

# Discover

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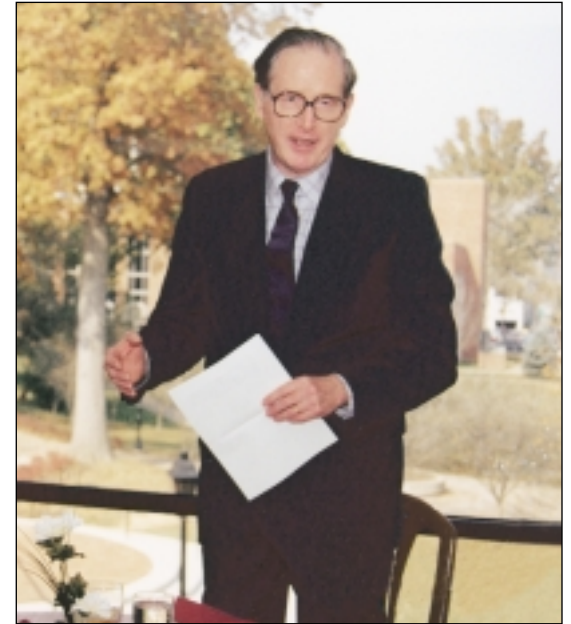
## First Technology Forum Sets Agenda for Spurring the New Economy in West Virginia

What will it take for West Virginia to fight—and win—the battle for economic survival in the 21st century?

U.S. Senator Jay Rockefeller wants to help the State find an answer to that question. With that in mind, he founded the West Virginia Forum on Technology and Innovation to help residents of the Mountain State address the changes that are affecting the economy, and to assist them in figuring out ways that West Virginia can be competitive in the new millennium.

The first forum took place on October 23 at Marshall University, with America Online Chairman Steve Case serving as the featured speaker. Case flew in from AOL's northern Virginia offices for the occasion, but because Huntington's Tri-State Airport was fogged in, he was re-routed to Charleston and required to make the last part of the journey by car. Other participants in the event gamely juggled the agenda in order to accommodate the change in Case's travel plans.

"When you're dealing with geniuses, it doesn't matter in which order you put them," Senator Rockefeller quipped.



A project of the Discover the REAL West Virginia Foundation, the forum series is designed to give West Virginians the opportunity to discuss current issues with State and national leaders in technology, highlighting key areas that are essential to future success.

"The world of communication is changing so rapidly and in so many ways," Senator Rockefeller has said. "Hand-held devices are replacing bulky computers, cellular phones have gone from being

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## Senator Rockefeller Issues Challenge at World Congress on IT

At the World Congress on Information Technology in Taiwan last June, U.S. Senator Jay Rockefeller charged political and business leaders from all over the globe with a four-part mission.

"We must join together to conquer the digital divide, improve consumer confidence in the Internet, invest in education, and invest in science," the Senator told an audience that included Microsoft Chairman Bill Gates and CISCO Chief Executive Officer John Chambers, a West Virginia native.

The New Economy, with its emphasis on the production and application of knowledge, moves at a dizzying pace. Senator Rockefeller said that in the rush to stay ahead, we must never lose sight of the long-term investments necessary for a stable future—or of our responsibility to the public.

Therefore, it is vital for everyone to have equal access to digital technology, and for all people to have the tools to protect themselves in cyberspace. Of equal significance are a well-educated, knowledge-based workforce, and a commitment

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a tool of the wealthy to commonplace, and the Internet is revolutionizing the way we learn, play, shop and do business.

"While this revolution has been going on for some time, we finally seem to have attached a name to it. We call it the 'New Economy'—and for good reason. These changes are not just affecting the way the world communicates, they are fundamentally changing the way our nation does business and the makeup of our economy. Every day, we read about companies and regions that are adapting to new technologies and new ways of doing business, thereby raising their productivity levels, improving products and services, and lowering unemployment."

Dr. Dan Angel, President of Marshall University, kicked off the October 23 forum on behalf of the host institution.



*Steve Case, Chairman, AOL, addresses audience at Marshall University.*

"It's no secret that West Virginia is going to have to rely on technology in the future," he said before turning over the podium to Senator Rockefeller.

West Virginia's rural, mountainous composition, the Senator said, long has posed a challenge to business and industry. With a wry grin, he brought up the old chestnut about how the Mountain State would be the size of Texas if it were flattened.

"The New Economy does that for you without charge," he said. "New technologies can remove the geographic barriers that have held back rural areas for generations, meaning that places like West Virginia no longer have to be separated from the rest of the world.

"The implications of this are tremendous—traditional industries, small businesses, new entrepreneurs and everyday people have so much to gain. The New Economy is about every type of business and every type of person. High-technology companies and traditional industries, big corporations and small businesses, Silicon Valley and small towns—they all can thrive if they have the right tools."

Chief among those tools, Senator Rockefeller noted, is an educated, technologically-savvy workforce. As he pointed out, that is West Virginia's greatest strength.

Senator Rockefeller also touched upon the concept of venture capital. While in the New Economy nine out of 10 businesses fail, he said, the one that does

not fail spawns 20 to 30 new businesses. "In this case, we're going to have to take risks. The New Economy demands risks."

Senator Rockefeller concluded his remarks by announcing topics for future forums. The next one, scheduled to take place at West Virginia University, will focus on drawing the State's core industries into the New Economy through the use of technology. The spotlight will shift to venture capital in the third forum, while the fourth one will address ways to improve workforce development and education from a technological standpoint.

Four panelists at the Marshall Forum then briefly spoke about the importance of these and other issues. Eric Lewis of

Shepherdstown, Chief Financial Officer of Butterfly.net and Vice President of Ultrarise Inc., discussed venture capital. Spencer native Rachel Welsh, Art Director of Familiar Tales, addressed the value of technological education.

Sami Shaaban, a Montgomery native who hopes to move his Austin, Texas-based company NuRelm.com back to his home State, talked about factors that create a positive climate for e-commerce. Richard Riederer, Chief Executive Officer of Weirton Steel, gave a first-hand account of how technology can transform an "Old Economy" company.

Weirton Steel has greatly expanded its customer base by online marketing of its products through MetalSite.com. The company also has made a considerable investment in computer equipment and technological education.

Returning to the podium, Senator Rockefeller stretched out his introduction of Case until he was sure the Internet pioneer had arrived. "My first suggestion," Case said as he made himself comfortable, "is to get a really big fan by the airport, and blow the fog away."

Because he had to turn around and head back to northern Virginia for a meeting, he quickly got to the point.

"I believe that the Internet represents a great example of new possibilities," he said. "If you think back over the past, [some things] have limited the ability of certain regions to prosper because of the geography. Some of those barriers can be lifted."

"Instead of just hanging your shingle on Main Street, you can hang it up on the Internet," Case added. "If you do have something that's new and different, it's a way to build a business."

The globalization of the economy also gives people the chance to work anywhere, Case said. "In this new virtual world, your physical location is much less important."

All things considered, it is an exciting time for companies that are willing to take advantage of what technology has to offer.

"I really do think it creates a level playing field," Case said.

## CISCO Networking Academy Draws on Potential of West Virginia's Workforce

Success in the New Economy depends on various factors: equal access to technology and information for all citizens; consumer confidence in the Internet; and investments in wide-ranging scientific research. But as U.S. Senator Jay Rockefeller has emphasized, a vibrant New Economy hinges first and foremost on people.

"A well-educated, knowledge-based workforce is the most important resource in the New Economy," the Senator said at June's World Congress on Information Technology in Taiwan. "The only way to create this workforce is education."

One of the world's leaders in Information Technology already is reaping the dividends of a large-scale investment in workforce education. Headed by West Virginia native John Chambers, California-based CISCO Systems, Inc. operates the CISCO Networking Academy Program in all 50 states plus 79 foreign countries. It has been running in West Virginia since the spring of 1998.

"The program is a comprehensive, eight-semester, 560-hour curriculum that uses a combination of Web-based, instructor-led learning and hands-on labs to teach students networking and information technology," said Ralph Chapman, program coordinator and instructor for the CISCO Academy Training Center at West Virginia University. "Students learn how to design, build and maintain computer networks.

"The program has been designed to

ensure that today's students master the necessary skills for success in the Internet economy," he added. "Increasingly, all businesses will rely on a highly trained, technology-literate workforce in order to thrive in the coming years. Toward that end, the CISCO Networking Academy Program fosters student development and exposure to information technology through its networking curriculum."

In West Virginia, eight regional academies serve as hubs for the programs, and each hub supports local academies. To date, 1,340 people throughout West Virginia have enrolled in the academies. Approximately 175 students graduated from the program in June.

Upon their graduation, students are equipped to design, build and maintain both Local Area Networks and Wide Area Networks. They have the potential to earn an estimated starting salary of \$35,000 to \$40,000 annually.

And as Chapman noted, finding jobs should be no problem for CISCO Academy graduates. "The ever-expanding field of information technology is placing increasing demands on employers to locate and hire skilled IT workers in West Virginia and across the nation," he said. "Nationally, employers have approximately 460,000-plus IT networking-related



*Students prepare to take their place in the New Economy at CISCO's Academy Training Center in Morgantown.*

positions open. West Virginia is no exception, and many IT positions go unfilled due to the lack of qualified applicants."

The WVU-based center currently has teamed with CISCO Systems and Verizon to set up academies in all 55 West Virginia counties, Chapman said, and to establish a pilot project that will capitalize on distance learning facilities in the CISCO Networking Academy Program. In addition, plans are in the works to add an Information Technology Workforce Development Center at an off-site WVU facility, for people who want IT job skills, retraining and continuing education.

"The expansion of the CISCO Networking Academy Program will provide an avenue to develop a pool of highly trained and certified technology Information Technology workers from which government, business and industry can draw. The development of a skilled IT workforce can and will entice future IT businesses to locate in West Virginia, thereby expanding the economy of West Virginia," he concluded.

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## E-Rate Makes Lifelong Technological Learning Possible

Through the E-rate program, West Virginia students beginning their education now will have access to computers from kindergarten through 12th grade. The hope is that by the time they graduate from high school, these students will be more than ready to join the New Economy.

In 1995, U.S. Senator Jay Rockefeller introduced an amendment that created the E-Rate program. He led a bipartisan

coalition to enact this crucial legislation, which was passed in 1996 as part of the Telecommunications Act.

The E-Rate program realizes Senator Rockefeller's goal to make Internet access, distance learning and other telecommunications-based technologies affordable for schools and public libraries in West Virginia and throughout the United States. The program provides discounts of 20 percent to 90 percent for these

services. During the first three years of the program's existence, West Virginia received more than \$23 million.

"Connecting our classrooms is a small but vital part of laying a strong foundation for the New Economy," Senator Rockefeller said. "A priority for the New Economy will be an educated workforce, with workers ready and eager to fill knowledge-based jobs, including office, managerial, professional and technical

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by business and government alike to wide-ranging research and development.

"It is important to future generations that we understand the New Economy has critical economic and social implications," Senator Rockefeller said. "Long-term investments in the future and protection of the public interest are absolutely necessary for us to realize the opportunity for the sustained, widespread economic growth presented by this New Economy."

The World Congress on Information Technology is a biannual event that brings together the world's movers and shakers in the political and business arenas for dialogue on the future of technology.

In addition to serving as a featured speaker at the event, Senator Rockefeller led several



Senator Rockefeller, MU President, Dan Angel, and WVU Provost, Dr. Gerry Lang, met with Taiwan educators in Taipei.

panels as the Chairman of the US-ROC Business Council. A longtime champion of Asian business, industry and culture, he conducted meetings with several Taiwanese leaders, including President Chen Shui-bian and Premier Tang Fei.

Senator Rockefeller was accompanied on the trip by Dr. Dan Angel, President of Marshall University; and Dr. Gerald Lang, Provost and Vice President for Academic Affairs and Research at West Virginia University.

"I attended a previous World Congress at George Mason University several years ago," Dr. Lang said. "It was a most valuable experience, but this time I had the privilege of traveling with Senator Jay Rockefeller.

"Senator Rockefeller's efforts were focused on helping to improve the West Virginia economy for the 21st century. Taiwan is a model country to study. It has moved into the new high-tech economy using information technology as a basic underpinning to its economic restructuring. Besides attending the Congress, I had the privilege of meeting with education, business and government leaders to discuss issues and to learn how change occurred."

Dr. Angel said he was "deeply impressed" with Bill Gates, John Chambers and Carlys Florina, Chief Executive Officer of Hewlett-Packard.

"We were able to hear major world leaders in technology lay out their vision of the future in terms of how technology would affect the world—and education," he said.

As a result of the World Congress, Dr. Angel said that Marshall is working on a scholarship for a journalism student to study in Taiwan, and is planning to participate in a spring 2001 recruitment fair in that country.

In addition, Dr. Angel said that Marshall and West Virginia universities have joined forces to develop a research agenda in cooperation with Senator

Rockefeller's Office and the Taiwan Cultural Office in Washington, D.C.

"This research agenda will focus around a cooperative venture that will produce an ongoing agenda between West Virginia institutions and the Taiwan Research Institute," he said.

As the trip came to a close, Senator Rockefeller said he thought it marked the beginning of something positive between West Virginia and Taiwan.

"This was not a let-us-do-projects trip," the Senator said. "It was a let-us-build-relationships-and-get-to-know-each-other trip."

positions. Quality education and worker training are critical for a workforce to be able to fill these jobs. And the more people a State can offer who are qualified for these jobs, the better it can support New Economy companies."

Because the Senator believes technology offers real promise and the most meaningful type of choice in education, he fought hard in 1995 to create the E-Rate program.

"Since the E-Rate was established, more than 1 million classrooms nationwide have been connected to the Internet," he said. "In West Virginia, 96 percent of our schools are connected to the Internet." With \$100,000 in E-Rate discounts, for example, Boone County Schools linked every classroom in its 18-school system to the Internet. The education of these students has been greatly enhanced by their teachers' ability to augment lessons with the most updated information.

The E-Rate program also is reaching out to adults who see the advantages of acquiring technological skills or expanding on the knowledge they already possess. The West Virginia Library Commission, which serves people of all ages throughout the Mountain State, used its \$500,000 in E-Rate discounts to complement a \$5 million grant from the Gates Library Foundation.

Many of West Virginia's public libraries are located in older buildings with electrical wiring not suited for the new technology. The E-Rate has enabled these libraries to benefit fully from the Gates Foundation's grant for hardware, software and training.

"Technology can link even our most rural residents to the finest libraries, museums and labs of our nation – and the world," Senator Rockefeller said. "Ultimately, it means that Beckley has the same access as Beverly Hills."

# Making West Virginia Competitive in the New Economy

by Ralph J. Bean Jr.

As the West Virginia Forum on Technology and Innovation made clear, the U.S. economy is changing rapidly. New and different jobs are being created every day by fast-growing companies such as America Online, CISCO, Ultraprise and Butterfly.net. While there are many names for this national economic shift, all the ideas have been encapsulated by the term “New Economy.”

The Progressive Policy Institute, a think tank based in Washington, D.C., defines the New Economy as a “knowledge and idea-based economy where the keys to wealth and job creation are the extent to which ideas, innovations and technology are embedded in all sectors of the economy.” It is not about passing economic fads, but about profound structural transformation.

## Where We Stand

According to the PPI, “In the new economy, States’ economic success will increasingly be determined by how effectively they can spur technological innovation, entrepreneurship, education, specialized skills, and the transition of all organizations—public and private—from bureaucratic hierarchies to learning networks.” The PPI report, titled “The State New Economy Index,” examined States’ economic structures and indexed them according to indicators representing key components of the new economy. The scores on the index were then used to rank the 50 States.

The five primary categories used in the report included: Knowledge Jobs; Globalization; Economic Dynamism and Competition; Transformation to a Digital Economy; and Technological Innovation Capacity. West Virginia’s overall ranking in the New Economy Index was 48th, placing our State ahead of only Arkansas and Mississippi overall and in the middle of the pack with respect to Globalization (i.e., manufacturing exports and foreign direct investment). West Virginia’s 48th-place ranking demonstrates a very

significant challenge for the State to compete in the New Economy.

The challenge is great, because West Virginia is deeply rooted in the old economy. Almost everything—from the State’s economic structure to business taxes to infrastructure—is oriented toward the old economy.

There are some bright spots; namely, the I-79 Corridor in north central West Virginia, which is home to the West Virginia High Technology Consortium Foundation and some major federal installations, such as the FBI, NASA and NIOSH. Approximately 600 information technology businesses are identified on the WVHTCF virtual company link, creating an information technology workforce estimated at 36,000 employees. However, even with these successes, West Virginia is near the bottom of all the States in overall New Economy measures.

## What We Need To Do

### *Build Intellectual Infrastructure*

Because people and their abilities play a prominent role in the New Economy, West Virginia must address its intellectual infrastructure at several levels.

**First**, there is a need to raise the level of education in the workforce by reducing the number of high school dropouts, increasing the proportion of high school graduates who go to college, and improving student test scores.

**Second**, training—including on-the-job, skills upgrading and basic employability—is a priority in the New Economy. All West Virginians should be trained, including those already employed, in order for them to compete.

**Third**, research and development is the lifeblood of the New Economy. Increased funding must be dedicated to R&D, particularly in the area of emerging technologies. The assets already in place, including West Virginia University, Marshall University, the Institute for Software Research in



“Together, we must develop a clear statewide vision and strategy to empower leaders at the local, regional and State levels. Committed leadership—with public/private collaboration and regional cooperation—will ensure West Virginia’s success in the New Economy.”

Ralph J. Bean Jr.

Fairmont and the National Technology Transfer Center at Wheeling Jesuit University, should be built upon to position the State strategically as a leader in R&D in targeted technologies and technology transfer.

### *Bridge the Digital Divide*

The core infrastructure most needed in the New Economy is a high-capacity, high-efficiency telecommunications network. Despite a network of fiber optic lines in areas of West Virginia served by Verizon, West Virginians have one of the lowest rates of Internet access in the country.

As America Online Chairman Steve Case stated at the Marshall University Forum, rural areas such as West Virginia are being left behind because they lack broadband and wireless services. Broadband connectivity is extremely important in the new economy; and as

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Case suggested, West Virginia needs to expand broadband in the same way it expanded its highway system. Strong public/private partnerships will be needed to facilitate that expansion.

### *Create a Climate for Risktaking*

The New Economy is being propelled by small, high-growth companies commonly called “gazelles.” These companies are created and driven by entrepreneurs, who are the essential change agents in the New Economy. U.S. Senator Jay Rockefeller said during the Marshall Forum that nine out of 10 New Economy businesses fail, but the one that succeeds spawns 20 or 30 more companies.

Increasing entrepreneurship must be a primary goal for West Virginia, with a new targeted focus on small business. One promising example is the Entrepreneurs Forum at West Virginia University, a not-for-profit group founded on the premise that future economic vitality must come from the emergence of new businesses through entrepreneurship. There is also a need for capital formation, because

without capital, companies cannot take the risk necessary to succeed. Capital formation must also be a primary goal for West Virginia, and it should be accomplished through a multifaceted approach, including seed capital, venture capital, gap financing and loan guarantees.

### *Restructure Taxes and Incentives*

Heavily dependent on Old Economy industries, the State’s tax system and incentives are not competitive in the New Economy. Comprehensive changes are needed that are friendly to New Economy businesses, with a focus on technology startups, business expansion and R&D.

### **Why We Need Teamwork To Succeed**

The task for West Virginia to become competitive in the new economy is difficult and daunting. However, it is a challenge we **must** meet. As Senator Rockefeller stated at the Forum, “If we

do nothing, the New Economy will pass us by. It will be as if there had never been coal, or the chemical industry, or natural gas in West Virginia.”

We are fortunate to have a leader like Senator Rockefeller with vision and energy to forge the future. Together, we must develop a clear statewide vision and strategy to empower leaders at the local, regional and State levels. Committed leadership—with public/private collaboration and regional cooperation—will ensure West Virginia’s success in the New Economy.

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## **Recent Foundation Events**

### **TIGER AIRCRAFT OPENS**

Senator Rockefeller and Tiger Chief Executive Officer Robert Crowley cut a ribbon on November 13 to mark the opening of the new Tiger Aircraft manufacturing facility in Martinsburg where workers are crafting the Tiger AG-5B. A favorite with both amateur and professional pilots, the single-engine, four-passenger aircraft has been out of production for eight years. Tiger Aircraft executives first visited the State as part of a Foundation-sponsored investment mission in 1997. Tiger hopes to build around 70 planes in 2001, and to expand its Martinsburg workforce to nearly 200 employees over the next five years.

### **CHINESE EXECUTIVES VISIT**

Twenty-five municipal leaders from Tianjin and Shanghai, China, traveled from Morgantown to Charleston in November at the invitation of the Foundation. They currently are in the Mountain State as the first of several delegations this year that will participate in the Center for Chinese Business Executive Education Program at West Virginia University. The purpose of their visit to the capital city was to meet with representatives of local government and business leaders in hopes of fostering relationships between West Virginia and China. Their agenda included a meeting with Charleston Mayor Jay Goldman and a tour of the South Charleston Stamping Plant.

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