the population benefit from more job creation and company startups, better wages, higher levels of education, positive health-care statistics, and so on.

With time and investment, West Virginia's status in these national rankings could be dramatically improved by focusing our efforts on knowledge creation and innovation. By building intellectual capital.

We can all recognize the buzzing economies around major research hubs across the country and envy the high-paying jobs created as a result. But in a state like West Virginia, how do we stimulate more intellectual capital to serve as the basis of our new economy? Who is positioned to conduct a volume of research that will stimulate new business opportunities?

Answer: The state's research universities. In fact, this is the overwhelming trend nationwide, but West Virginia must advance research infrastructure and resources at West Virginia University and Marshall University for this to be possible.

West Virginia currently invests approximately \$4.3 million annually in academic research through the state's Research Challenge Fund, and provided an additional \$10 million this year for the Eminent Scholars Recruitment and Enhancement program. The surrounding states invest significantly more - Pennsylvania (\$99.1 million), Kentucky (\$52.5 million), Ohio (\$109.4 million), Maryland (\$60.8 million) and Virginia (\$85.4 million).

That is not to say that the fledgling Research Challenge Fund has not had an impact. Over five years, these state grants have sup-



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ported six major research projects that have, in turn, generated more than a dozen patent applications and patents, several commercial licenses and five startup companies that are already beginning to commercialize intellectual property.

These projects have further leveraged an additional \$18.2 million in the form of corporate and federal grants and \$2.3 million in venture capital. Business projections by two of the startup companies--Protea Biosciences, LLC, and Vandalia Research, Inc.--exceed \$124 million in annual sales and 295 additional employees in five years. In addition, two university research centers with industry partners have been formed and one production facility is being built. These are significant accomplishments of which to be proud, but they are just a start.

Our state's leaders are aware that much more remains to be done if we are to be successful at reinventing our future and creating high-wage knowledge economy jobs here in the Mountain State.

Calling it necessary for West Virginia to stimulate world-class research and development and to reap the related benefits of high-tech, high-wage industries, Gov. Joe Manchin recently proposed a \$50 million trust fund for the state's two research universities--West Virginia University and Marshall University. The first program of its kind in West Virginia, this "Bucks for Brains" trust fund would be patterned after successful endowments in other states that match state dollars with private donations to strengthen universities' most-promising research departments--ultimately leading to business spin-offs, new patents and job creation.

The governor's proposal has met with wide praise and support from across the state. West Virginians are beginning to recognize the value of building intellectual capital. With strong leadership and a long-term commitment, West Virginia can, and will, invest major new resources in research infrastructure as a foundation for economic diversification and expansion. We cannot afford to miss this opportunity.

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